



Western Cape
Government



Karoo Readiness Action Plan for the Western Cape Government and relevant Western Cape municipalities in the Central Karoo, for potential large scale, or regional developments.

KAROO READINESS ACTION PLAN

Based on a **Ten-Years of Development** Scenario for the Karoo.

March 2021



Project Task Team:

The task team that was responsible for coordination of the initiative and the drafting of the various versions of the Karoo Readiness Action Plan:

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The Karoo Readiness Action Plan Report was drafted in collaboration various stake-stakeholders that participated at workshops and provided verbal or written inputs (in alphabetic order):

- Breede Gouritz Catchment Management Agency
- CapeNature
- Council of GeoScience
- Department of Cooperative Governance and Traditional Affairs
- Department of Energy (now called the Department of Mineral Resources and Energy)
- Department of Environmental Affairs (now called the Department of Environment Forestry and Fisheries)
- Department of Mineral Resources (now called the Department of Mineral Resources and Energy)
- Department of Rural Development and Land Reform
- Department of Science and Technology (now called the Department of Science and Innovation)
- Department of Trade and Industry (now called the Department of Trade, Industry and Competition)
- Department of Water and Sanitation
- Eastern Cape Department of Economic Development, Environmental Affairs and Tourism
- Heritage Western Cape
- Municipal Infrastructure Support Agency
- Northern Cape Department of Environment and Nature Conservation
- Petroleum Agency South Africa
- South African Environmental Observation Network
- South African National Parks
- South African Local Government Association
- Western Cape Department of Agriculture
- Western Cape Department of Economic Development and Tourism
- Western Cape Department of Environmental Affairs and Development Planning
- Western Cape Department of Health
- Western Cape Department of Human Settlements
- Western Cape Department of Local Government
- Western Cape Department of Transport and Public Works
- Western Cape Economic Development Partnership

Municipalities:

- Beaufort West Municipality
- Central Karoo District Municipality
- Laingsburg Municipality
- Prince Albert Municipality

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- Evan McGlaughlin - Foreign Affairs Officer for the U.S. Department of State's Bureau of Energy Resources (ENR) Office of Energy Programs
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Table of Contents

Executive Summary	ii
1. Purpose and Context	2
2. Policy framework for the readiness initiative	3
3. Development scenarios for the next 10 years	4
4. Approach to drafting the Karoo Readiness Action Plan	6
5. The way forward	10
6. Theme 1: Governance (Western Cape)	12
7. Theme 2: Integrated planning, human settlements, heritage and biodiversity management	30
8. Theme 3: Water and Pollution Management	44
9. Theme 4: Waste Management	64
10. Theme 5: Electricity, roads, transport, and construction material	69
11. Theme 6: Emergency response services	79
12. Theme 7: Noise, light, and air quality management	84
13. Theme 8: Economic opportunities, skills, and social cohesion	100
14. Theme 9: Stakeholder communication and awareness:	107



Definitions, initialisms, and acronyms:

AEL	Atmospheric Emission Licence	DEDAT	Western Cape Department of Economic Development and Tourism
AQMP	Air Quality Management Plan	DEFF	Department of Environment, Forestry and Fisheries (previously the Department of Environmental Affairs)
AQO	Air Quality Officer	DWS	Department of Water and Sanitation
ASSAf	Academy of Science of South Africa	DLG	Western Cape Department of Local Government
BGCMA	Breede Gouritz Catchment Management Agency	DMRE	Department of Mineral Resources and Energy (previously the Department of Minerals Development)
BID	Background Information Document	DoA	Western Cape Department of Agriculture
BW	Beaufort West	DoE	Department of Energy (now the Department of Mineral Resources and Energy)
CCP	Central Processing Plant	DST	Department of Science and Technology
CGS	Council for Geoscience	DTI	Department of Trade and Industry
CKDM	Central Karoo District Municipality	DTPW	Western Cape Department of Transport and Public Works
CPP	Central Processing Plant	DWMF	District Waste Management Forum
DALRRD	Department of Rural Development and Land Reform (now the Department of Agriculture, Land Reform and Rural Development)	DWS	Department of Water and Sanitation
DCF	District Coordinating Forum	EAP	Environmental Assessment Practitioner
DCFTech	District Coordination Forum Technical Forum	EDA	Economic Development Agency
DEA	Department of Environmental Affairs (now the Department of Environment Forestry and Fisheries)	EDP	Economic Development Partnership
DEA&DP	Western Cape Department of Environmental Affairs and Development Planning	EIA	Environmental Impact Assessment
DEAT	Department of Environmental Affairs and Tourism (now the Department of Environment, Forestry and Fisheries)	EMF	Environmental Management Framework

EMPr	Environmental Management Plan (as required by NEMA)	NDP	National Development Plan 2030
GTAC	Government Technical Advisory Centre	NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
HWC	Heritage Western Cape	NEMAQA	National Environmental Management Air Quality Act, 2004 (Act No. 39 of 2004)
IDP	Integrated Development Plan	NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
IRP	Integrated Resource Plan	NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
ito	in terms of	NID	Notice of Intent to Develop (as required by NHRA)
IWMP	Integrated Waste Management Plan	NMU	Nelson Mandela University
JDMA	Joint District and Metro Approach	PAJA	Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000)
LED	Local Economic Development	PASA	Petroleum Agency South Africa
LUPA	Land Use Planning Act, 2014 (Act No. 3 of 2014)	PCF	Premier's Coordinating Forum
MEC	Member of the Executive Council	PPP	Public-Private Partnership
MIG	Municipal Infrastructure Grant	PRASA	Passenger Rail Agency of South Africa
MinMay	Provincial Ministers Mayoral Technical Forum	PRN	Provincial Road Network
MOA	Memorandum of Agreements	PSG	Provincial Strategic Goal
MPRDA	Mineral Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)	PSP	Provincial Strategic Plan 2019-2024
MSA	Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000)	RBIG	Regional Bulk Infrastructure Grant
MTEF	Medium Term Expenditure Framework	REIPPP	Renewable Energy Independent Power Producer Programme
NAQI	National Air Quality Index	RSDF	Regional Spatial Development Framework
NCO	Noise Control Officer		

SAAQIS	South African Air Quality Information System	SKA	Square Kilometre Array
SAEON	South African Environmental Observation Network	SOP	Standard Operating Procedure
SAHRA	South African Heritage Resources Agency	SPLUMA	Spatial Land Use Management Act, 2013 (Act No. 16 of 2013)
SALGA	South African Local Government Association	UCT	University of Cape Town
SANBI	South African National Biodiversity Institute	WC	Western Cape
SANParks	South African National Parks	WCG	Western Cape Government
SANRAL	South African National Road Agency SOC Ltd	Wits	University of the Witwatersrand
SDF	Spatial Development Framework	WMO	Waste Management Officer
SDF-EMF	A combined SDF and EMF that meets the requirements of all applicable legislation	WRC	Water Research Council
SEA	Strategic Environmental Assessment	WWTW	Wastewater Treatment Works
SGD	Shale Gas Development		

Preface to the Karoo Readiness Action Plan

This initiative started in 2017 at a workshop coordinated by the Central Karoo District Municipality where the need was identified to investigate the readiness of government to deal with the potential increase in demand for municipal and government services that will arise from the implementation of large scale developments such as shale gas development, uranium-molybdenum mining and renewable energy developments in the Central Karoo. Since then, the development of the Karoo Readiness Action Plan has unfolded as a great example of an intergovernmental effort where all three spheres of government participated in extrapolating future scenarios of large-scale development roll-out and proactively planning to improve intergovernmental readiness accordingly. This document captures these efforts.

The Karoo Readiness Action Plan is a consolidation of various actions/interventions that are needed to improve our state of readiness. It is a living document that should continuously be improved on through continued engagements between organs of state, communities, civil society, and the private sector. During all engagements in drafting the Karoo Readiness

Action Plan, all stakeholders emphasised that the implementation thereof requires not only a “whole-of-government” approach, but a “whole-of-society” approach. Although being drafted by the Western Cape Government, the interventions proposed in the Karoo Readiness Action Plan is applicable to other provinces and relevant to all spheres of government.

The readiness initiative was fortunate to have also had comprehensive review and input from an international team of subject specialists. During 2018 and 2019 the United States Department of State and the Department of the Interior appointed Deloitte to lead a team of international specialists to provide technical advice to the Western Cape Government in support of the development of an appropriate regulatory and policy framework that will contribute toward the initiative to improve intergovernmental readiness for large scale development in the Karoo. Apart from providing technical advice based on their global experience in dealing with oil and gas developments, they also reviewed the Karoo Readiness Action Plan. It is a great comfort to us that this team of international specialists supported the interventions contained in the

Karoo Readiness Action Plan, especially the proactiveness thereof and the “whole-of-society” approach taken. The peer review by international specialists enhances the credibility and relevance of the of the Karoo Readiness Action Plan as an effective approach to deal with the challenges related to large scale developments.

The COVID-19 pandemic has magnified many of the issues already faced by municipalities across South Africa in terms of service-delivery readiness including, skills shortages, funding scarcity and much more. A serious rethink is required regarding the revenue streams available to municipalities to address increased service delivery demands that will follow the implementation of large-scale developments.

Whilst the drafting of this Karoo Readiness Action Plan is a good start, it is vital that the private sector and general public engage and contribute to the initiative in order to meet muster in terms of a “whole-of-society” approach. However, the Western Cape Government will remain committed to intergovernmental cooperation in the implementation of this plan.

Paul Hardcastle

on behalf of the Project Task Team for the Karoo Readiness Action Plan



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and relevant Western Cape municipalities in the Central Karoo,
for potential large scale, or regional developments.

KAROO READINESS ACTION PLAN EXECUTIVE SUMMARY

Based on a **Ten-Years of Development** Scenario for the Karoo.

March 2021



1. Purpose and Context

- 1.1. The Western Cape Government (WCG), in collaboration with other spheres of government, is in the process of evaluating government's readiness to respond to the foreseen increase in service delivery associated with large-scale, or regional, development proposals such as shale gas development (SGD), uranium-molybdenum mining and renewable energy developments in the Central Karoo (hereafter referred to as "large-scale developments"). There is concern that, in the absence of a well conceptualised framework for governmental readiness, such anticipated increases in demand for services may outstrip the ability of local, provincial and national government to supply such services.
- 1.2. The purpose of this whole-of-government initiative (hereafter referred to as the "Readiness Initiative") is to identify interventions/actions to be implemented within the short to medium term (i.e. the next 5 to 10 years), as well as the roles and responsibilities of municipalities, provincial and national government in readiness for these potential large-scale developments. Although the Readiness Initiative primarily focuses on the Western Cape Province, specifically the actions to be taken by the WCG and municipalities, it is acknowledged that the governance challenges that the above developments pose will require a whole of government approach including additional support from the private sector and the public. Also, it is likely that the actions proposed for the Western Cape Province and its municipalities, will be equally applicable to other provinces and municipalities. The municipalities referred to, are the Central Karoo District Municipality and the Beaufort West, Laingsburg and Prince Albert Local Municipalities.
- 1.3. It should be noted that the focus of this Readiness Initiative is not to draft a scientific baseline monitoring and research programme (to improve our scientific knowledge base), but rather to focus on actions and interventions related to the anticipated increase in service delivery demands, should these developments come to fruition.
- 1.4. To understand the purpose and scope of the Readiness Initiative, it is important to note the following:
 - 1.4.1. The Readiness Initiative is not dependent on, or based on any specific developments. Recent large-scale development proposals such as shale gas development, uranium-molybdenum mining and renewable energy developments will be used to illustrate and identify typical impacts and aspects to be addressed.
 - 1.4.2. With reference the above-mentioned examples of potential large-scale developments, it is emphasised, that the Readiness Initiative does not argue the merits of these developments, but rather focusses on the likely service delivery demands over the next 5 – 10 years if such developments were to proceed.
 - 1.4.3. The decision to only focus on the next 5 to 10 year period is also based on the planning cycle of government and the fact that it is not possible to accurately determine the likely development scenario for the long term (beyond 10 years), or to plan for interventions within this uncertain future.
 - 1.4.4. The initiative to consider government's readiness does not mean that the WCG is supporting these developments or pre-empting the outcome of regulatory processes. Insofar as shale gas development is concerned, the WCG developed a Policy Statement on shale gas development that was adopted by the Western Cape Provincial Cabinet in May 2017. Since then, the status of shale gas development has not changed significantly, and the Policy Statement is still relevant.

1.4.5. The importance of partnerships within each sphere of government, across all spheres of government, provincial boundaries and sectors, as well as between the whole-of-government with the whole-of-society, is a prerequisite for achieving the goal of improved readiness.

2. Approach to drafting the Karoo Readiness Action Plan

- 2.1. The Western Cape Department of Environmental Affairs and Development Planning (WC: DEA&DP), on behalf of the WCG, is coordinating the investigation on the state of readiness of the WCG and relevant municipalities, in response to anticipated increases in the demand for various services associated with shale gas development and other major mining/industrial related developments.
- 2.2. As part of this initiative, the two workshops were held with multiple government stakeholders across all three spheres of government and included various organs of state.
- 2.3. Based on the workshop proceedings, it was agreed that WC: DEA&DP will draft action plans for all the major issues that were discussed during this workshop. DEA&DP appointed coordinators for each issue (theme) to draft action plans that formed the basis of the Karoo Readiness Action Plan:

Theme 1: Cooperative governance – dealing with overall governance or crosscutting concerns (Coordinator: Allan Rhodes – WC: DEA&DP)

Theme 2: Planning, housing, heritage and biodiversity (Coordinator: Allan Rhodes – WC: DEA&DP)

Theme 3: Water and Pollution Management (Coordinator: Wilna Kloppers – WC: DEA&DP)

Theme 4: Waste Management (Coordinator: Eddie Hanekom – WC: DEA&DP)

Theme 5: Roads, transport and construction material (Coordinator: Carl October – WC: DTPW)

Theme 6: Emergency response services (Coordinator: Colin Deiner – WC: DLG)

Theme 7: Noise light and air quality management (Coordinator: Joy Leaner – WC: DEA&DP)

Theme 8: Economic opportunities, skills and social cohesion (Coordinators: Ajay Trikam and Chantell van Niekerk – WC: DEDAT)

Theme 9: Stakeholder communication and awareness: (Coordinator: Rudolf van Jaarsveld – WC: DEA&DP and Barbara Koopman – Central Karoo District Municipality)

2.4. The various action plans contain the following information:

Action Step Description (i.e. What must be done): A description of the action to be taken to achieve a goal. The more strategic the action is the more complicated the other aspects become, such as lead authority, resources, implementation schedule etc.

Roles and Responsibilities (i.e. Who must do it or be involved): The identification of participating stakeholders from all spheres of government, as well as the private sector and citizens.

Implementation Schedule (i.e. when must it be done): Clarification of the priority of the action – e.g. short, medium or long term, or high, medium low priority.

Methodologies, Process or Procedures to be followed – if required or appropriate (i.e. How must it be done)

Resources Required (i.e. what is needed to do it): An explanation of the human and skills resources, funds and technical resources required to implement the action/intervention

Desired outcome and outputs: Outcomes refer to the *impact* to be achieved and Output refers to the *deliverable* to be produced

2.5. Consultation on the Karoo Readiness Action Plan:

Apart from the ongoing interaction of the Theme Coordinators with relevant state-stakeholders throughout the duration of the initiative as reflected above, the draft Karoo Readiness Action Plan was advertised for public comment from 25 February – 7 April 2020. In addition, relevant planning processes, including the IDP processes of the Municipalities as well as more recently the Joint District and Metro Approach- engagements informed the revision of the Karoo Readiness Action Plan.

3. Municipal and District Services Response Readiness in a Post-COVID South Africa

3.1. The COVID-19 pandemic has magnified many of the issues already faced by municipalities across South Africa in terms of service-delivery readiness including vulnerability to corruption, skills shortages, funding scarcity and much more. The pandemic has also provided opportunity to accelerate collaboration, e-learning, e-commerce, digital-inclusion and new levels of joined-up response to challenges. The pandemic has revealed what might be possible in future.

3.2. We live in a VUCA world (volatile uncertain complex and ambiguous). We have now also seen the VUCAII world more closely – a world that is vulnerable, under-resourced, (and which increasingly shaped by) creative-destruction, activism, informality, and innovation. The VUCA-VUKAII reality.

- 3.3.** A serious rethink is required regarding the revenue streams available to municipalities to address increased service delivery demands that will follow the implementation of large-scale developments. The COVID-19 pandemic illustrated how vulnerable many municipalities (especially rural municipalities) are to any economic downturn that results in the reduction of grants and other revenue streams.
- 3.4.** The threat of the virus and possible similar pandemics in future may well affect where and how people live and work, the housing market, commercial real estate practices, even the way the we use and design buildings (living and work spaces) – people are going to spend less social energies at their work environments and more at home and in their local communities. Also, there would be more cars and less mass transit- these all stemming from a need for de-densification and social distancing (the elevated importance of addressing the physical dimension of work); unless carefully thought, affordable and safer transport alternatives emerge. The experience of lockdown emphasised the need for well resourced, local amenities, where town and city residents are able to meet most of their needs within their immediate living environments
- 3.5.** The nexus between development /infrastructure development and environmental goals has never been more imminent. The push for a low carbon future must become the norm rather than individual projects - e.g. shifting to renewable energy generation, the use of market-based instruments to change behaviour towards more sustainable practices such as low carbon vehicles, hybrid, e-vehicles and clean fuels and the use the environmental taxes (such as the use of road consumption charges based on induced damage to infrastructure per vehicle category).
- 3.6.** In response to this global outlook, which is further exacerbated by a need for shorter delivery timelines and a desperate need to foster citizen-trust, we will need to manage change and will need to transform our design- approach and the regulation of our built environment infrastructure. In a world that seeks a better future for all, there is a real possibility of breaking the cycle of intergenerational poverty through building an open opportunity society.
- 3.7.** Sustainable, responsive, fast, pop-up and foldaway service delivery must be possible, scalable and affordable. Eco-systems services and incremental improvement towards sustainability should also inform design. These methods should also identify, recognize and value the cultural heritage and context- specific aspects at various locations. This challenges planning and environmental considerations. Logistics, data, information, research, connectivity, networking, innovation and connectedness become the currency of service delivery. Building a culture and enabling leadership for these objectives are also critical goals.
- 3.8.** The Joint District Approach or JDA has emerged into a District Development Model (DDM). This Model holds great potential to enable the institutional capability, incentives, information, infrastructure and skills for a vibrant and prosperous Karoo for all through responsive service-delivery.

4. The way forward

- 4.1. This Karoo Readiness Action Plan has been drafted in collaboration with various state-stakeholders, the inputs from international specialists, and the comments received from some non-state stakeholders.
- 4.2. The Karoo Readiness Action Plan will be presented to the MEC for Local Government, Environmental Affairs and Development Planning, and thereafter, the Western Cape Cabinet for noting, emphasising that the current version will be used to continue with broader non-state stakeholder engagements as well as further state stakeholders consultations. . The Karoo Readiness Action Plan is a living document that should continuously be improved on through engagements and co-design sessions with organs of state, communities, civil society, and the private sector.
- 4.3. This current version of the Readiness Action Plan will be distributed to all relevant state stakeholders for wider distribution to relevant state and non-state stakeholders to inform their respective strategic and operational planning mandates, as well as the monitoring thereof.
- 4.4. As agreed to by all stakeholders that participated in the drafting of the Karoo Readiness Action Plan, the implementation of the various actions/interventions contained in the Karoo Readiness Action Plan is the responsibility of all spheres of government (a whole-of-government approach), communities and other private sector stakeholders (a whole-of-society approach). This cooperation is even more important in a post-COVID-19 environment where the availability of resources will influence the ability of stakeholders to implement these interventions.

5. Theme 1: Cooperative governance (Western Cape)

Coordinator: Allan Rhodes – WC: DEA&DP

This theme focuses on overall governance concerns associated with governmental readiness to accommodate demands associated with potential large-scale development proposals.

Strategic Issue 1: Overall Governance in the Central Karoo area of the Western Cape:

- Action 1.1:** Establishment of Intergovernmental Fora for the Central Karoo District area.
- Action 1.2:** Establishment of a Shared Service Centre for the Central Karoo.
- Action 1.3:** Data governance and warehousing
- Action 1.4:** Creating a regulatory framework for (charging of) financial provisioning including development contributions and cost recovery associated with the development and maintenance of services and service infrastructure in support of the development in question.
- Action 1.5:** Develop guidelines to provide clarity and consistency in the compilation and evaluation of all types of applications/authorisations by the relevant decision-making authorities, including best practices

- Action 1.6:** Ongoing training and capacity building for all spheres of government, as well as creating awareness and empowering communities to engage with large scale developments.
- Action 1.7:** Monitoring and auditing of environmental impacts during operation and post closure (i.e. legacy impacts)
- Action 1.8:** Improvement in the policy and regulatory framework

6. Theme 2: Integrated planning, human settlements, heritage, and biodiversity management

Coordinator: Allan Rhodes – WC: DEA&DP

Strategic Issue 2: Integrated Planning:

- Action 2.1:** Updating the Central Karoo District SDF or drafting a Regional Spatial Development Framework to ensure the maintenance of an ecologically functional landscape.
- Action 2.2:** Council approval of an Integrated Land Use Management (Zoning) Scheme Bylaw for all municipalities within the Central Karoo (and ideally within the entire Karoo region) including the development of appropriate overlay zones for Biodiversity, Heritage, Scenic and Cultural Landscapes and 'go zones'
- Action 2.3:** Put in place a municipal planning administrative measures and systems and consider the establishment of a District Municipal Planning Tribunal

Strategic Issue 3: Management of heritage resources:

- Action 3.1:** In association with the development of the Central Karoo SDF, identify areas with Heritage Significance (including special sense of place, archaeological, paleontological, architectural, socio-cultural or area of visual sensitivity and tourism value i.e. landscapes of natural or cultural importance-the inventory in terms of section 30(5) of the NHRA) to be avoided in the placement of infrastructure associated with large scale development in SDFs

Strategic Issue 4: Human Settlements:

- Action 4.1:** Update current Human Settlement Plan to better align with new emerging needs and potential future demands and to provide detailed housing related input into the SDF (as well as conducting a socio-economic survey to determine exact current housing need)

Strategic Issue 5: Biodiversity management:

- Action 5.1:** Identification of areas to be protected, based on the improved information (e.g. the SGD SEA data) that is available

7. Theme 3: Water and Pollution Management

Coordinator: Wilna Kloppers – WC: DEA&DP

Strategic Issue 6: Water supply:

- Action 6.1:** Establish a Water Management Strategy for the Karoo region
- Action 6.2:** In association with actions 2.2 and 2.3, identify sensitive areas to be avoided when identifying water resources for large scale developments such as SGD and mining operational use (including the re-use of process water)

Strategic Issue 7: Wastewater and sewage management:

- Action 7.1:** The promotion of best practice in terms of waste water management, including the evaluation of waste water management plans (developed by applicants) for large scale developments, especially for flow back and produced water in potential SGD and uranium mining operations (including the re-use and final disposal of waste water)
- Action 7.2:** Compliance monitoring of on-site management of wastewater for large scale developments, for example, flow back and produced water in SGD and uranium mining operations
- Action 7.3:** Sewage and waste water treatment: Determine available capacity for the treatment of sewage and waste water (i.e. determine the baseline) and determine the need and timeframes for when additional treatment capacity will be required for the predicted additional demand for waste water treatment due to large scale developments.
- Action 7.4:** Upgrade of sewage and wastewater infrastructure
- Action 7.5:** Stormwater management on operational sites / construction sites or mining area
- Action 7.6:** Pollution Management: Chemicals Management at operation site, mining areas, drill sites and working areas.
- Action 7.7:** Development of a monitoring and pollution response protocol (and maintenance thereof) related to potential pollution sources from large scale developments, such as decommissioned wells in SGD
- Action 7.8:** Assessment and development of human resource capacity (skills) related to the management of water resources.
- Action 7.9:** Improvement in the water, wastewater and sewage regulatory environment through the development of guidelines, bylaws and agreements between government and proponents

8. Theme 4: Waste Management

Coordinator: Eddie Hanekom – WC: DEA&DP

Strategic issue 8: Solid Waste Management:

- Action 8.1:** Establishment of District Waste Management Forum (DWMF) to facilitate a regional approach to waste management
- Action 8.2:** Update Integrated Waste Management Plans to include provision for large scale developments
- Action 8.3:** Review and update of bylaws to align with waste legislation
- Action 8.4:** Implementing a regional approach to waste management
- Action 8.5:** Improve levels of compliance, and performance at waste management facilities

9. Theme 5: Roads, transport, and construction material

Coordinator: Carl October – WC: DPWT

Strategic Issue 9: Upgrading and maintenance of proclaimed public roads:

- Action 9.1:** Route Identification- determination of roads and municipal streets to be avoided and the posting of roads for maintenance purposes, the upgrade of public roads, the use and future-/end-use thereof.
- Action 9.2:** Identification and protecting/securing existing and future sources of construction material.
- Action 9.3:** In association with Action 1.4, investigate the methodology (supported by legal mechanisms as identified through Action 1.4) for charging of development (maintenance) levies/contributions or weight-distance charge or similar from proponents for large scale developments for road maintenance and the implementation thereof.
- Action 9.4:** Planning for a Beaufort West and Laingsburg road Bypass
- Action 9.5:** Investigate the possible role of increased rail transport and inclusion thereof in an integrated transport plan

10. Theme 6: Emergency response services

Coordinator: Colin Deiner – WC: DLG

Strategic Issue 10: Addressing the increased demand for traffic services:

- Action 10.1:** Appointment of additional competent staff to deal with traffic control, enforcement, roadworthiness inspections, staffing of weighbridges, etc.
- Action 10.2:** Various agreements between the municipalities, WC: DTPW, SANRAL and proponents of large-scale developments to address the management of traffic impacts

Strategic Issue 11: Emergency response services:

- Action 11.1:** Evaluation of status quo to deal with existing demand, as well as to deal with future increased demand for response to spillages due to increased traffic, storage and transportation of hazardous materials
- Action 11.2:** Evaluation of status quo to deal with existing demand, as well as to deal with increased vehicle rescue capability requirements due to higher vehicle accident rates expected associated with an increase of vehicles, especially heavy vehicles, on the road
- Action 11.3:** Risk and security assessment for existing and future land users within the region.
- Action 11.4:** Mapping of authorisation process including monitoring and compliance. Regulatory reform required for activities, including the rationalisation of the various legislation related to disaster management.

11. Theme 7: Noise light and air quality management

Coordinator: Joy Leaner – WC: DEA&DP

Strategic issue 12: Effective air quality management:

- Action 12.1:** Appoint and designate an AQO at the District and Local Municipality to focus on air quality management.
- Action 12.2:** The appointment of Emissions Control Officers at industries
- Action 12.3:** Train and designate Environmental Management Inspectors (EMI), via the National EMI Programme, at the District and Local Municipalities.

- Action 12.4:** Train and designate Noise Control Officers (NCO) at the Local Municipalities
- Action 12.5:** Train Noise Control Officers
- Action 12.6:** Development of an Air Quality Management Strategy
- Action 12.7:** Implement appropriate administrative systems to process Atmospheric Emissions License applications received by the District Municipality, WC: DEA&DP, DEFF or the shared service centre, depending on the type of AEL application.
- Action 12.8:** Engage with donor agencies to fund specialised training and projects via donor-funded programmes.
- Action 12.9:** Improve the Air Quality Compliance and Enforcement Programme and the implementation there of.
- Action 12.10:** Establish a sharing of best practice and good practice recognition programme in the area of air pollution prevention in mining operations and industries.
- Action 12.11:** Develop and implement By-laws and guidelines to manage air quality (including noise, odour and dust).
- Action 12.12:** Establish and operate vehicle emission (diesel or selected pollutants) testing programmes for testing at roadsides and weighbridges.

12. Theme 8: Economic opportunities, skills, and social cohesion

Coordinators: Ajay Trikam and Chantell van Niekerk – WC DEDAT

Strategic Issue 13: Capacity and Skills Development:

- Action 13.1:** Undertaking a wide Knowledge, Skills and Capacity gap analysis across the district and the municipalities with respect to for readiness for SGD, Uranium mining and other major developments.
- Action 13.2:** Development of a skills development programme in conjunction with local and international providers to ensure upstream, transferable and available skills are targeted and developed
- Action 13.3:** Determine the viability of establishing a shared Skills Development Centre aimed at focussing requirements for readiness for large scale development such as SGD, Uranium mining and other major developments.

Strategic Issue 15: Socially inclusive development:

- Action 14.1:** Establishment a shared service specifically on Local enterprise development and innovation and supply chain development
- Action 14.2:** Development and roll out a guideline (or code of best practice) to assist Municipalities in optimising opportunities for corporate social investment (in local communities) by development companies.
- Action 14.3:** Promotion and Identification of a pipeline of social investment opportunities per Municipality to inform interactions between municipalities and development companies.
- Action 14.4:** Protocols and agreements to deal with increased risks of health and other social challenges associated with large scale developments.

13. Theme 9: Stakeholder communication and awareness

Coordinators: Rudolf van Jaarsveld – WC: DEA&DP and Barbara Koopman – Central Karoo District Municipality

Strategic Issue 15: Stakeholder communication and awareness:

- Action 15.1:** Facilitate a workshop with external stakeholders about the Karoo Readiness Action Plan to explore opportunities for cooperation, information sharing and establishment of a communication strategy.
- Action 15.2:** Complete a comprehensive stakeholder mapping exercise in 3 categories, namely, primary, secondary and key stakeholders influenced by large scale developments
- Action 15.3:** Establish a Reference Group
- Action 15.4:** Identify modalities and outlets for communication:
- Action 15.5:** Implementation of communication strategy for large scale development in the Karoo region.



Western Cape
Government



Karoo Readiness Action Plan for the Western Cape Government
and relevant Western Cape municipalities in the Central Karoo,
for potential large scale, or regional developments.

KAROO READINESS ACTION PLAN

Based on a **Ten-Years of Development** Scenario for the Karoo.

March 2021



1. Purpose and Context

- A.** The Western Cape Government (WCG), in collaboration with other spheres of government, is in the process of evaluating government's readiness to respond to the foreseen increase in service delivery associated with large-scale, or regional, development proposals such as shale gas development (SGD), uranium-molybdenum mining and renewable energy developments in the Central Karoo (hereafter referred to as "large-scale developments"). There is concern that, in the absence of a well conceptualised framework for governmental readiness, such anticipated increases in demand for services may outstrip the ability of local, provincial and national government to supply such services.
- B.** The purpose of this whole-of-government initiative (hereafter referred to as the "Readiness Initiative") is to identify interventions/actions to be implemented within the short to medium term (i.e. the next 5 to 10 years), as well as the roles and responsibilities of municipalities, provincial and national government in readiness for these potential large-scale developments. Although the Readiness Initiative primarily focuses on the Western Cape Province, specifically the actions to be taken by the WCG and municipalities, it is acknowledged that the governance challenges that the above developments pose will require a whole of government approach including additional support from the private sector and the public. Also, it is likely that the actions proposed for the Western Cape Province and its municipalities, will be equally applicable to other provinces and municipalities. The municipalities referred to, are the Central Karoo District Municipality and the Beaufort West, Laingsburg and Prince Albert Local Municipalities.
- C.** It should be noted that the focus of this Readiness Initiative is not to draft a scientific baseline monitoring and research programme (to improve our scientific knowledge base), but rather to focus on actions and interventions related to the anticipated increase in service delivery demands, should these developments come to fruition. The implementation of these interventions/actions is subject to the availability of financial and other resources.
- D.** To understand the purpose and scope of the Readiness Initiative, it is important to note the following:
- The Readiness Initiative is not dependent or based on any specific developments. Recent large-scale development proposals such as shale gas development, uranium-molybdenum mining and renewable energy developments will be used to illustrate and identify typical impacts and aspects to be addressed.
 - With reference the above-mentioned examples of potential large-scale developments, it is emphasised, that the Readiness Initiative does not argue the merits of these developments, but rather focusses on the likely service delivery demands over the next 5 – 10 years, if such developments were to proceed. An understanding of what is likely to happen within the next 10 years in the Central Karoo is primarily based on strategic documents such as the South Africa's Technical Readiness to support the Scale Gas Industry (ASSAf, 2017) and the Shale Gas SEA (DEA, 2017), as well as the status of regulatory applications linked to large-scale developments.
 - The decision to only focus on the next 5- to 10-year period is also based on the planning cycle of government and the fact that it is not possible to accurately determine the likely development scenario for the long term (beyond 10 years), or to plan for interventions within this uncertain future. However, there is a much higher level of certainty regarding the development that is likely to happen within the next 5 – 10 years.
 - The initiative to consider government's readiness does not mean that the WCG is supporting these developments or pre-empting the outcome of regulatory processes. Insofar as shale gas development is concerned, the WCG developed a Policy Statement on shale gas development

that was adopted by the Western Cape Provincial Cabinet in May 2017. Since then, the status of shale gas development has not changed significantly, and the Policy Statement is still relevant.

- The importance of partnerships within each sphere of government, across all spheres of government, provincial boundaries and sectors, as well as between the whole-of-government with the whole-of-society, is a prerequisite for achieving the goal of improved readiness.

2. Policy framework for the readiness initiative

The National Development Plan (NDP) sets out a framework which, if implemented, aims to eliminate poverty and reduce inequality by 2030. Underpinning these aims is the importance of South Africa drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnership throughout society. The Readiness Initiative adopts the same underpinning approach and puts measures in place that would aid success, both for the Readiness Initiative and for the implementation of the NDP in the Central Karoo region.

The Western Cape Government has also drafted the OneCape 2040 vision on the back of the NDP, which hopes to stimulate a transition towards a more inclusive and resilient economic future for the Province. A vital component of achieving this aspiration is improved collaboration and partnerships throughout society. Both visions promote a “whole-of-government” and “whole-of-society” approach, which is shared by the Readiness Initiative. More specifically, the OneCape 2040 and Readiness Initiative both aim to promote:

- Fresh thinking and critical engagement on the future;
- Common agendas for private, public and civil society;
- Alignment of government actions and investment decisions; and
- Adaptation to our rapidly changing local and global context

The above will influence the priority setting of stakeholders and government, including the allocation of resources with a key focus on unlocking the potential for the region in question.

The Western Cape Provincial Spatial Development Framework and the Central Karoo District's Integrated Development Plan and associated Municipal Spatial Development Framework (MSDF) provides the vision, development strategy and policies which must underpin the Readiness Initiative. For example, the Central Karoo MSDF identifies areas requiring protection from certain types of development, but also identifies areas where certain types of spatial development could take place. Equally so, the Central Karoo District's Integrated Development Plan and associated Spatial Development Framework are informed by the Readiness Initiative.

The Readiness Initiative, the OneCape 2040, Western Cape Provincial Strategic Plan 2019-2024 (PSP), all promote a regional approach, as does the National government in their New District Coordination Model of 2019.

More specifically, the Readiness Initiative is informed by the PSP 2019-2024, with considerable emphasis placed on building partnerships in order to improve the lives of people in the Western Cape through expanded opportunities. The PSP sets out five Vision-Inspired Priorities (VIPs), which the readiness initiative cuts across: VIP 1 “Safe and Cohesive Communities”, VIP 2 Growth and Jobs”, VIP 3 “Empowering People”, VIP 4 “Mobility and Spatial Transformation” and VIP 5 “Innovation and Culture”.

The transversal approach promoted in the PSP 2019-2024 has also been adopted by the Readiness Initiative to overcome silo mentality and improve implementation of the initiative, as well as to enhance service delivery to the Central Karoo area. Importantly, the Readiness Initiative also adopts a stepwise approach to addressing demands, which ensures that the quality of service delivery is not undermined by development, and that limit resources are not pre-maturely committed or over-committed.

The above constitutes the policy framework in which the readiness initiative is embedded.

3. Development scenarios for the next 10 years

- A.** It is not possible to make definitive predictions on the development scenarios for the Karoo, especially considering the following factors that may influence the commercial landscape and the roll-out of development:
 - 3.A.1. Global market forces will determine the rate of roll-out of large-scale development like shale gas development, uranium-molybdenum mining, and renewable energy projects. Global market forces have already resulted in the withdrawal of the molybdenum mining and a slowing down of shale gas development.
 - 3.A.2. The lack of a clear regulatory context (especially for shale gas) influences both the commercial interest of companies and may result in a slower rate of investment and roll-out of shale gas/mining operations (including exploration activities). Relevant regulatory processes include, but of not limited to:
 - 3.A.2.1. Applications in terms of the Mineral Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) to allow for prospecting and mining operations
 - 3.A.2.2. Applications for environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA) to allow for the commencement of listed activities identified in terms of NEMA, and
 - 3.A.2.3. Applications for water use licences in terms of the National Water Act, 1998 (Act No. 36 of 1998)
- B.** Shale gas development:
 - 3.B.1. In the identification of possible futures that was undertaken as part of the proceedings of the initial Karoo Readiness Initiative Workshop held in Beaufort West during June 2017, it was highlighted that only exploration (in two phases) is likely to happen over the next 10 years. The first will entail the undertaking of seismic surveys, by means of shot-point, vibroseis and the drilling of stratigraphic wells. Based on the current regulatory applications, up to 24 stratigraphic wells could be drilled, depending on the rate of roll-out. During the second phased, based

on the regulatory applications currently in process, up to 42 appraisal wells may be established, which will include lateral (horizontal) drilling and hydraulic fracturing.

- 3.B.2. It must be emphasised that the commercial landscape referred to above will determine the roll-out of shale gas. Exploration may slow down significantly enough to the point where only a few stratigraphic and appraisal wells are established. However, any significant gas find will undoubtedly accelerate the expanded subsequent rollout of exploration activities.
- 3.B.3. Regarding the identification of triggers for interventions (as reflected in this document), it is recommended that commencement of the application for environmental authorisation (that is a legal requirement in terms of NEMA and the EIA Regulations) will clarify the scale and location of envisaged exploration activities, and as such will become an important informant for the readiness actions to be undertaken. In addition, there should be engagements with relevant applicants, to provide further clarification on their intended roll-out of shale gas operations.
- 3.B.4. Technical Regulations for Petroleum Exploration and Production were finalised and gazetted in June 2015, in terms of the Mineral and Petroleum Resources Development Act, 2002. These regulations have since been taken on legal review and set aside in an Appeal Court Decision in July 2019. Currently the technical regulations are being redrafted by the Department of Environment, Forestry and Fisheries (DEFF) and is anticipated to be gazetted for public comment in 2021.

C. Uranium-molybdenum mining:

- 3.C.1. Based on the status of the regulatory (mining right) applications in terms of the MPRDA submitted by Tasman Pacific Minerals Limited and Lukisa JV Company (Pty) Ltd (Tasman), their mining operation is likely to commence within the next 10-year period and will initially be located within the Beaufort West Local Municipality within a 50 km radius of the proposed central processing plant (CPP), the location of which is not known at present, but anticipated to be near to Beaufort West.
- 3.C.2. Again, it is emphasised that a change of market conditions may slow down the rate of development. For identifying triggers for readiness actions, it is recommended that engagements should be held with Tasman to provide further clarification on their intended roll-out of mining operations.
- 3.C.3. Tasman have submitted multiple applications in terms of the MPRDA and NEMA for the commencement of prospecting and/or mining operations. Whilst some of the above-mentioned regulatory applications have been withdrawn, a number of the applications have not been withdrawn and are still pending.

D. Renewable energy developments:

- 3.D.1. Several renewable energy applications have received environmental authorisation in terms of NEMA or are in the process of being considered for environmental authorisation. However, it must be noted that not all renewable energy developments that have been authorised will be developed. It is only once such a development proposal has received a preferred bidder status in terms of the Department of Mineral Development and Energy's Independent Power Producer (IPP) process, and the applicant has signed an agreement with Eskom for the evaluation of the power, that such a development can commence.

- 3.D.2. The rate of renewable energy developments will be determined by the number of preferred bidders coming through the bidding windows and the signing of power purchase agreements with applicants.

4. Approach to drafting the Karoo Readiness Action Plan

- A.** The WCG requested the Department of Environmental Affairs and Development Planning (WC: DEA&DP) to coordinate the Readiness Initiative.
- B.** As part of this Readiness Initiative, WC: DEA&DP engaged with the Central Karoo District Municipality and the relevant local municipalities in February 2017. This engagement served to increase the level of awareness and sharing of information relevant to potential shale gas and other large-scale developments. The outcome of this engagement was a commitment to hold a workshop on the readiness of the WCG and municipalities to deal with the anticipated increased demands for services and service delivery, related to potential large-scale developments in the Central Karoo area.
- C.** First Intergovernmental Stakeholder Workshop:
- 4.C.1. On 6 June 2017 the above-mentioned workshop was held in Beaufort West (BW). The workshop was attended by multiple stakeholders across all three spheres of government and included various organs of state. The Department of Cooperative Governance and Traditional Affairs, the Department of Science and Technology, the Department of Mineral Resources and Energy (DMRE), Department of Environmental Affairs Forestry and Fisheries (DEFF) and Department of Water and Sanitation (DWS) was invited but only DEFF and DWS representatives attended. From the neighbouring provinces, both the Northern Cape Department of Environment and Nature Conservation and the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism were invited, and the former attended the BW workshop.
- 4.C.2. The purpose of the BW workshop was to discuss and evaluate the readiness of government to respond to an increase in demand for services if the various existing regional development proposals come to fruition. The workshop discussions on readiness only focused on the likely development scenarios for the next 5 to 10 years. It was emphasised that the hosting of the workshop was not be regarded as support for these developments, prior to the finalisation of any regulatory decision-making process.
- 4.C.3. Consistent with the broader Readiness Initiative, the specific purpose of the BW workshop was to identify:
- Key priority areas that require action/intervention;
 - The most appropriate method for intervening in these key priority areas;
 - A common understanding of who the stakeholders that must work together (between and within spheres of government); and
 - Resource requirements associated with such priority areas.
- 4.C.4. At the BW workshop it was agreed that WC: DEA&DP would also use the workshop proceedings to draft a consolidated Karoo Readiness Action Plan for all the major issues that were discussed during this workshop. WC: DEA&DP appointed departmental coordinators for each

issue (theme). These coordinators, in consultation with various stakeholders, then drafted various action plans under different themes that formed the basis of this document, the consolidated Karoo Readiness Action Plan:

Theme 1: Cooperative governance (Coordinator: Allan Rhodes – WC: DEA&DP)

Theme 2: Planning, housing, heritage and biodiversity (Coordinator: Allan Rhodes – WC: DEA&DP)

Theme 3: Water and Pollution Management (Coordinator: Wilna Kloppers – DEA&DP)

Theme 4: Waste Management (Coordinator: Eddie Hanekom – WC: DEA&DP)

Theme 5: Electricity, roads, transport and construction material (Coordinator: Carl October – WC: DTPW)

Theme 6: Emergency response services (Coordinator: Colin Deiner – WC Dept. of Local Government – WC: DLG)

Theme 7: Noise light and air quality management (Coordinator: Dr Joy Leaner – WC: DEA&DP)

Theme 8: Economic opportunities, skills and social cohesion (Coordinator: Chantell van Niekerk – WC: DEDAT):

Theme 9: Stakeholder communication and awareness: (Coordinator: Rudolf van Jaarsveld – WC: DEA&DP and Barbara Brown – Central Karoo District Municipality - CKDM)

4.C.5. The consolidated Karoo Readiness Action Plan contains more than 60 individual actions - each containing the following information:

- **Action Step Description (i.e. What must be done):** A description of the action to be taken to achieve a goal, with adequate detail to inform aspects such as identifying the lead authority, resources required, implementation schedule etc.
- **Roles and Responsibilities (i.e. Who must do it or be involved):** The identification of participating stakeholders from all spheres of government, state-owned entities, Non-governmental Organisations, Community-Based Organisations, as well as the private sector and citizens.
- **Implementation Schedule (i.e. when must it be done):** Clarifying the priority of the action – i.e. short, medium or long term, or high, medium low priority, the timeframe and possible triggers for implementation.
- **Methodologies, Process or Procedures to be followed – if required or appropriate (i.e. How must it be done)**
- **Resources Required (i.e. what is needed to do it):** A description of the human and skills resources, funding and technical equipment required to implement the action/intervention.
- **Desired outcome and outputs:** Outcomes refer to the *impact* to be achieved and Output refers to the *deliverable* to be produced.

4.C.6. Whilst the workshop focused on the Western Cape Province, the information generated will assist all government stakeholders to improve their state of readiness. The importance of partnerships across all spheres of government, provincial boundaries and sectors as a prerequisite for achieving the goal of improved readiness was also emphasised.

D. Second Intergovernmental Stakeholder Workshop:

4.D.1. On 30 and 31 January 2018, a second Intergovernmental Stakeholder Workshop was held in George to workshop the consolidated draft Karoo Readiness Action Plan (i.e. all the individual action contained under the various themes). The workshop took place over two days and was attended by 75 delegates representing national government (n=11), the Western Cape Government (n=31), the Eastern Cape Government (n=3), Local government (n=15), and various parastatals (n=15). Of those attending, 25 were present at both workshops.

4.D.2. Discussions were held on the draft action plan, which had been circulated prior to the workshop. The workshop took the form of an introductory plenary, followed by five breakaway discussions which covered all nine thematic areas outlined above. Breakaway discussions were held on both day 1 and 2 of the workshop, with a plenary conclusion that summarised each breakaway discussion's findings, and the identification of cross-cutting considerations. The proceedings from the workshop was used to draft a consolidated Karoo Readiness Action Plan.

E. Technical assistance provided by the United States Government as part of the Intergovernmental Readiness Initiative for Large Scale Development in the Karoo:

In 2018, the US Department of State and the US Department of the Interior reiterated an earlier expression of interest in providing technical assistance to the Western Cape Government towards improved readiness for large-scale development in the Central Karoo. The technical assistance was governed by a scope of works that was drafted between the parties involved, with Deloitte appointed to build an expert panel (the Deloitte team) in this regard. The project entailed four engagements of which two were technical training sessions, as well as five advisory briefing papers, and two reports. These engagements, and the arising material, was opened to all who had participated in the previously mentioned workshops, and a draft version of this report formed the foundation of the assistance.

Whilst the expertise of the Deloitte Team primarily related to shale gas development, their experiences was relevant to this initiative. A more detailed overview of the engagements, including all of the materials, can be viewed [here](#).¹

F. Public consultation on the Karoo Readiness Action Plan

Apart from the ongoing interaction of the Theme Coordinators with relevant state-stakeholders (all spheres of government) throughout the duration of the initiative as reflected above, the draft Karoo Readiness Action Plan was advertised for public comment from 25 February – 7 April 2020. In

¹ If you are unable to access the link, please contact us at: enquiries.eadp@westerncape.gov.za

addition, relevant planning processes, including the IDP processes of the Municipalities as well as more recently the JDMA engagements informed the revision of the Karoo Readiness Action Plan.

Based on the above inputs received, the Karoo Readiness Action Plan was amended.

G. Information contained in the Karoo Readiness Action Plan, is inter alia, based on the following information sources:

- Western Cape Government (2012) *Interim Report on the Potential Opportunities and Risks Related to Shale Gas Extraction in the Western Cape*. The Report was presented and adopted by the Western Cape Cabinet in September 2012.
- Department of Mineral Resources (2012) Report on the Investigation of Hydraulic Fracturing in the Karoo Basin of South Africa. The report was published in October 2012.
- Department of Environmental Affairs (2017). The Strategic Environmental Assessment (SEA) on Scale Gas Development in the Karoo, commissioned by the national Department of Environmental Affairs (concluded in August 2017)
- Academy of Science of South Africa (ASSAf) (2017). Report on South Africa's Technical Readiness to Support the Shale Gas Industry, commissioned by the national Department of Science and Technology.
- Department of Mineral Resources (2015) Technical Regulations for Petroleum Exploration and Production, published in June 2015, in terms of the Minerals Petroleum Resources Development Act, 2002.
- Department of Environmental Affairs (2017). Minimum Requirements for EIAs for both the Shale Gas Exploration Phase and Shale Gas Production Phase Minimum Requirements for EIAs for both the Shale Gas Exploration Phase and Shale Gas Production Phase. These Minimum Requirements are based on the outcome of the Shale Gas SEA but are still to be finalised.
- DEA&DP (2017). Background Information Document (BID) for Beaufort West Workshop: Scenarios Document and Issues Document;
- DEA&DP (2017). BID for Beaufort West Workshop: Issues Document;
- The proceedings from the two intergovernmental stakeholder workshops held in Beaufort West and George; and
- The Technical Advisor Briefing Papers that was produced by the Deloitte Team following the technical assistance provided by the United States Government.

5. Municipal and District Services Response Readiness in a Post-COVID South Africa

The COVID-19 pandemic has magnified many of the issues already faced by municipalities across South Africa in terms of service-delivery readiness, including vulnerability to corruption, skills shortages, funding scarcity and much more. The pandemic has also provided opportunity to accelerate collaboration, e-learning, e-commerce, digital-inclusion and new levels of joined-up response to challenges. The pandemic has revealed what might be possible in future.

We live in a VUCA world (volatile uncertain complex and ambiguous). We have now also seen the VUCAII world more closely – a world that is vulnerable, under-resourced, (and which increasingly shaped by) creative-destruction, activism, informality, and innovation. The VUCA-VUCAII reality.

A serious rethink is required regarding the revenue streams available to municipalities to address increased service delivery demands that will follow the implementation of large-scale developments. The COVID-19 pandemic illustrated how vulnerable many municipalities (especially rural municipalities) are to any economic downturn that results in the reduction of grants and other revenue streams.

The threat of the virus and possible similar pandemics in future may well affect where and how people live and work, the housing market, commercial real estate practices, even the way the we use and design buildings (living and work spaces) – people are going to spend less social energies at their work environments and more at home and in their local communities. Also, there would be more cars and less mass transit- these all stemming from a need for de-densification and social distancing (the elevated importance of addressing the physical dimension of work); unless carefully thought, affordable and safer transport alternatives emerge.

The experience of lockdown emphasised the need for well resourced, local amenities, where town and city residents are able to meet most of their needs within their immediate living environments – walking distance or a short bicycle ride from home.

Remote work and virtual meetings are likely to continue, whilst not the same as in the height of the pandemic - there will definitely be a much bigger population working remotely / from home. Advances in videoconferencing and other remote technologies have allowed many people to continue to remain productive, whilst working from home. Increasingly, institutions are realising that there are benefits such as saving money on office space. Electronic engagements through virtual platforms are effective work formats that they can now incorporate as part of their workforce planning

Companies, organisations, governments and individuals will more than likely reconsider their traveling practices cut back. Whilst tourism and leisure travel are likely to rebound after the pandemic, business travel, especially air travel are unlikely to recover. This will have significant knock-on effects on employment in airports, hospitality, and food and other associated service.

It is anticipated that there will be a decline in the so-called “brick and mortar retail” (or mall-based retailing), traditional banking and other businesses where people have increasingly turned to conducting their business online - telemedicine, online banking, online shopping, and streaming entertainment have also taken off.

It is anticipated that the pandemic will result in significant job losses in the unskilled and low-wages job market and the need for these workers to transition to and find alternative employment. This trend and scale of workforce transitions is not yet clear but emphasises the need for businesses and government to support additional reskilling/skills training and education programs for workers.

An emerging trend of a post-pandemic world is the significant increase in e-commerce and other virtual transactions. This shift to digital transactions is in turn, creating a higher demand and growth in delivery, transportation, and warehouse jobs.

An opportunity for positive change is for agriculture and food systems to become more local, sustainable, and equitable. This may support the local agricultural economy and assist in building community resilience.

The ringfencing of environmental taxes and levies should be considered to address environmental challenges and its associated impacts. Due to fiscal decline, the use of innovative tools based on user-pays or consumption costs should be explored as it is expected to augment the fall of fuel levies, licence fees and road accident funds.

The nexus between development /infrastructure development and environmental goals has never been more imminent. The push for a low carbon future must become the norm rather than individual projects - e.g. shifting to renewable energy generation, the use of market-based instruments to change behaviour towards more sustainable practices such as low carbon vehicles, hybrid, e-vehicles and clean fuels and the use the environmental taxes (such as the use of road consumption charges based on induced damage to infrastructure per vehicle category)

In response to this global outlook, which is further exacerbated by a need for shorter delivery timelines and a desperate need to foster citizen-trust, we will need to manage change and will need to transform our design- approach and the regulation of our built environment infrastructure. . In a world that seeks a better future for all, there is a real possibility of breaking the cycle of intergenerational poverty through building an open opportunity society.

We need to be designing the built environment for service delivery with these goals in mind while embedding the concepts of re-use and re-purposing. We need also to be able to 'design for re-design' in order to be able to re-purpose for resilience. Ultimately the objective must be a multi-layered prosperity that includes environmental, social and economic aspects that are attainable by all. Some questions that require consideration:

- How do we embrace the concepts of circular economy, inclusive innovation, nested economy and doughnut economics in envisioning service delivery in a new way?
- How do we make new forms of development safe, scalable and acceptable?
- How can we become firm-but-flexible, agile and enabling (rather than compliance- driven and inflexible)?
- How do we harness the existing "organic energy" of communities to enable joined-up development?
- Who else is in this space? How do we link with them? How do we work together?
- What is needed to realize the sustainable human and environmental potential of the Karoo?
- How might some (or all) of this be realized (or not) through projected possible development scenarios?

Sustainable, responsive, fast, pop-up and foldaway service delivery must be possible, scalable and affordable. Eco-systems services and incremental improvement towards sustainability should also inform design. These methods should also identify, recognize and value the cultural heritage and context-

specific aspects at various locations. This challenges planning and environmental considerations. Logistics, data, information, research, connectivity, networking, innovation and connectedness become the currency of service delivery. Building a culture and enabling leadership for these objectives are also critical goals.

The Joint District Approach or JDA has emerged into a District Development Model (DDM). This Model holds great potential to enable the institutional capability, incentives, information, infrastructure and skills for a vibrant and prosperous Karoo for all through responsive service-delivery.

6. The way forward

- A. This Karoo Readiness Action Plan has been drafted in collaboration with various state-stakeholders, inputs from international specialists, and the comments received from some non-state stakeholders.
- B. The Karoo Readiness Action Plan will be presented to the MEC for Local Government, Environmental Affairs and Development Planning, and thereafter, the Western Cape Cabinet for noting, emphasising that the current version will be used to continue with broader non-state stakeholder engagements as well as further state stakeholders consultations. . The Karoo Readiness Action Plan is a living document that should continuously be improved on through engagements and co-design sessions with organs of state, communities, civil society, and the private sector.
- C. This current version of the Readiness Action Plan will be distributed to all relevant state stakeholders for wider distribution to relevant state and non-state stakeholders to inform their respective strategic and operational planning mandates, as well as the monitoring thereof.
- D. As agreed to by all stakeholders that participated in the drafting of the Karoo Readiness Action Plan, the implementation of the various actions/interventions contained in the Karoo Readiness Action Plan is the responsibility of all spheres of government (a whole-of-government approach), communities and other private sector stakeholders (a whole-of-society approach). This cooperation is even more important in a post-Covid-19 environment where the availability of resources will influence the ability of stakeholders to implement these interventions.

7. Theme 1: Governance (Western Cape)

This theme focuses on overall governance concerns associated with governmental and non-state stakeholder readiness to accommodate demands associated with potential large-scale development proposals.

The institutional capacity of the rural municipalities is limited and, in most instances, cannot cover all the functional areas where human resources are required for municipal functions. Readiness for large scale development will require multi-stakeholder collaboration and the cooperation of a wide range of organs of state across all three spheres of government, especially considering the austerity measures that all spheres of government have to implement following the economic challenges resulting from the COVID-19 pandemic. This will require careful consideration on the governance (institutional) framework that is established to facilitate such coordination and cooperation. We must learn from best practice examples and be willing to overcome the current trends of fragmented governance approaches.

The need for cooperation and coordination also spans various governance aspects such as integrated (spatial and non-spatial) planning, optimisation of resources use (such as shared services), alignment of policies and legislation (at national, provincial and municipal spheres), coherence in data and knowledge governance, as well as establishing (state and non-state) institutional structures to support improved coordination.

The potential for a rapid increase in demand for both new as well as more regularly maintained infrastructure such as transport infrastructure (e.g. roads), waste, water and sewerage treatment facilities (and upgrading or expansion thereof), as well as access to housing and public amenities, emphasises the importance of developing mechanisms to evaluate and select the most efficient models for governments to afford – i.e. capital and operational expenditure. This challenge is expected to deepen further, following the economic downturn due to the COVID-19 pandemic.

While infrastructure costs related to large scale developments are likely to be incurred at a municipal and provincial government level, the current legislative framework prescribes that most revenues arising from mining and shale gas exploration and production, such as royalties and company taxes, accrue to the national government.

There are a number of statutes that govern how municipalities fund large-scale infrastructure projects. The Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (2013) and the Western Cape Land Use Planning Act, 2014 (Act 3 of 2014) empowers municipalities to attach conditions to approvals on regulatory applications, including provisions for infrastructure or a proportional contribution (e.g. a development charge or in-kind commitments) to municipal expenditure to compensate for specific infrastructure that is required in support of a land development. However, a further review of existing legislation is required to identify gaps in the current legislative framework, including the lack of a formally approved National Development Charges Policy Framework, and the absence of a prescribed methodology for calculating development charges, and then to identify an appropriate policy and support measures response.

Insofar as funding mechanisms and strategies are concerned, there are four primary sources of funding available to provincial and municipal governments for infrastructure projects. These are:

- 1) revenue generated by municipalities themselves (through property rates, and service charges);
- 2) conditional and non-conditional grants (usually intended to support or subsidise the provision of basic services to poor households);
- 3) loans (which requires credit-worthy municipalities with a history of clean audit report, as well as project-readiness assessments including any pre-feasibility, feasibility and technical reports); and
- 4) development charges (in which developers contribute to the funding of infrastructure that is required in order for their development to take place).

Although legislative mechanisms are provided for, there are stringent legislative constraints placed on the ability of provincial and municipal authorities to pursue revenue increases or impose levies in an ad-hoc manner, limiting the potential funding options available. In most instances, development charges or infrastructure project co-funding will be the most viable option to be pursued by Municipalities.

A. Strategic Issue 1: Overall Governance in the Central Karoo area of the Western Cape:

- Action 1.1: Establishment of Intergovernmental forums for the Central Karoo District area.
- Action 1.2: Support of a Shared Service Centre for the Central Karoo.
 - Sub-Action 1.2.1: Support of a Registered Professional Town and Regional Planner(s) in the District Shared Service Centre
 - Sub-Action 1.2.2: Appointment of a Heritage Professional in SARHA or HWC for secondment to / placement in the Central Karoo District Municipality
 - Sub-Action 1.2.3: Appointment of an Environmental Officer to manage environmental matters, including biodiversity resources.
- Action 1.3: Knowledge management and research
 - Action 1.3.1: Data governance and warehousing
 - Action 1.3.2: Research priorities
- Action 1.4: Creating a regulatory framework for (charging of) financial provisioning including development contributions and cost recovery associated with the development and maintenance of services and service infrastructure in support of the development in question.
- Action 1.5: Develop guidelines to provide clarity and consistency in the compilation and evaluation of all types of applications/authorisations by the relevant decision-making authorities, including best practices
- Action 1.6: Ongoing training and capacity building for all spheres of government, as well as creating awareness and empowering communities to engage with large scale developments
- Action 1.7: Monitoring and auditing of environmental impacts during operation and post closure (i.e. legacy impacts)
- Action 1.8: Improvement in the policy and regulatory framework

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 1.1: Establishment of Intergovernmental forums for the Central Karoo District area.</p> <p>Establishment of Intergovernmental forums is proposed to facilitate strategic engagement and to create a process for decision making on programme and project prioritisation across sectors and spheres of government both for the short and long term, with a strong focus on improving our collective readiness to meet the increased demands for services and service delivery should large scale developments come to fruition.</p>	<p>Lead authority: Central Karoo DM.</p> <p>Three levels of coordination as well as a public engagement platform:</p> <ul style="list-style-type: none"> • A political structure made up of the MECs and Mayors called the Central Karoo Regional Development Joint Mandating Committee, • An executive structure made up of the relevant DG's, the Heads of WC Departments, and the Municipal Managers called the Central Karoo Regional Development Executive Committee. • A technical structure made up of Senior and Middle Management representation to be determined from all 3 spheres of government and stakeholder organisations – inclusion of SANPARKS, HWC, SAHRA, SANBI 	<ul style="list-style-type: none"> • Highest level of priority – needed before other actions can proceed, and these forums will 'endorse' and oversee the action plans per theme. • Establish a Central Karoo Regional Development Joint Mandating Committee on a date to be decided by MinMay in collaboration with the DCF. 	<ul style="list-style-type: none"> • Quarterly meetings with oversight to action plans, including feedback to relevant MinMay / DCF/ PCF forums/ JDMA structures, as and when required. • Will report back to the broader Inter-Provincial Karoo Initiative as part of the Small-Town Regeneration Programme (coordinated by SALGA) 	<p>The participation of the relevant officials as and when required.</p>	<p>Outcome</p> <p>Improved coordination at political, executive and technical level for improved collective readiness for large scale development initiatives in the Central Karoo.</p> <p>Output</p> <p>Establishment of Intergovernmental Forums or ensure Karoo Readiness Action Plan as a standing item on existing forums</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
	<p>called the Central Karoo Regional Development Technical Coordinating Committee.</p> <ul style="list-style-type: none"> A public engagement platform called the Central Karoo Regional Development Stakeholder Engagement meeting. 				
<p>Action 1.2: Support of a Shared Service Team for the Central Karoo.</p> <p>The establishment of a shared service team for the Central Karoo region would be an effort to address the need for specialist skills (human resources), whilst acknowledging that there is a lack of available financial resources, especially at municipal level, while also building an 'economy of scale'. This will require that agreements are reached between the various municipalities to co-fund such specialist posts, including investigating the possibility of co-funding</p>	<p>Lead: Western Cape Department of Local Government (WC: DLG) and WC: DEA&DP:</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality Provincial Treasury HWC SAHRA DEFF 	<ul style="list-style-type: none"> Shares services related to certain regulatory requirements is a high priority (ongoing priority) The growth of the services provided by the shared services team is medium to long term (3 to 5 years from establishment). The functional areas where skills are required, will be identified and addressed in an ongoing manner. 	<p>Explore a business case and rationale for the Shared Service Team in a phased approach.</p> <p>Phase 1: Conclusion on the agreement and management of Shared Services Team for municipal services.</p> <p>Phase 2: Explore the expansion of the shared services team to include the services of other organs of state, as well as knowledge management, to provide stakeholders with a "one stop shop" for large-scale development concerns.</p> <p>Secure relevant office space</p>	<p>Financial implications to be determined (i.e. COE, office accommodation and other operating costs.)</p>	<p>Outcome:</p> <p>Shared service provided</p> <p>Output:</p> <p>Shared Service Centre established</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>from provincial and national government.</p> <p>Initially, such a shared service team would service municipal functions, however it could also provide localised provincial and national functions with the funding / secondment from the relevant sphere of government.</p> <p>The following functional areas are applicable:</p> <ul style="list-style-type: none"> • Shared Service Team Manager • Environmental management • Spatial planning and regulatory planning • Waste Management • Air Quality • Climate Change • Heritage • Ground water specialist / Geohydrologists 	<ul style="list-style-type: none"> • DWS • DMRE • DALRRD 		<p>Agree on job description & job requirements</p> <p>Recruitment of staff (if required).</p> <p>Explore partnerships with and co-funding from the private sector.</p>		

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<ul style="list-style-type: none"> • Disaster + Fire Management • Financial assistance <ul style="list-style-type: none"> — Access to grants and funding sources — Assistance with municipal spending 					
Action 1.2 Sub-actions:					
<p>Action 1.2.1: Support of a Registered Professional Town and Regional Planner(s) in the District or as a shared service</p> <p>Support of the district appointment of a registered town and regional planner in the shared services team.</p>	<p>Lead authority: WC: DEA&DP:</p> <ul style="list-style-type: none"> • Shared Service Centre (WC: DLG) • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality 	<ul style="list-style-type: none"> • 2018/19 – signed agreement between municipalities for a shared services planner & secure the necessary funding • 2019 – recruit the registered planner(s) and finalise job descriptions. • Short term and ongoing. • It should be noted that in 2019 and 2020 the Central Karoo appointed a shared service planner that resigned shortly after appointment. 	<p>Agreement to be signed between all municipalities and between municipalities and other spheres of government</p> <p>Agree on job description & job requirements</p> <p>Recruitment process</p>	<p>R500 000.00 – R800 000 per annum</p>	<p>Outcome:</p> <p>Municipalities all able to receive and process municipal land use planning applications</p> <p>Output:</p> <p>Appointment of a registered town and regional planner(s) in a shared service centre</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 1.2.2: Appointment or allocate a Heritage Professional in SARHA or HWC for secondment to / placement in the Central Karoo District Municipality</p> <p>Appointment or allocation of a Registered Heritage Practitioner in SARHA or HWC for secondment to / placement in the Central Karoo District Municipality.</p> <p>The option should also be considered to appoint a person with dual heritage and environmental expertise (see Action 1.2.3 below for an environmental specialist to be appointed).</p> <p>Also note that the need for heritage specialist will depend on the extent of development pressure experienced.</p>	<p>Lead authority: HWC</p> <ul style="list-style-type: none"> SAHRA Central Karoo District Municipality Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality If a person with dual expertise is considered as an option, then DEFF should take the lead in the signing of an agreements (and appointment) in terms of their Environmental Sector Local Government Support Programme (LGSS) 	<ul style="list-style-type: none"> 2021 – 2022: HWC in consultation with Municipalities, determine the need for the services of a heritage specialist for all the relevant Municipalities in the Karoo (as a shared service) <p>Based on the outcome of the need's assessment, and signed agreement between HWC and municipalities for a shared service of a Heritage Practitioner & secure funding for such a post.</p> <ul style="list-style-type: none"> Recruit registered Heritage Practitioner at the Shared Service Centre for the whole central Karoo region 	<p>Agreement to be signed between all municipalities and between Municipalities and HWC for the appointment of a heritage specialist as a shared service and agree on job description & job requirements. Thereafter the required recruitment process needs to be followed for the appointment of the specialist.</p> <p>If a person with dual expertise is considered as an option, then DEFF should take the lead in the signing of an agreements (and appointment) in terms of their Local Government Support Programme.</p>	R500 000.00 – R800 000 per annum	<p>Outcome:</p> <p>All relevant municipalities are able to manage heritage resources more effectively</p> <p>Output:</p> <p>Appointment of a registered heritage practitioner by HWC and seconded to / or placed in the Central Karoo District Municipality to provide a shared service to all relevant municipalities.</p>
<p>Action 1.2.3: Appointment or allocation of an Environmental Officer to manage environmental matters, including biodiversity resources.</p> <p>Appointment of an Environmental Officer in the Central Karoo District Municipality to perform</p>	<p>Lead: Initially DEFF through the LG Support Programme, but in the long-term to be financed by the Municipalities as a shared service:</p> <ul style="list-style-type: none"> Beaufort West Municipality 	<p>2021 - DEA&DP, in consultation with DEFF and the Municipalities, determine the need for the services of a heritage specialist for all the relevant Municipalities in the Karoo (as a shared service)</p>	<p>Agreement to be signed.</p> <p>Agree on job description & job requirements.</p> <p>Recruitment process.</p>	R500 000.00 – R800 000 per annum	<p>Outcome:</p> <p>Municipalities all able to perform environmental management services</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>relevant environmental management functions for the Central Karoo region (a shared service at district level).</p> <p>Note that this is also linked to the appointment of the heritage officer - i.e. appointment of a person with dual expertise</p>	<ul style="list-style-type: none"> Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality 	<p>Based on the outcome of the need's assessment, sign an agreement for a shared service environmental officer & secure funding</p> <ul style="list-style-type: none"> recruitment or allocate environmental officer for the region to be determined as part of the need's assessment. 			<p>Output:</p> <p>Appointment of an environmental officer in a shared service centre</p>
<p>Sub-Action 1.2.4: Appointment or allocation of a public finance manager/advisor to provide municipal support for access to grants and other funding sources, and to assist in municipal spending to ensure optimal municipal financial ability</p> <p>Municipalities are generally under-resourced to make the necessary applications for grant funding, or to access other forms of funding. A dedicated individual who can compile such applications must be appointed to the shared services centre to provide this assistance.</p>	<p>Lead: WC Department of Local Government with assistance from:</p> <ul style="list-style-type: none"> Provincial Treasury SALGA Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality 	<p>Trigger: High priority to be implemented as soon as possible.</p> <p>2021/22 – sign agreement for a shared service public finance management/advisor and secure funding</p> <p>2022/2023 – recruit or allocate financial advisor for the region.</p> <p>As an alternative to the above, the WCG, through the WC Department of Local Government, designate and provincial official to support the relevant municipalities to access grants and other funding sources, and to assist in municipal spending to ensure</p>	<p>Agreement to be signed.</p> <p>Agree on job description and job requirements.</p> <p>Recruitment process.</p>	<p>To be determined.</p>	<p>Outcome:</p> <p>Improved access to funding opportunities for municipalities, and more financially able municipalities.</p> <p>Output:</p> <p>Appointment of a financial administrator/advisor in a shared service centre.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Municipalities who fail to spend their budgets experience a diminishing financial ability in subsequent years. The above individual must assist municipalities with ensuring that their budget is appropriately spent to maximise their financial ability.</p>		<p>optimal municipal financial ability.</p>			
<p>Action 1.3: Knowledge management and research</p> <p>Coordination of knowledge arising through various aspects of undertaking actions</p> <p>This action item entails the identification of research and monitoring priorities that emerge from data generated because of actions outlined herein. The prioritisation of such research must be reflected in budget allocations. Anticipated research includes Integrated Assessment Modelling and data</p>	<p>Lead: Department of Science and Technology (DST) with assistance from:</p> <ul style="list-style-type: none"> • SALGA • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • DEFF • DMRE 	<p>2021 - Department of Science and Technology, in consultation the Municipalities, determine the need for the shared service researcher for all the relevant Municipalities in the Karoo (as a shared service)</p> <p>Based on the outcome of the need's assessment, sign agreement for a shared service researcher and the recruitment researcher</p>	<p>Agreement to be signed.</p> <p>Agree on job description and job requirements.</p> <p>Recruitment process.</p>	<p>R 500 000 to R 800 000</p>	<p>Outcome: Improved governance due to an improved understanding of resource management.</p> <p>Output: Appointment of a researcher in a shared service centre.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>visualization with tools like Urban Simulation.</p> <p>Linkage between this action and the Science Action Plan must be drawn to ensure that data governance is sound, and that efforts are dovetailed where possible.</p>	<ul style="list-style-type: none"> DWS SANBI CapeNature DEA&DP <p>Note that this shared service can be extended beyond the boundaries of the Western Cape to include Municipalities in the Northern and Eastern Cape provinces.</p>				
<p>Sub-Action 1.3.1: Data governance and warehousing</p> <p>Firstly, it is acknowledged that there are multiple types of, and sources of information relevant to the Karoo region.</p> <p>All information generated through the implementation of these Action Plans should be captured, stored and where appropriate, analysed and disseminated, to add to the larger body of information and knowledge.</p>	<p>Lead: DST (national) and WC: DEA&DP (provincial):</p> <ul style="list-style-type: none"> All stakeholders responsible for the implementation of action plans DST– custodian and coordinator for scientific information (include SAEON, SAHRA, Water Affairs, DEFF and other national bodies that generate scientific information) WC: DEA&DP, Development Planning Intelligence Management and 	<p>With specific reference to these Action Plans, engagement and working arrangements (protocols) to be established on data and information management in 2021/22 onwards</p> <p>Warehousing of information, data and meta-data to commence in 2021/22</p> <p>Note that the capturing of information may take place at different levels and different platforms. E.g., uploading ambient air quality monitoring data for the Western Cape to South African Air Quality</p>	<p>Phase 1: Development of protocols for the gathering, storage and use of information generated through the implementation of the action plans</p> <p>Phase 2: Establish the institutional arrangements between the various role players that are required for efficient and effective knowledge management through the Shared Services Team.</p> <p>Consider the arrangements for data governance contained in the Memorandum of Cooperation entered into</p>	To be determined	<p>Outcome:</p> <p>Effective data governance</p> <p>Output:</p> <p>protocols for the gathering, storage and use of information.</p> <p>Updated sector specific databases, e.g. the South African Air Quality Information System.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>The role of the DST's Science Action Plan related to Shale Gas Development must also be considered with this action going forward.</p>	<p>Research – to either be or liaise with the custodian for governance information in the Western Cape (DotP) as per the action plans</p> <ul style="list-style-type: none"> Where applicable, air quality data are uploaded onto SAAQIS. The Directorate AQM manages the data that is uploaded to SAAQIS. 	<p>Information System (SAAQIS).</p>	<p>between Heads of Departments and the Director General in DotP as of March 2021.</p>		
<p>Sub-Action 1.3.2 Identification of research priorities and appointment or allocation of researcher.</p> <p>In addition to the management of data generated prior to and during large-scale development, it will be necessary for this data to be evaluated and considered to identify trends and information gaps. An individual will need to monitor and evaluate the data being generated and work closely with the DST Science Plan to guide</p>	<p>Lead: DST (national) and WC: DEA&DP (provincial):</p> <ul style="list-style-type: none"> All stakeholders responsible for the implementation of action plans DST– custodian and coordinator for scientific information (include SAEON, SAHRA, Water Affairs, DEFF and other national bodies that generate scientific information) <p>WC: DEA&DP, Development Planning Intelligence Management and Research – custodian</p>	<p>To commence along with action 1.3.1 above.</p>	<p>Agreement to be signed.</p> <p>Agree on job description and job requirements.</p> <p>Recruitment process.</p> <p>Development of a research framework within which these efforts will be undertaken.</p> <p>Undertaking of structured and robust research.</p>	<p>For researcher: R500 000 to R800 000</p>	<p>Outcome:</p> <p>Ongoing research that improves best practice in terms of service delivery and development.</p> <p>Outputs:</p> <p>Research, a research framework, a data analyst/researcher at the shared services centre.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
research that would be of value.	for development planning data governance & information in the Western Cape as per the action plans				
<p>Action 1.4: Creating a regulatory framework for (charging of) financial provisioning including development contributions and cost recovery associated with the maintenance of services and service infrastructure</p> <p>The drafting of a financial provisioning policy for all three spheres of government (and possible law reform) is required to ensure that financial provisioning, including development contributions and cost recovery, is responsive to large-scale development infrastructure impacts e.g. transport infrastructure – where, depending on the scale and intensity of use, the demands for maintenance of such infrastructure may exceed the capacity and resources of a specific authority, especially at municipal level, requiring additional financial provisioning (through</p>	<p>This action will be linked to the development of a provincial level policy on Development Contributions. The relevant role players, under the lead of WC: DEA&DP and Provincial Treasury, together with relevant national departments and municipalities, such as:</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • National Treasury • Provincial Treasury • Department of Public Works and Transport (Road Network – 	2021/22 - Commence with a policy and law reform process to develop an appropriate policy context and regulatory framework for (charging of) financial provisioning including development contributions and cost recovery associated with the maintenance of services and service infrastructure	Policy and law reform process to be followed, and to be informed by relevant information such as a Regulatory Impact Assessment process (at a provincial level), or a Socio-economic Impact Assessment process (at a national level) to determine the most appropriate avenue of realising this framework.	To be determined by the policy and law reform process.	<p>Outcome:</p> <p>Appropriate Development Contributions</p> <p>Output:</p> <p>The drafting of a financial provisioning policy and legislation.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>developer contributions or other means of cost recovery).</p> <p>It must be noted that this requires updated Bylaws at Municipal level and possible policy and law reform at provincial and national level</p>	<p>Development Contribution)</p> <ul style="list-style-type: none"> • SANRAL (Road Network – Development Contribution) • Department of Rural Development and Land Reform (DRDLR) 				
<p>Action 1.5: Develop guidelines to provide clarity and consistency in the compilation and evaluation of all types of applications / authorisations by the relevant decision-making authorities, including best practices (where and when needed)</p> <p>Provincial guidance (i.e. policies and guidelines) that should inform the content and process of regulatory applications associated with land use and environmental planning e.g. guidelines on the protection and management of attributes and landscapes of natural/cultural significance, where and</p>	<p>Lead: WC: DEA&DP assisted by Share Service Centre:</p> <ul style="list-style-type: none"> • SALGA • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • Department of Cooperative Governance and Traditional Affairs • DRDLR, 	<ul style="list-style-type: none"> • 2021 - Research the existing policy framework to identify gaps, inconsistencies, overlaps, and the need for integration. • 2021 onwards – Develop guidelines (ongoing) if and when required 	<p>Establishment project steering committee</p> <p>Finalise the scope of the project and Terms of Reference</p> <p>Develop/amend guidelines</p> <p>Approval and implementation of new/amended guidelines</p>	<p>DRDLR, SALGA and WC: DEA&DP (in-house) or through an external service provide, in conjunction with relevant municipalities</p>	<p>Outcome:</p> <p>Improved clarity to proponents and decision makers surrounding the pertinent considerations of large-scale development in the Karoo region.</p> <p>Output:</p> <p>Guidelines for Land Use and other decision makers.</p> <p>Guidelines for proponents and stakeholders.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>when the need for such guidance exists.</p> <p>Provide guidance (i.e. policies and guidelines) that should inform the evaluation of regulatory applications and land use and environmental planning.</p> <p>Where appropriate, guidelines to be developed to provide clarity and consistency in the compilation and evaluation of land use, environmental, heritage and other applications relating to large scale developments</p> <p>Where appropriate, these guidelines could also be amended to be applicable in other provinces</p> <p>Guidelines for authorities to be similar to the guideline developed by the Eastern Cape Government.</p>	<ul style="list-style-type: none"> • DEFF, • DMRE • DWS • HWC • SAHRA <p>Note: it may be necessary to establish sub-teams to focus on various guidelines. In such instances, the roles and responsibilities of each entity would need to be agreed upon in the associated memoranda of understanding</p>				
<p>Action 1.6: Ongoing training and capacity building for all spheres of government</p>	<p>Depending on the subject matter, there may be different leading authorities.</p>	<p>DST, DEA&DP and DLG to coordinate an engagement of training and capacity building to facilitate coordination and cooperation</p>	<p>To establish a training forum across all spheres of government.</p>	<p>Training needs and opportunities to be determined based on the subject matter.</p>	<p>Outcome:</p> <p>Skilled and capacitated staff</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Ongoing training and capacity building for all spheres of government, especially local government on unfolding needs of large-scale development and the planning matters to deal with it.</p> <p>The challenge is that this action covers a diverse range of subjects. Also, a range of training and capacity building programmes have already been implemented. However, improved cooperation is required to optimise resources.</p>	<ul style="list-style-type: none"> Leads: DST; WC:DEA&DP & WC:DLG Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality DALRRD DEFF DMRE DWS SALGA 	<p>(between functional departments, between spheres and between provinces), in 2021 onwards.</p> <p>Ongoing training and capacity building on specific disciplines will be ongoing. New training needs will also be identified and implemented continuously.</p>	<p>Develop an integrated training programme</p> <p>DST, WC:DEA&DP and WC:DLG to coordinate an engagement of training and capacity building to facilitate coordination and cooperation (between functional departments, between spheres and between provinces), in 2019 onward, to:</p> <ul style="list-style-type: none"> identify different training needs and opportunities where appropriate, coordinate training programmes <p>Also investigate international capacity building and knowledge exchange opportunities. This is specifically relevant in the case of new industries such as SGD.</p>	<p>Where appropriate, in-house resources of DST and WC:DEA&DP & WC:DLG in collaboration with DST, DALRRD and SALGA should be used optimally.</p>	<p>Outputs:</p> <p>Establishment of training forum across all spheres of government</p> <p>Training programmes implemented</p>
<p>Action 1.7 Monitoring and auditing of impacts during operation and post closure (i.e. legacy impacts)</p> <p>Authorities to develop enabling law and policy frameworks to address</p>	<p>Applicants to do auditing, monitoring and respond during operations including making provision for post-closure monitoring and impact management.</p>	<p>Applicants and authorities to undertake auditing and monitoring responsibilities.</p> <p>Policy and law reform to be finalised prior to the commencement of large-scale development.</p>	<p>Auditing and monitoring including requirements as per licensing conditions.</p> <p>Policy and law reform process undertaken by the relevant authorities in this regard.</p>	<p>To be determined.</p>	<p>Outcome:</p> <p>Effective monitoring, auditing and responses during operational and post-closure phases.</p> <p>Outputs:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>post-closure monitoring and legacy impacts (land use, environmental, etc.).</p> <p>Requirements to be set for auditing during operation and post closure (legacy impacts), as part of various approval processes.</p>	<p>Authorities (LMs, DEFF, DMRE, and DWS) to review auditing and undertake compliance monitoring during operations as well as provide oversight for ongoing post-closure monitoring and impact management.</p> <p>Authorities (DEFF, DMRE, and DWS) to develop enabling law and policy frameworks to address post-closure monitoring and legacy impacts.</p> <p>Requirements to be set for auditing during operation and post closure (legacy impacts), as part of various approval processes. Coordination between authorities will be required to avoid conflicts and overlap in setting conditions</p>				<ul style="list-style-type: none"> • Best practice guidelines. • Better licence conditions. • Policy and law reform. • Research agenda.
<p>Action 1.8: Improvement in the policy and regulatory framework</p> <p>Improvement in the policy and regulatory framework is required prior to the commencement of new large-scale developments (especially shale gas development):</p>	<p>The following authorities have the collective responsibility to coordinate policy and law reform initiatives:</p> <ul style="list-style-type: none"> • DWS • DMRE • DEFF 	<p>Identification of gaps that require policy and law reform to be identified continuously, as well as identifying timeframes for such policy and law reform</p> <p>Current and proposed national law reform related to SGD must be finalised prior to the</p>	<p>A policy and law reform process inclusive of a Socio-Economic Impact Assessments (or Regulatory Impact Assessments)</p>	<p>The cost of drafting of laws and policies to be determined on a case-by-case</p>	<p>Outcomes:</p> <p>Policy and regulatory framework provide adequate controls and measures to deal with large scale developments.</p> <p>Outputs:</p> <ul style="list-style-type: none"> • Gap analysis

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<ul style="list-style-type: none"> Analysis of the gaps, overlaps and inconsistencies present in the current policy and regulatory framework. Coordinate law reform in terms of national and provincial legislation and bylaws in terms of municipalities. Coordinate the development of guidelines and agreements <p>Note that specific functional areas requiring policy and law reform are highlighted under the various themes below</p>	<ul style="list-style-type: none"> WC:DEA&DP Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality <p>Note that DWS, DMRE and DEFF to take the lead in national policy and law reform</p> <p>WC:DEA&DP with Municipalities (including the Shared Services Centre) to take the lead in the development of bylaws</p>	<p>commencement of SGD (stratigraphic drilling). This includes:</p> <ul style="list-style-type: none"> Minimum requirements for EIAs for SGD; Regulations for Petroleum Exploration and Production into the MPRDA; Regulations related to hydraulic fracturing as a controlled activity into the National Water Act; 			<ul style="list-style-type: none"> Law reform process Guidelines Other regulatory instruments (e.g. agreements) Socio-Economic Impact Assessments (or Regulatory Impact Assessments) where appropriate

8. Theme 2: Integrated planning, human settlements, heritage and biodiversity management

Theme coordinator: Allan Rhodes – DEA&DP

A. Background:

- 8.A.1. Integrated (spatial and non-spatial) environmental and development planning, as well as its associated regulatory processes form the foundation for the implementation of sustainable large-scale developments. However, it is also true that the human and skills resources that is available in South Africa's rural municipalities are limited, seriously hampering the implementation of this integrated environmental and development planning approach. A concerted effort is required to address this challenge.
- 8.A.2. The socio-economic characteristics of the Karoo (i.e. its sense of history, sense of place, the nature and state of its rural development, its settlements, etc.) are strongly linked to the ecological characteristic of the biophysical environment. This fine balance between the socio-ecological and socio-economic components of the Karoo could be significantly impacted by large scale development.

B. Strategic Issue 2: Integrated Planning:

- 8.B.1. Planning: land use planning and management are governed by several statutes, namely the Spatial Planning and Land Use Management Act, the Western Cape Land Use Planning Act, (the WC LUPA) and Municipal By-laws. In the Central Karoo region, all the local municipalities have adopted municipal planning By-laws. However, it is anticipated that these By-laws will have to be amended to cater for certain aspects related to large scale developments, especially SGD and mining developments. All the municipalities have also adopted Integrated Development Plans, inclusive of Spatial Development Frameworks (SDFs) and although SGD, Uranium mining and renewable energy developments are referred to, these SDFs need to be amended to include updated information, especially the information generated through the Strategic Environmental Assessment for Shale Gas Development in the Karoo.
- 8.B.2. None of the Municipalities has any registered planners or environmental professionals in their employ. This presents a challenge as it is anticipated that in future there will be a significant increase in regulatory planning applications and applications for environmental authorisations. Although municipalities are not competent authorities in terms of the latter, they will have to comment on these applications. WC: DEA&DP has also promulgated its own planning legislation, the WC LUPA, in terms of which it lists certain prospecting and mining activities as a category of land development that requires approval under section 53 (1) of the WC LUPA. This means that certain mining related operations (including SGD) will require provincial approval.
- 8.B.3. The following actions are proposed:
- Action 2.1: Updating the Central Karoo District SDF and drafting a Regional Spatial Development Framework (as part of the SALGA Small Towns Regeneration Programme) to ensure the maintenance of an ecologically functional landscape.
 - Sub-Action 2.1.1: Amend the local municipal Integrated Development Plans and Spatial Development Frameworks to reflect latest intelligence.

- Sub-Action 2.1.2: In association with the development of the Central Karoo SDF, identify areas with Heritage Significance (including special sense of place, archaeological, paleontological, architectural, socio-cultural or area of visual sensitivity and tourism value i.e. landscapes of natural or cultural importance-the inventory in terms of section 30(5) of the NHRA) to be avoided in the placement of infrastructure associated with large scale development in SDFs
- Sub-Action 2.1.3: Identification of Protected Areas, based on the improved information (e.g. the SGD SEA data) that is available
- Sub-Action 2.1.4: In association with actions 2.2 and 2.3, identify sensitive areas to be avoided when identifying water resources for large scale developments such as SGD and mining operational use (including the re-use of process water)
- Action 2.2: Council approval of an Integrated Land Use Management (Zoning) Scheme Bylaw for all municipalities within the Central Karoo (and ideally within the entire Karoo region) including the development of appropriate overlay zones for Biodiversity, Heritage, Scenic and Cultural Landscapes and 'go zones'
- Action 2.3: Put in place a municipal planning administrative measures and systems and consider the establishment of a District Municipal Planning Tribunal

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 2.1: Updating the Central Karoo District SDF and drafting a Regional SDF to ensure the maintenance of an ecologically functional landscape.</p> <p>The following are proposed:</p> <p>a) Updating the Central Karoo District Municipal SDF to ensure the maintenance of an ecologically functional landscape with a network of inter-connected biodiversity corridors and ecological infrastructure</p>	<p>Lead: A district municipal SDF to be coordinated by the District Municipality in collaboration with WC: DEA&DP</p> <ul style="list-style-type: none"> • Department of Rural Development and Land Reform – for Regional SDFs if applicable • Central Karoo District Municipality • Beaufort West Municipality • Prince Albert Municipality 	<ul style="list-style-type: none"> • High priority: Commence with the district municipal SDF in 2018/19 and conclude 2019/20. <p>Participate in the regional SDF if the processes are commenced with.</p>	SPLUMA, LUPA, NEMA, the EMF regulations and Instrument Regulations process requirements.	<p>To be determined.</p> <p>Funding for the appointment of an external service provider.</p>	<p>Outcome: To improve (or prevent the undermining of) ecological processes within the landscape, to maintain or improve system resilience to withstand perturbations (such as climate change).</p> <p>Output: An updated district municipal SDF-EMF or a Regional Spatial Development Framework - EMF ensuring regional readiness to deal with large scale development</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>for the Central Karoo area;</p> <p>AND</p> <p>b) DALRRD to 'proclaim the region' – Participation in the drafting of a Regional (inter-provincial) Spatial Development Framework to ensure the maintenance of an ecologically functional landscape with a network of inter-connected biodiversity corridors and ecological infrastructure for the Karoo region</p> <p>NOTE: Ensure integration of, amongst others: the SEA information, the Western Cape Biodiversity Spatial Plan, an updated Human Settlement Plan, Heritage Inventory requirements, scenic and cultural landscape requirements, the Agriculture Area Wide Plans, SANParks Park Expansion Footprint and Park interface (buffer) Zone, SKA footprint and buffers and existing SDFs into a Central Karoo District and Regional Spatial Development Framework (RSDF) and map important ecological</p>	<ul style="list-style-type: none"> • Laingsburg Municipality • SALGA • DEFF • Department of Cooperative Governance and Traditional Affairs <p>Should a regional SDF (transcending the boundaries of the WC) be considered, it will be coordinated by the DRDLR with assistance from SALGA</p>				

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>infrastructure supplying ecological goods and services to the people of the region.</p> <p>The option of compiling the SDFs in a manner that would allow them to be adopted as Environmental Management Frameworks (EMF) or as environmental management instruments must be explored.</p>					
Sub-Actions of Action 2.1:					
<p>Action 2.1.1: Amend the local municipal Integrated Development Plans and Spatial Development Frameworks.</p> <p>Amend the local municipal Integrated Development Plans and SDFs in the Central Karoo to ensure that (1) new scientific information and information related to current regulatory processes linked to SGD, Uranium mining and other major developments are adequately dealt with at a strategic planning / policy level, and (2) that relevant land requirements and human settlement requirements are accommodated (prior</p>	<p>Lead: the relevant Municipality in collaboration with WC: DLG and WC: DEA&DP:</p> <ul style="list-style-type: none"> • SALGA • Department of Cooperative Governance and Traditional Affairs • Department of Rural Development and Land Reform • Beaufort West Municipality • Prince Albert Municipality 	<ul style="list-style-type: none"> • High priority: Commence in 2020/21 • Amendment of local municipal IDPs and SDFs to be undertaken based on the finalised Central Karoo SDF. 	<p>See SPLUMA, LUPA, NEMA and MSA steps to compile/amend an IDP, inclusive of the SDF</p>	<p>Can be done in-house by municipalities with the assistance of WC: DLG, WC: DEA&DP or DRDLR, with a budget to be determined.</p>	<p>Outcome:</p> <p>To provide strategic guidance on land use within the region by accurately capturing the agreed upon vision for the area.</p> <p>Improved system resilience by ensuring that thresholds of allowable change are not exceeded.</p> <p>Output:</p> <p>Updated IDPs and relevant local SDFs.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
to SDF completion, or as part of the SDF process, consider the needs and potential spatial planning aspects of shale gas development and other major development industries through its different phases).	<ul style="list-style-type: none"> Laingsburg Municipality Central Karoo District Municipality 				
<p>Action 2.1.2: In association with the development of the Central Karoo SDF (and later the local municipal SDFs), identify areas with Heritage Significance (including special sense of place, archaeological, paleontological, architectural, socio-cultural or area of visual sensitivity and tourism value i.e. landscapes of natural or cultural importance-in terms of the inventory in terms of section 30(5) of the NHRA) to be considered/avoided in the placement and design of infrastructure associated with large scale development in SDFs</p> <p>Identification of areas with a special sense of place, or area of visual sensitivity and tourism value (i.e. landscapes of natural or cultural importance) to be considered/avoided in the</p>	<p>The various municipalities in collaboration with DEA&DP will take the lead:</p> <ul style="list-style-type: none"> SAHRA HWC WC: DEA&DP Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality DRDLR WC: DLG <p>DRDLR will take the lead in the case of a Regional SDF.</p>	<p><u>Phase 1</u> – inclusion of all the areas identified as sensitive in the SGD SEA from a cultural, visual, aesthetic and scenic resource perspective, as exclusion areas in SDFs (if appropriate) by 2019 (or sooner).</p> <p><u>Phase 2</u>: Appointment of a specialist to conduct further research to improve and enhance the information contained in the SEA on all heritage resources. Amend SDFs accordingly. This survey needs to be phased over a 5-year period depending of the availability of financial resources (i.e. between 2020 -2025)</p>	<p><u>Phase 1</u>: Use the information contained in the SGD SEA and any other information that is generated as part of the SDF planning process, to identify cultural/natural landscapes and attributes that should be considered/avoided, to inform the SDF planning process and its outputs.</p> <p><u>Phase 2</u>: Appointment of external service providers to undertake research.</p>	<p><u>Phase 1</u>: Financial resources required to finance the compilation of such layers for the SDF.</p> <p>Alternatively, the Heritage Practitioner in the Shared Service Centre to perform this task</p> <p><u>Phase 2</u>: Financial resources required to finance such a study.</p> <p>Alternatively, and if appointed, the Heritage Practitioner in the Shared Service Centre can perform this study.</p>	<p>Outcome:</p> <p>Improved management of cultural/heritage resources</p> <p>Output:</p> <p>Areas or landscapes of natural/cultural significance are identified in SDFs (based on, at least, the information contained in the SGD SEA)</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>placement and design of infrastructure associated with large scale developments such as SGD, in SDFs.</p> <p>Note that the identification of scenic/tourism routes to be avoided by heavy transport vehicles (or high intensity use) due to the placement of infrastructure associated with large scale development, is already identified as an action under the theme: Electricity, roads, transport and construction material. This action plan will therefore contribute to the aforementioned action plan. As such, this action plan should focus on landscapes/features that should be protected and/or managed.</p>					
<p>Action 2.1.3 Identification of sensitive areas to be protected, based on the improved information (e.g. the SGD SEA data) that is available</p> <p>Identification of currently unprotected areas, to be protected, or made protected areas, based</p>	<p>Lead: A District SDF - EMF to be coordinated by the District Municipality in collaboration with WC: DEA&DP</p> <ul style="list-style-type: none"> WC: DEA&DP for Central Karoo SDF Department of Rural Development and 	<p><u>Phase 1 (2019 onwards):</u></p> <ul style="list-style-type: none"> To inform the amendment of the Central Karoo SDF Amendment of local municipal SDFs to be undertaken once 	<p>Amend SDFs/EMFs* as provided for in legislation - SPLUMA, LUPA, NEMA and the EMF regulations process requirements</p> <p>Improve information through continued Systematic Conservation Planning;</p>	<p><u>Phase 1:</u> Financial resources required to finance the compilation of such layers for the SDFs-EMFs.</p> <p>Phase 2: Cost of appointment of external service providers to be determined</p>	<p>Outcome:</p> <p>Improved protection and management of natural resources.</p> <p>Output:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
on existing intelligence (link to National Protected Areas Expansion Strategy) to preserve sense of place, biodiversity connectivity (corridors)	<p>Land Reform – for Region</p> <ul style="list-style-type: none"> Central Karoo District Municipality Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality SALGA DEA Department of Cooperative Governance and Traditional Affairs SANPARKS, SANBI, CapeNature 	<p>Central Karoo SDF is finalised</p> <p><u>Phase 2:</u> Further research at a later stage - Appointment of a specialist to conduct further research to improve and enhance the information contained in the SEA. Amend SDFs accordingly. This survey needs to be phased over a 5-year period depending of the availability of financial resources (i.e. between 2020 -2025)</p>	*note that only an SDF was compiled for the District Municipality, but the information of the SEA was incorporated		SDFs - EMFs contain relevant biodiversity conservation information.
Action 2.1.4: In association with actions 2.2 and 2.3, identify sensitive areas to be avoided when identifying water resources for large scale developments such as SGD and mining operational use (including	<p>Identification of sensitive areas: Lead: A District SDF to be coordinated by the District Municipality in collaboration with WC: DEA&DP:</p> <ul style="list-style-type: none"> South African Environmental 	<p>Short to medium term-i.e. as part of the EIA to be completed before the commencement of large-scale development.</p> <p>Phase 1 – use of existing information in the SGD SEA</p>	<p>SPLUMA, LUPA, NEMA process requirements</p> <p><u>Phase 1</u> – inclusion of all the areas identified as sensitive in the SEA for Shale Gas Development from a surface and groundwater perspective,</p>	<p><u>Phase 1:</u> Financial resources required to finance the compilation of such layers for the SDFs-EMFs.</p> <p><u>Phase 2:</u> Funding for the appointment of an external service provider.</p>	<p>Outcome:</p> <p>Effective management of strategic water resources in the District Municipality and Karoo region</p> <p>Output:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>the re-use of process water)</p> <p>It is the applicant's responsibility to identify where the different types of water will be sourced from to cater for large scale developments.</p> <p>Relevant authorities (including municipalities) must ensure that industry does not impact on existing or future water resources that will be targeted to augment municipal water supply.</p> <p>A principle of safeguarding important water resources must be included in planning documents in the region, with the understanding that sensitivity maps (no-go areas) will likely change as baseline information is gathered, or as technologies mitigate certain concerns.</p>	<p>Observation Network (SAEON)</p> <ul style="list-style-type: none"> DWS / CMA– resource protection. SANBI Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality <p>In terms of applications:</p> <p>Relevant permitting authority</p>	<p>to identify sensitive areas as exclusion areas in SDFs.</p> <p><u>Phase 2</u> – additional future resource to be included in updating the relevant SDFs.</p> <p>Commencement (see Action 2.1 for timeframe)</p>	<p>as exclusion areas in SDFs by 2020 (or sooner).</p> <p><u>Phase 2:</u> Further research/ information gathering conducted by research institutions to be used to update SDFs accordingly.</p> <p>This need to be done continuously as information become available.</p> <p>SAEON is currently monitoring environmental change with respect to climate change and land use across 60 sites in the Karoo. Interested to establish long term study sites specifically to monitor impacts of mining.</p> <p>Note: This action is cross cutting with biodiversity and town planning.</p>		<p>Updated SDFs include relevant information to manage and protect water resources</p>
<p>Action 2.2: Council approval of an Integrated Land Use Management (Zoning) Scheme Bylaw for all municipalities within the Central Karoo (and ideally</p>	<p>Relevant municipality with support from WC: DEA&DP and DRDLR</p>	<ul style="list-style-type: none"> New Integrated Scheme Bylaw to be commenced with for each municipality in June 2019 (in parallel with the SDF planning 	<p>MSA, SPLUMA, LUPA and NEMA steps to develop a bylaw</p>	<p>Can be done in-house by Municipalities with the assistance of WC: DEA&DP and DRDLR</p>	<p>Outcome:</p> <p>Municipalities better equipped to process land use applications and the</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>within the entire Karoo region) including the development of appropriate overlay zones for Biodiversity, Heritage, Scenic and Cultural Landscapes and ‘go zones’</p> <p>As part of the Integrated Land Use Management Scheme Bylaw process, develop an appropriate overlay zone in response to the SEA and to manage and facilitate large scale developments such as SGD – e.g. where exploration activities would be seen to be environmentally sensitive (and no-go) and developmentally (enabling) appropriate.</p> <p>The SEA for SGD in the Karoo contains valuable spatial information on several environmental attributes of which the most sensitive areas represent limits of acceptable change and should be avoided.</p>		<p>process outlined in Action 2.1 above) and to be completed before June 2022</p>			<p>allocation of land use rights</p> <p>Output:</p> <p>Updated and relevant Integrated Land Use Management Scheme Bylaw</p>
<p>Action 2.3: Put in place a municipal planning administrative measures and systems and consider the establishment of a</p>	<p>WC: DEA&DP and DRDLR to take the lead:</p>	<p>Commence with 2018/19 (in conjunction with the establishment of the shared service centre)</p>	<p>A project implementation plan to be drafted for the development of the various administrative</p>	<p>In-house human resources to be used</p>	<p>Outcome:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>District Municipal Planning Tribunal</p> <p>Put in place a municipal planning administrative measures and systems, such as Standard Operating Procedures (SOPs) for receiving of all types of applications, appoint authorised officials, Municipal Planning Tribunal (MPT), templates, tariffs and fees, applications forms, notices etc.</p>	<ul style="list-style-type: none"> Planner in the Shared Service Team (see Action 1.2 above) SALGA Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality 		procedures and processes.		<p>Municipalities ready to receive and process land use applications efficiently</p> <p>Output:</p> <p>Approved SOPs, templates, applications forms etc., and established MPT or Authorised Officials</p>

C. Strategic Issue 3: Management of heritage resources:

8.C.1. Heritage resources implication of large-scale developments: The SEA for SGD in the Karoo has highlighted that the region is a rich historical cultural landscape especially in terms of pre-colonial and historical archaeology as well as being sensitive from a palaeontology perspective. Any activity that will trigger Section 38(1) of the National Heritage Resources Act (which will require a Notification of Intent to Develop (NID application). However, the result of this will most likely require a submission of a Heritage Impact Assessment covering the provision of Section 38(3) of the same section of the Act and most likely will require an archaeology and palaeontology study with possible mitigation and advice on “no-go areas” from a specialist of both disciplines. There is a need to identify and protect areas with a special sense of place, or area of visual sensitivity and tourism value (i.e. landscapes of natural or cultural importance) to be avoided in the placement of SGD and other infrastructure associated with other regional proposals.

8.C.2. The following actions are proposed:

- Action 3.1: In association with the development of the Central Karoo SDF, identify areas with Heritage Significance (including special sense of place, archaeological, paleontological, architectural, socio-cultural or area of visual sensitivity and tourism value i.e. landscapes of natural or cultural importance-i.e. the inventory in terms of section 30(5) of the NHRA) to be avoided in the placement of infrastructure associated with large scale development in SDFs

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 3.1: In association with the development of the Central Karoo SDF, identify areas with Heritage Significance (including special sense of place, archaeological, paleontological, architectural, socio-cultural or area of visual sensitivity and tourism value i.e. landscapes of natural or cultural importance-the inventory in terms of section 30(5) of the NHRA) to be avoided in the placement of infrastructure associated with large scale development in SDFs</p> <p>This action point has been placed under Action 2.1 as it pertains to the compilation of SDFs.</p> <p>See Action 2.1.2</p>	See Action 2.1.2	See Action 2.1.2	See Action 2.1.2	See Action 2.1.2	See Action 2.1.2

D. Strategic Issue 4: Human Settlements

- 8.D.1. Human settlements implication of large-scale developments: A clear differentiation must be made between crew accommodation, formal housing and informal housing due to in-migration. For example, in the case of SGD, based on the information contained in the SGD SEA, the number of jobs that will be created, especially during the exploration phase (< 1000) will not substantially increase demand for new formal housing stock. It is anticipated that there will be a significant increase in short term rental. However, there is already a housing backlog in all the local municipalities involved. Furthermore, an in-migration of job seekers is expected, and although the extent of in-migration is difficult to predict, it poses a more complex challenge based on experiences in “mining towns” elsewhere in South

Africa. How do we plan for this anticipated in-migration of job-seekers, the expansion of informal housing and the associated demand for services? A survey is required to determine more detail on the need for housing/rental stock.

8.D.2. The following actions are proposed:

- Action 4.1: Update current Human Settlement Plan to better align with new emerging needs and potential future demands and to provide detailed housing related input into the SDF (as well as conducting a socio-economic survey to determine exact current housing need)
 - Sub-Action 4.1.1: Addressing the future human settlement needs: The identification and acquisition of sites, rezoning and other permanent requirements, servicing and provisioning of other facilities associated with human settlement pre-package land for human settlement, and facilities delivery

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 4.1: Update current Human Settlement Plan to better align with new emerging needs and potential future demands and to provide detailed housing related input into the SDF (as well as conducting a socio - economic survey to determine exact current housing need)</p> <p>Phase 1: Conduct a socio-economic survey to determine exact current housing need - that is, to determine the existing backlogs as a priority.</p> <p>Phase 2: Update the human settlement plan to include the anticipated demand from large-scale development as a scenario over a longer time horizon (see Action 4.1.1 below).</p>	<p>Lead: WC: DHS in collaboration with the relevant municipality:</p> <ul style="list-style-type: none"> National Department of Human Settlements; Beaufort West Municipality; Prince Albert Municipality; Laingsburg Municipality; DLG; Department of Health, Western Cape Education Department; WC: DTPW. 	<p>Trigger: Phase 1 is to determine/update the housing backlog.</p> <p>Phase 2: The next iteration of the upgrading of the human settlement plan.</p>	<p>If internal resources are not used, then:</p> <p>The procurement process requirements to be followed in the appointment of consultants to undertake socio-economic survey.</p> <p>The procurement process requirements to be followed in the appointment of an external service provider to update current HSP.</p>	<p>Funding to be determined through following the procurement process.</p>	<p>Outcome:</p> <p>Progressive realisation of housing needs:</p> <p>Output:</p> <p>Detailed survey of the existing housing demand within the Beaufort West, Prince Albert and Laingsburg municipalities to inform short term housing priority (i.e. current backlog) to prepare for long term demand due to the influx of people.</p> <p>Updated Human Settlement Plan and municipal SDFs.</p>
<p>Sub-actions of Action 4.1:</p>					
<p>Action 4.1.1: Addressing the future human settlement needs: The identification and acquisition of sites, rezoning and other regulatory requirements, servicing and provisioning of other facilities</p>	<p>Lead: WC: DHS in collaboration with the relevant municipality:</p> <ul style="list-style-type: none"> National Department of Human Settlements; Beaufort West Municipality; 	<p>Long term – Determined by the updated Human Settlements Plan (Action 4.1) as well as the rate of implementation /roll out rate of large-scale development.</p>	<p>Joint long-term planning and budgeting by all spheres of government to ensure that funding is committed beyond the three-year timeframe for human settlement development in the</p>	<p>In-house: relevant officials at municipal, provincial and national level.</p>	<p>Outcome:</p> <p>To align long term budgets of all three spheres of government to ensure that funding will be available to accommodate</p>

<p>associated with human settlement, pre-package land for human settlement, and facilities delivery.</p> <p>The reference to pre-packaged land refers to: The identification and acquisition of sites, rezoning, and other regulatory requirements, servicing and provisioning of other facilities associated with human settlement.</p> <p>This would include policy and best practice development covering, amongst other things:</p> <ul style="list-style-type: none"> • “Rent Control” • Construction Camp vs. Accommodation in Towns • Employer Assisted Housing 	<ul style="list-style-type: none"> • Prince Albert Municipality; • Laingsburg Municipality; • WC: DLG; • Department of Health, • Western Cape Education Department; • WC: DTPW. 		<p>Beaufort West and other relevant municipalities.</p> <p>Housing Pipeline as the tool to effect change.</p>		<p>potential future housing demands.</p> <p>Outputs:</p> <p>Pre-packaged land for human settlement.</p>
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F. Strategic Issue 5: Biodiversity management

- 8.F.1. Biodiversity Management: Apart from its relatively high levels of biodiversity, the Karoo contains a highly sensitive and unique ecosystems and associated animal and plant species. The arid ecosystems of the Karoo are especially sensitive to disturbance, with exceptionally slow rehabilitation periods following such disturbance impacts.
- 8.F.2. Biodiversity Management and large-scale developments: A significant amount of information is contained in the Western Cape Biodiversity Spatial Plan, some of which was generated as part of the SEA on SGD in the Karoo. This and other relevant information must be used to map and protect important ecological infrastructure which supplies ecological goods and services to the people of the region.

8.F.3. The following action is proposed:

- Action 5.1: Identification of areas to be protected, based on the improved information (e.g. the SGD SEA data) that is available

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 5.1: Identification of areas to be protected, based on the improved information (e.g. the SGD SEA data) that is available</p> <p>This action item has been moved to sub-action 2.1.3 as it pertains to the drafting of SDFs-EMFs.</p> <p>See sub-action 2.1.3 above.</p>	See sub-action 2.1.3 above.	See sub-action 2.1.3 above.	See sub-action 2.1.3 above.	See sub-action 2.1.3 above.	See sub-action 2.1.3 above.

9. Theme 3: Water and Pollution Management

Coordinator: Wilna Kloppers – WC: DEA&DP

A. Background

The Karoo is a water scarce environment with very little additional surface water or groundwater available to support development in general, even more so for large scale development. Beyond the importation of water, careful consideration must be given to how existing and potential future resources are used in support of development. In this regard, a strong emphasis must be placed on baseline monitoring and research to better understand our shallow and deep groundwater environments.

In addition, the protection of the water resources of the Karoo through the implementation of effective pollution management measures is of paramount importance, especially in the case of large-scale developments such as mining operations and shale gas activities that poses significant pollution risks.

In terms of water and pollution management, the presence of a coherent policy and legislative framework with the appropriate level of skills and human resources for implementation, must be addressed, especially in the rural areas of the Karoo where such resources are limited.

In addition, the coordination of research efforts and the dissemination of relevant information to stakeholders are essential to support informed decision making and to coordinate governance efforts between all spheres of government.

B. Strategic Issue 6: Water supply

A water supply baseline is essential for surface and groundwater utilization and development. Most Karoo towns and agriculture are heavily dependent on groundwater supply and this resource is likely to become more important in future as demand increases. Competition with mining for this limited resource must be managed in a way that does not create a risk to both towns and agriculture or compromise the environmental reserve. Baseline monitoring is therefore essential to understand the existing state of the water resources and to use as a comparison for future impacts. This baseline monitoring information should also further extend to include deep aquifer monitoring. The baseline data derived from monitoring will also assist in determining the type of enforcement and compliance measures that will be necessary. Due to the multi-disciplinary nature of the scientific data required, the management of the baseline water data that will inform research endeavours as well as compliance and enforcement, should be the responsibility of the DWS and DST.

As a more specific governance concern, the protection of water resources currently used for domestic and agricultural purposes must be addressed - i.e. the determination of a baseline and monitoring thereof. In addition, an attempt must be made to identify future water sources for use within this area for domestic consumption that could be developed in the medium term.

The supply of potable water to the large-scale developments such as shale gas mining activities would be the responsibility of the development/mining companies. If large quantities of water are required, it would include the identification of the water source that will be used, as well as its delivery to the areas and sites where it would be required (transporting by road tanker or by pipeline system).

The decision on where this water will be sourced from, as well as its availability for large scale developments must be approved by the relevant authorities including DWS. Should this be supplied from a natural or underground system a licensing process must be followed.

The following actions are proposed:

- Action 6.1: Establish a Water Management Strategy for the Karoo region
 - Sub-Action 6.1.1: Establishment of water baseline and a monitoring programme
 - Sub-Action 6.1.2: Domestic municipal water supply security: Determine the status of current municipal supply sources of potable water (i.e. determine the baseline), as well as security of supply
 - Sub-Action 6.1.3: Agricultural, and all other existing non-municipal water users: current supply sources of water (i.e. determine the baseline), as well as security of supply.
 - Sub-Action 6.1.4: Domestic municipal water supply: Identification of additional domestic municipal water supply sources (where applicable)

- Action 6.2: In association with actions 2.2 and 2.3, identify sensitive areas to be avoided when identifying water resources for large scale developments such as SGD and mining operational use (including the re-use of process water)

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 6.1: Establish a Water Management Strategy for the Karoo region</p> <p>Compilation of a water management strategy that provides the overarching framework for the establishment of water resource baselines, water use monitoring, as well as water resource management and augmentation.</p> <p>The overlap between this strategy and the proposed “Science Plan” to be drafted by DST to coordinate all scientific baseline monitoring /research related to shale gas should be considered.</p> <p>This management strategy should include wastewater considerations, as well as stormwater management.</p>	<p>Lead authorities: WC: DLG, WC: DEA&DP and DWS/BGCMA in conjunction with:</p> <ul style="list-style-type: none"> • Municipalities • WC Department of Agriculture, • DMRE, • DST • Petroleum Association of South Africa (PASA), • Council for Geoscience (CGS) • Water Research Commission • SAEON • SANParks • CapeNature 	<ul style="list-style-type: none"> • High priority: commencement in 2021/22, and to be concluded prior to the advent of large-scale development that could impact on water resources, especially shale gas and uranium mining operations. Such data must cover drought years as well as normal rainfall years to indicate the effect on the groundwater. • To be undertaken in parallel with action 2.1. • See sub-actions 6.1.1 to 6.1.3, below. 	<ul style="list-style-type: none"> • The overlap between this strategy and the proposed “Science Plan” to be drafted by DST to coordinate all scientific baseline monitoring /research related to shale gas should be considered. • Establishment of a coordination forum • Platforms currently in place surrounding the Western Cape Sustainable Water Management Plan to be explored. <p>Establishing working arrangements / memoranda of understanding between role players in line with the frameworks negotiated for the management strategy.</p>	<ul style="list-style-type: none"> • To be determined 	<p>Outcome:</p> <p>Improved management of water resources and increased water resilience (including drought resilience).</p> <p>Outputs:</p> <p>Memoranda of Understanding between role players in terms of water governance.</p> <p>A Water Management Strategy for the Karoo region that is aligned with the Western Cape Sustainable Water Management Plan, and DSTs Science Plan.</p>
Sub-actions of Action 6.					
<p>Action 6.1.1: Establishment of water baseline monitoring programme</p>	<p>Lead: DWS and DST:</p> <ul style="list-style-type: none"> • DMRE 	<ul style="list-style-type: none"> • High Priority (commencement in 2021, or as soon as possible) and to be in 	<ul style="list-style-type: none"> • To be determined, but the following is already in progress in terms of CGS. This 	<ul style="list-style-type: none"> • Financial resources for baseline monitoring are a concern. Adequate resources 	<p>Outcome:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>There are many existing initiatives that are focused on the monitoring (i.e. baseline monitoring/research) of ground and surface water resources. These initiatives must be coordinated to ensure coherence in the establishment of a sound baseline prior to the commencement of any large-scale development, especially shale gas and uranium mining operations.</p> <p>In addition to establishing a baseline, it will be necessary to put measures in place to monitor water resources prior to, during and after large scale development takes place. Such a monitoring programme should include wastewater as a focal point.</p> <p>Note that this intervention transcends the WC provincial boundaries.</p> <p>This action point has linkages with Action 1.3 above.</p> <p>This action may be amended based on the information that may be</p>	<ul style="list-style-type: none"> • Petroleum Association of South Africa (PASA), and • WC: DoA • Council for Geoscience (CGS) • Water Research Commission • SAEON • SANParks • CapeNature • Municipalities 	<p>place prior to the commencement of large-scale developments that could impact on water resources, especially shale gas and uranium mining operations.</p> <ul style="list-style-type: none"> • The coordination of existing efforts and research initiatives is a high priority and must commence as a matter of urgency. • DST to oversee the scientific elements of the programme. <p>Note: CGS is conducting long term water monitoring project around Beaufort West (through MOU with DHSWS) which will last five years but could continue until findings are satisfactory. Beaufort West is currently the focus area for monitoring. Other areas will be targeted over time.</p>	<p>programme must be aligned with the information in the DST Science Plan:</p> <ul style="list-style-type: none"> • CGS is drilling to (1) take core samples to assess potential shale gas yield (2) understand sub-surface conditions to allow for understanding of impacts of potential SGD e.g. preferential pathways (3) conduct baseline monitoring. Five boreholes drilled as at Jan 2018. By March 2018, two more boreholes planned. Towards end of 2018/19 financial year (third quarter) will drill boreholes to 750m and 3.5 km. • CGS project will test the sampling procedures which will be useful for shale gas development. The 3.5km borehole is likely to have a bigger impact radius than the other boreholes. Will adjust the frequency of monitoring as time 	<p>must be identified to fill this gap as water baseline monitoring is a high priority and a pre-requisite for commencement of development/exploration.</p>	<p>Baseline established and ongoing monitoring of water resources</p> <p>Output:</p> <p>Surface and ground water baseline report and monitoring programme for the Karoo region.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>contained in the Science Action Plan (linked to SGD) that are in the process of being drafted by DST</p>			<p>goes on depending on results.</p> <ul style="list-style-type: none"> • CGS has been collaborating with SANParks to monitor animals as indicators in a 10km radius from drill sites, since 2015. There are some concerns which have led them to look at a wider radius. Indications are that groundwater is crossing catchment boundaries. • Status quo and gap analysis to be done • Capacity building programme of key authority stakeholders to be able to conduct long term monitoring once the scientific team completes their baseline monitoring programme. See Action 1.6 above. • Data management: see Action 1.3 above. • The options of establishing a water user's association and a water board must be explored to assist 		

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
			<p>with monitoring. See Action 1.1 above.</p> <p>Note: At present, the CGS is maintaining a database for boreholes which will be transferred to DWS' National Groundwater Archives. It is recommended that the monitoring data collected and housed by the municipalities should also be transferred to the National Groundwater Archive. DST is providing students to CGS project. CGS also working with other universities.</p>		
<p>Action 6.1.2: Domestic municipal water supply security: Determine the status of current municipal supply sources of potable water (i.e. determine the baseline), as well as security of supply</p> <p>This is a specific governance concern related to the protection of existing municipal water supply.</p> <p>To use the existing work commenced within 2017 because of the drought, as well as other work undertaken by CGS,</p>	<p>Lead: DWS (national disaster), WC: DEA&DP and WC: DLG (provincial disaster and water resilience)</p> <ul style="list-style-type: none"> • BGCMA • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • WC: DoA 	<ul style="list-style-type: none"> • High Priority (various initiatives have already commenced, but there is a high requirement for coordination and consolidation of information). <p>Status Quo Report on domestic municipal water supply – 2021/20220</p> <p>Based on the risk provides that the WC: DLG developed for each municipality (2019/20), municipalities need risk management plans, inclusive of baseline</p>	<ul style="list-style-type: none"> • DLG is engaging with different municipalities to provide groundwater monitoring support because of the drought. • Incorporation of information generated by other institutions into planning sustainable municipal water supplies. • WC: DLG and DWS to analyse and manage the information. 	<ul style="list-style-type: none"> • Additional resources required (Municipal support required - Lack of capacity at municipalities to implement a monitoring programme. • Options to be investigated to acquire the services of a geohydrologist to support municipalities. 	<p>Outcome:</p> <p>The continued supply of domestic municipal water</p> <p>Outputs:</p> <p>Status quo Report on domestic municipal water supply</p> <p>Secure the ongoing services of a geohydrologist for municipalities</p> <p>Securing the necessary funding for a monitoring</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>PetroSA and other institutions, as a foundation to derive a status quo report on domestic municipal water supply.</p> <p>To develop drought response and longer-term water resilience plans</p>	<ul style="list-style-type: none"> Central Karoo District Municipality WC: DLG - currently get this information from municipalities. Disaster management Shared services centre 	<p>monitoring programmes – 2021/22 (see Action 6.4)</p> <p>Investigation of options for the continued availability of services of a Geohydrologist - 2019. This can include considering the service as part of the shared services centre.</p>	<ul style="list-style-type: none"> WC: DLG is developing an integrated drought and water response plan to be completed in 25 months (2022/23). Options to be investigated for the availability of the services of a Geohydrologist. Training with municipalities required to create capacity for ongoing monitoring. To secure the financial resources 		<p>programme for municipal water resources.</p> <p>Municipal risk management plans, inclusive of baseline monitoring programmes for municipal water resources.</p>
<p>Action 6.1.3: Identify agricultural, and all other existing non-municipal water users: current supply sources of water (i.e. determine the baseline), as well as security of supply.</p> <p>This is a specific governance concern related to the protection of existing non-municipal uses.</p> <p>Develop/maintain surface and ground water monitoring plan for non-municipal water users.</p>	<p>Lead: DWS and BGCMA in consultation with the municipal water authorities and DST:</p> <ul style="list-style-type: none"> WC: DoA Farmers Unions/water user associations Municipalities. 	<ul style="list-style-type: none"> High priority – (various initiatives have already commenced, but there is a high requirement for coordination and consolidation of information). 	<ul style="list-style-type: none"> All water users are required to report on water use in terms of GA or licence conditions. Needs to be undertaken in unison with monitoring of domestic and municipal ground water use, as well as other initiatives by research institutions. Awareness raising with water users on importance of 	<ul style="list-style-type: none"> To be determined. 	<p>Outcome:</p> <p>Comprehensive picture of groundwater and surface water impacts by non-municipal users.</p> <p>Outputs:</p> <p>Surface and ground water monitoring plan for non-municipal users</p> <p>Up to date Knowledge Management and information hub.</p> <p>Up to date DHSWS database of non-</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
The monitoring and regulation of non-municipal water use			monitoring for sustainable use. <ul style="list-style-type: none"> Knowledge management: Centralised information hub for pertinent monitoring and research. Data to be fed into the DWS databases. 		municipal water use (linkage with Action 1.3).
<p>Action 6.1.4: Domestic municipal water supply: Identification of additional domestic municipal water supply sources (where applicable)</p> <p>There is linkage between this action and action 6.1.2, which monitors current supply.</p>	<ul style="list-style-type: none"> Lead: WC; DLG, DWS and BGCMA in consultation with the municipal water authorities and DST: Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality Shared service centre 	<ul style="list-style-type: none"> High Priority (commencement in 2017/18) – due to the existing drought situation, this is already taking place <p>WC: DLG to complete Integrated Drought and Water Response Plan in 2022/23 with MTEF for identified and required infrastructure projects for water security.</p>	<ul style="list-style-type: none"> Identification and inclusion of new sources in Water Services Development Plan and align with projected water demand. Establish measures to monitor all water users / borehole users within a municipality. Liaise with the BGCMA to get the necessary forms and structures for monitoring. Awareness campaign to change attitudes on the water use within municipalities and to reduce water demand. 	<ul style="list-style-type: none"> Financial resources to secure the services of external consultants needed to evaluate additional domestic water supply sources Water source information. 	<p>Outcome:</p> <p>The continued supply of domestic municipal water</p> <p>Outputs:</p> <p>identification and development of additional water sources for domestic use.</p> <p>Awareness raising programmes implemented</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 6.2: In association with actions 2.2 and 2.3, identify sensitive areas to be avoided when identifying water resources for large scale developments such as SGD and mining operational use (including the re-use of process water)</p> <p>This action point has been moved to sub-action 2.1.4 as it pertains to the compilation of SDFs-EMFs.</p> <p>Please see sub-action 2.1.4</p>	Please see sub-action 2.1.4	Please see sub-action 2.1.4	Please see sub-action 2.1.4	Please see sub-action 2.1.4	Please see sub-action 2.1.4

C. Strategic Issue 7: Wastewater and sewage management

- Background:

Evaluation of wastewater management plans must be developed by the applicants for large scale developments where wastewater is produced. This includes, for example, flow back and produced water in SGD and uranium mining operations (including the reuse and final disposal of wastewater). Implementation of water reuse options is ultimately the responsibility of applicants and mine owners. Fit for purpose type options for water reuse must be considered and potable water should not be used as process water.

The identification of the water quality parameters of wastewater (e.g. shale gas treated flow back and produced water), as well as the identification of other effluent streams that could be discharged to the municipal sewer must be done.

Sewage management will require a determination of the required sewage capacity to meet future demand associated with the influx of people because of large scale developments and the associated timeframes by which this additional capacity will be required. Collectively the sewage treatment capacity (8 WWTWs) of all the municipalities in the Central Karoo District Municipality is estimated at approximately 8 ML per day with most of these facilities being rudimentary unlined ponding systems with no capacity to treat industrial effluent. It can therefore be safely assumed that none of these WWTWs are able to treat industrial wastewater, especially mining process water or flow back water.

Many WWTWs are running at or close to capacity and will not be able to cope with the additional anticipated sewage loads. A baseline assessment would be required to determine the volumes of sewage generated by industries and mining operations.

An assessment of the existing WWTW infrastructure would need to be done, to determine the upgrade requirements. In addition, decentralised sewage treatment facilities (package plants) would need to be considered for remote locations as well as reticulation system improvements. The disposal of sludge and tailings offsite will require temporary storage (possibly containerisation) and transport. Proper waste sludge management systems must be in place and should consider specialised waste streams, including residues containing fracturing fluids, proppants and brine.

Each processing site (and possibly well pads in the case of SGD) should have a proper stormwater system that prevents this water from being contaminated by the wastewater. Special planning should be done in anticipation of flash floods that are a frequent occurrence in the Karoo areas.

Chemicals management is the responsibility of the proponents and chemical management plans will have to be submitted to the various departments including the management of spills and emergency incidents.

The monitoring plan should cover the operational and post decommissioning phase, especially for SGD and mining operations. This monitoring plan must identify the specific parameters that need to be monitored and determine the roles and responsibilities for the various role players. The post closure decommissioning plan should determine a period for which monitoring will be done.

Throughout this action plan it has been mentioned that human resource capacity is one of the critical areas that needs to be assessed. The lack of guideline documents or specific policies has also been mentioned as a gap. A thorough evaluation of what is required must be done. In addition, the regulatory framework requires improvement and various method statements and bylaws need to be developed. Guidelines will need to be developed to describe best practices, clarify principles and to resolve conflicts. This is essential to have a consistent and fair process in evaluating applications and management plans and to provide guidance in areas where no standards exist.

Bylaws should be focussed on outlining the day to day rules with which the proponents must comply. The municipalities require capacity to draft these bylaws, as well as to enforce compliance. The development of Best Practice Guidelines will also assist in the management of wastewater. Both the bylaws and the development of best practice guidelines should be informed by the current law reform processes – i.e. the redrafting of the “Technical Regulations” by DEFF and the drafting of regulations by the DHSWS on hydraulic fracturing as a controlled activity.

9.C.1. The following actions are proposed:

- **Action 7.1:** The promotion of best practice in terms of wastewater management, including the evaluation of wastewater management plans (developed by applicants) for large scale developments, especially for flow back and produced water in potential SGD and uranium mining operations (including the re-use and final disposal of wastewater)
- **Action 7.2:** Compliance monitoring of on-site management of wastewater for large scale developments, for example, flow back and produced water in SGD and uranium mining operations

- **Action 7.3:** Sewage and wastewater treatment: Determine available capacity for the treatment of sewage and wastewater (i.e. determine the baseline) and determine the need and timeframes for when additional treatment capacity will be required for the predicted additional demand for wastewater treatment due to large scale developments.
- **Action 7.4:** Upgrade of sewage and wastewater infrastructure
- **Action 7.5:** Stormwater management on operational sites / construction sites or mining area
- **Action 7.6:** Pollution Management: Chemicals Management at operation site, mining areas, drill sites and working areas.
- **Action 7.7:** Development of a monitoring and pollution response protocol (and maintenance thereof) related to potential pollution sources from large scale developments, such as decommissioned wells in SGD
- **Action 7.8:** Assessment and development of human resource capacity (skills) related to the management of water resources.
- **Action 7.9:** Improvement in the water, wastewater and sewage regulatory environment through the development of guidelines, bylaws and agreements between government and proponents

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 7.1: The promotion of best practice in terms of wastewater management, including the evaluation of wastewater management plans (developed by applicants) for large scale developments, for example for flow back and produced water in potential SGD and uranium mining operations (including the re-use and final disposal of wastewater)</p> <p>The management of pollution should be based on international best practice and will be industry specific. This</p>	<p>Lead in developing the best practice guidelines for various types of industries:</p> <p>DWS and DMRE:</p> <p>With assistance from:</p> <ul style="list-style-type: none"> • PASA • DEFF • WC: DEA&DP • Beaufort West Municipality 	<ul style="list-style-type: none"> • Development of terms of reference (i.e. determining project scope for specific industries/developments. This must take place - subsequent to the finalisation of the law reform processes • Advertising and appointment of service provider following the finalisation of the ToR • Implementation of best practice guidelines (including training) – prior to the implementation of 	<p>Compilation of best practice guidelines on wastewater management for specific industries/developments.</p> <p>Memoranda of agreement between the various proponents and the authorities.</p> <p>A wastewater management plan to be submitted as part of the EIA (including contingency planning for managing spillages and pollution events).</p>	<p>Appointment of external service providers to package the best practice guidelines and develop training programmes.</p> <p>Capacity building/ training: National, provincial and municipal officials must have the required knowledge to comment on such management plans (training will be required). Linkage with Action 1.6 above.</p>	<p>Outcome:</p> <p>Improved wastewater management practices</p> <p>Output:</p> <p>Best practice guidelines</p> <p>Memoranda of Agreement between proponents and authorities</p> <p>Training programmes (see Action 1.6 outputs)</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>action has linkages with Action 1.5.</p> <p>In the case of SGD, over and above international best practice, it will also be based on the various recommendations in the SEA, the ASSAf Readiness Report, the provisions of the Technical Regulations for extraction of shale gas through hydraulic fracturing etc. Such a document can guide applicants, municipalities and other organs of state.</p> <p>Best Practice Guidelines can also inform the development of Municipal Bylaws.</p>	<ul style="list-style-type: none"> Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality Department of Health <p>Note that some of these best practices insofar as it relates to SGD, will also be included as part of the current law reform processes (i.e. the redrafting of the "Technical Regulations" by DEFF and the drafting of regulations by the DWS on Hydraulic Fracturing as a controlled activity)</p>	<p>large-scale developments.</p>	<p>Training of EIA authorities in line with the Water Management Strategy.</p>		
<p>Action 7.2: Compliance monitoring of on-site management of wastewater for large scale developments, for example, flowback and produced water in SGD and uranium mining operations</p> <p>Note that the onsite treatment of wastewater includes the storage and treatment (including</p>	<p>The implementation of on-site management measures will be the responsibility of permit/licence holders.</p> <p>Compliance monitoring related to the management of wastewater, and the reaction to spillages:</p> <ul style="list-style-type: none"> DWS 	<p>Compliance monitoring and enforcement will commence and will be ongoing once wastewater is being produced – e.g. when drilling activities (shale gas) and mining activities (uranium mining) commence.</p>	<ul style="list-style-type: none"> Environmental Management Programmes (EMPr) to be developed for every development site (linked to regulatory processes/approvals). This should include responses to spillages Construction /installation of appropriate 	<ul style="list-style-type: none"> Cost of on-site storage, treatment, monitoring and management of wastewater, including spillages to be borne by applicant. <p>Compliance monitoring:</p> <ul style="list-style-type: none"> Additional human resources (with appropriate skills) are required within 	<p>Outcome:</p> <p>Effective management of wastewater that avoids pollution of the receiving environment</p> <p>Output:</p> <p>Adequate WWTW and wastewater storage infrastructure is available</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>reuse) of wastewater, especially in the case of SGD and mining wastewater.</p> <p>The management of on-site wastewater/pollution management is firstly the responsibility of the proponent (via site managers, environmental control officers, etc.)</p> <p>This Monitoring programme has linkages with the monitoring programme outlined in Action 6.1.1 above.</p>	<ul style="list-style-type: none"> DMRE WCG (Disaster management centre) in responding to disaster events <p>Note: Includes the environmental auditing responsibilities of permit/licence holders and the compliance monitoring responsibilities of the regulatory authorities. This action has linkages with Action 1.5.</p>		<p>equipment (closed containers) for on-site storage, where appropriate</p> <ul style="list-style-type: none"> Self-monitoring / auditing (by Environmental Managers, Environmental Control Officers and environmental auditors) of on-site storage and treatment of wastewater Review of audit reports and compliance monitoring of conditions of approval by authorities. Implementation of continual improvement based on audit and monitoring findings, as well as responses to disaster events, such as spillages. 	<p>decision making authorities (i.e. DMRE, DEFF, DWS and WC: DEA&DP)</p> <p>Disaster management:</p> <ul style="list-style-type: none"> Additional staff (with appropriate skills) is required within all spheres of government, including the Disaster Management Centre at the District Municipality 	<p>Ongoing self-monitoring, auditing and reporting by applicants.</p> <p>Compliance monitoring reports by authorities</p> <p>Effective onsite management of wastewater</p>
<p>Action 7.3: Sewage and wastewater treatment: Determine available capacity for the treatment of sewage and wastewater (i.e. determine the baseline) and</p>	<p>WC: DLG and DWS and municipalities – lead authorities:</p> <ul style="list-style-type: none"> SALGA 	<ul style="list-style-type: none"> Short term - 2021 	<ul style="list-style-type: none"> Use existing integrated planning processes of updating Water Services Development Plans and Sewerage Master Plans. Reference Growth 	<ul style="list-style-type: none"> Inadequate human/skills resources exist. Additional funding is required to appoint an external 	<p>Outcome:</p> <p>Effective management of sewage and wastewater</p> <p>Output:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>determine the need and timeframes for when additional treatment capacity will be required for the predicted additional demand for wastewater treatment due to large scale developments.</p> <p>Provision and management of wastewater services must be able to cope with the expected increase in demand.</p> <p>Note: Assessment should be done per town not only at municipal level (e.g. towns like Murraysburg and Nelspoort will also be affected by the influx of job seekers).</p>	<ul style="list-style-type: none"> BGCMA WC: DEA&DP 		<p>Potential Study for the settlement including an evaluation of current service delivery.</p> <ul style="list-style-type: none"> Where there is insufficient capacity within municipalities to undertake this assessment, they need to follow the approved procurement processes for the appointment of an external service provider to conduct a baseline assessment to determine volumes required. Note: The option of using developer contributions to assist municipalities must be investigated, especially where the increased demand is driven by large scale developments. This action has linkage to Action 1.4 above. 	service provider to do baseline assessment.	Wastewater Baseline Assessment Report produced.
<p>Action 7.4: Upgrade of sewage and wastewater infrastructure</p> <p>Depending on the level of treatment, volumes</p>	<p>WC: DLG and DWS and municipalities – lead authorities:</p> <ul style="list-style-type: none"> SALGA 	Medium term or within a timeframe as determined by the baseline assessment in Action 7.3	Municipalities to apply for MIG & RBIG funding with the assistance of the shared services centre – 2021/22 (or within a timeframe as determined by the baseline	This is to be determined by Action 7.3 MIG applications and upgrade projects to be	<p>Outcome:</p> <p>Effective sewage and wastewater management.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>required, and location, industrial wastewater might have to be treated separately from domestic wastewater and sewage; in which case separate treatment facilities must be provided (including the option of on-site treatment by the licence holders).</p> <p>This is inclusive of agreements between the municipality and applicants for the supply of sewerage and wastewater infrastructure for temporary service provision / development contributions in kind.</p>	<ul style="list-style-type: none"> • BGCMA • WC: DEA&DP 		<p>assessment) for the following options:</p> <ul style="list-style-type: none"> • Possible extension of sewer network & improvements of existing network (Local & District Municipalities) • Establishment of new sewer systems including temporary systems (Local & District Municipalities) • Development of appropriate infrastructure as well as a management plan for sewage (Local & District Municipalities & proponents) • Planning and approval of new onsite and offsite treatment units (package plants) – (within a timeframe as determined by the baseline assessment and EIA process). <p>The option of the shared service centre assisting with this action item must</p>	<p>managed using existing municipal resources.</p> <p>Additional MIG funding or alternative additional funding, such as development contributions, to cover the capital expenditure of infrastructure, as well as operating cost.</p>	<p>Output:</p> <p>Upgrade of sewage and wastewater infrastructure.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
			be explored. See Action 1.2		
<p>Action 7.5: Stormwater management on operational sites / construction sites or mining areas.</p>	<p>Authorities involved in the evaluation of EMPr drafted by proponents, including:</p> <ul style="list-style-type: none"> • DWS (competent authority) • DMRE (competent authority) • DEFF • WC: DEA&DP • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality 	<p>Timeframes for comments are determined by the various regulatory processes.</p>	<p>Development of stormwater management plans must be submitted as part of the EIA process</p> <p>Development / construction of additional infrastructure to deal with higher stormwater loads (flash floods).</p> <p>Training of relevant decision-making authorities on best practice stormwater management for large scale development (i.e. DWS, DMRE, DEFF and WC: DEA&DP)</p>	<p>National, provincial and municipal officials must have the required knowledge to comment on such management plans (training will be required).</p>	<p>Outcome:</p> <p>Effective management of stormwater</p> <p>Output:</p> <p>Capacitated officials for the review of Stormwater Management.</p> <p>Best practice guidelines and training programme on stormwater considerations in large scale development. This action has linkage to Action 1.5.</p>
<p>Action 7.6: Pollution Management: Chemicals Management at operation sites, mining areas, drill sites and working faces</p> <p>This action relates to any industrial/mining operation where the use of chemicals could result in</p>	<p>Authorities involved in the evaluation of management plans drafted by proponents and monitoring compliance, include:</p> <ul style="list-style-type: none"> • DWS (competent authority) 	<p>During the regulatory application processes:</p> <ul style="list-style-type: none"> • Competent authorities must review EMPrs compiled as part of applications for environmental authorisation. 	<ul style="list-style-type: none"> • The evaluation of EMPrs by competent authorities. • Listing and assessment of implications of chemicals used during industrial processes/mining 	<ul style="list-style-type: none"> • Training in best practice of chemicals management and clean up. • Additional HR capacity to ensure regular compliance 	<p>Outcome:</p> <p>Adequate facilities, processes and plans are in place to deal with chemicals and associated chemical wastes</p> <p>Output:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>pollution of the environment. This includes:</p> <ul style="list-style-type: none"> the drafting of Environmental Management Plans (EMPs) by proponents and the evaluation thereof by authorities, and the incorporation of legal requirements as part of current law reform initiatives development of bylaws, guidelines and policy statements related to pollution and chemicals management (linkage with Action 1.8) <p>Human resource development dealt with as part of Action 7.9</p>	<ul style="list-style-type: none"> DMRE (competent authority) DEFF (competent authority) WC: DEA&DP (competent authority) Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality Disaster management centres. 	<ul style="list-style-type: none"> Compliance monitoring to be done by competent authorities during implementation <p>Prior to the submission of regulatory applications for large scale development - Development of a policy statement/ guideline/bylaws/legal provisions (or a combination thereof) by relevant authorities. Such documents must set out roles and responsibilities (government and applicants) related to pollution management. This action has linkage with Action 1.8</p>	<ul style="list-style-type: none"> Authorities use legislative provisions to develop guidelines/ regulations for: Storage, transport and handling Recycling of chemicals for reuse Recovery / removal of chemicals from waste residues Clean up and remediation of impact of spills (linked to spills outlined in Action 7.2) Development of skills of, and creating additional human resource capacity in government departments and municipalities to monitor and enforce the above guidelines/regulations /legal provisions (see Action 7.9) 	<p>inspections and response to incidents.</p> <p>Human resource development dealt with as part of Action 7.9</p>	<p>Bylaws, EMPs, policies, and guidelines on pollution management: chemicals management and management of spillages.</p>
<p>Action 7.7: Development of a monitoring and pollution response protocol (and maintenance thereof) related to potential pollution sources from</p>	<p>Authorities to evaluate post-closure monitoring plans compiled by proponents for other large-scale development:</p>	<p>Monitoring plans to be submitted as part of the EIA process (or other regulatory processes) to the competent authority for consideration / approval - i.e. DWS in</p>	<p>Memoranda of Agreement / Protocol between authorities - Municipalities, WC: DEA&DP, DEFF, DWS and DMRE setting out roles and responsibilities for</p>	<p>Cost of mechanical sampling equipment, data loggers, telemetry equipment (the costs could be offset through public-private partnerships where development</p>	<p>Outcome:</p> <p>monitoring and pollution management is effective in preventing residual and latent impacts from</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>large scale developments, such as decommissioned wells in SGD.</p> <p>There needs to be an agreement (protocol) in place between proponents and relevant authorities to ensure that current and future pollution events (i.e. legacy impacts) do not become a societal cost. It must assign liabilities for actions to be taken.</p> <p>Protocol must assign roles and responsibilities.</p> <p>This challenge is dealing with operational and legacy impacts must also be addressed in law reform - i.e. it deals with the immediate response to events, as well as post-closure emergency response requirements stemming from legacy impacts e.g. failing decommissioned Shale Gas wells.</p>	<ul style="list-style-type: none"> DMRE DWS DEFF WC: DEA&DP Municipalities 	<p>terms of the Water Act and DEFF or DMRE in terms of NEMA (depending on the nature of the development). Municipalities and WC: DEA&DP in terms of LUPA may also require such plans as relevant information when considering land development applications.</p> <p>Memoranda of Agreement / Protocol between authorities to be in place prior to the finalisation of decision making on large scale developments.</p>	<p>improved cooperation (dealing with integration of regulatory processes, compliance monitoring, baseline monitoring, etc.).</p> <p>Development of a monitoring plan for inclusion in regulatory applications.</p> <p>Monitoring plans to be assessed by the relevant competent authorities for approval.</p> <p>Relevant decision-making authorities to draft protocols (agreements) to be entered into with proponents prior to the conclusion of regulatory processes.</p> <p>Financial liability provisions to be drafted to cater for worst case scenarios should these arise.</p>	<p>companies sponsor the purchase of the relevant equipment).</p> <p>Skilled human resources for both monitoring and analysis.</p>	<p>becoming societal concerns in future</p> <p>Outputs:</p> <p>agreement (protocol) in place between proponents and relevant authorities and between authorities</p> <p>EMPs, inclusive of monitoring plans.</p>
<p>Action 7.8: Assessment and development of human resource capacity (skills) related to the management of water resources.</p>	<p>Lead authority: DST and the Department of Higher Education and Training:</p> <ul style="list-style-type: none"> DWS 	<p>An assessment needs to be conducted prior to commencement of the anticipated onset of SGD (involving stratigraphic or appraisal drilling) or uranium mining. Key</p>	<p>Procurement of an external service provider for an assessment of skills capacity and requirement to deliver additional services (including the inclusion of new</p>	<p>Follow procurement processes for the appointment of an external service provider</p>	<p>Outcome:</p> <p>Various spheres of government (decision making authorities) have adequate human resource and skills</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>An assessment of the skills gap based on the different roles and responsibilities of the various authorities in the management of water resources, especially in relation to SGD and Uranium mining. This action has linkage to Action 1.6.</p>	<ul style="list-style-type: none"> DMRE WC: DEA&DP Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality WC: DLG SALGA <p>Functional training will also be provided for by the various functional departments (i.e. DHSWS, DMRE) on specific matters such as waste management or water pollution.</p>	<p>individuals must also be identified and targeted in terms of functional training – subsequent to the finalisation of law reform initiatives and prior to the finalisation of regulatory applications (related to SGD and/or Uranium mining).</p> <p>Development of a capacity building strategy (relevant to the various spheres of government) to meet capacity building needs. – to be determined by the need's analysis mentioned above.</p> <p>Immediate need - Skills to review documents such as waste management plans, water management plans etc. – implemented in line with the Water Management Strategy. See functional training adjacent.</p>	<p>technology skills requirement)</p> <p>Development of a capacity building strategy to meet capacity building needs.</p> <p>Skills to review documents such as waste management plans, water management plans etc.</p>	<p>Cost of up-skilling of officials (where and if required)</p>	<p>capacity to management water resources.</p> <p>Output:</p> <p>Systems put in place by the various spheres of government (decision making authorities) to have adequate human resource and skills capacity</p>
<p>Action 7.9: Improvement in the water, wastewater and sewage regulatory environment through the development of guidelines, bylaws and agreements between government and proponents</p>	<p>The following authorities have the collective responsibility to coordinate policy and law reform initiatives:</p> <ul style="list-style-type: none"> DWS DMRE 	<p>Current and proposed law reform related to SGD must be finalised prior to the commencement of SGD (stratigraphic drilling)</p> <p>The timeframes for the reform of policy and</p>	<p>A policy and law reform process inclusive of a Socio-Economic Impact Assessments (or Regulatory Impact Assessments) where appropriate</p>	<p>The cost of drafting of laws and policies</p> <p>Ongoing costs of implementing the policy and regulatory framework put in place.</p>	<p>Outcomes:</p> <p>A policy and regulatory framework that provides adequate controls and measures to deal with large scale developments.</p> <p>Outputs:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Improvement in the policy and regulatory environment:</p> <ul style="list-style-type: none"> • Analysis of the gaps, overlaps and inconsistencies present in the current policy and regulatory framework (linkages with Action 1.8). • Law reform in terms of national and provincial legislation pertinent to water, wastewater and sewage (linkage with Action 1,8). • Guidelines in terms of NEMA, National Water Act or LUPA (Linkage with Action 1.5) • Development of Municipal Bylaws (linkage with Action 1.8) • Memoranda of Agreements between government and proponents <p>Note: There needs to be coordination between authorities on the need for and scope of policy and law reform that is required.</p>	<ul style="list-style-type: none"> • DEFF • WC: DEA&DP • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality 	<p>regulatory framework must be determined</p>			<ul style="list-style-type: none"> • Gap analysis • Law reform process • Guidelines • Other regulatory instruments • Socio-Economic Impact Assessments (or Regulatory Impact Assessments)

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
The above must deal with all components of the management cycle i.e. forward planning, regulatory application processes, as well as compliance monitoring and enforcement.					

10. Theme 4: Waste Management

Coordinator: Eddie Hanekom – WC: DEA&DP

A. Background:

Large scale developments, especially mining related developments, can create significant volumes of different types of waste, ranging from liquid wastes such as flow back fluids, solid mining wastes such as overburden, bore fragments and cuttings, industrial wastes such as used machinery and supplies, as well as more conventional wastes such as sewage, domestic water and construction waste. This section of the Report will just focus on solid waste.

Based on its historic development trends, the Karoo does not have the ability to deal with the extensive volumes of waste (especially hazardous waste) that may flow from large scale development. The proactive consideration of waste management requirements and best practices is an imperative for the implementation of large-scale developments

B. Strategic issue 8: Solid Waste Management

10.B.1. Background

Large scale developments, especially SGD, should it come to fruition, will generate substantial volumes and new types of waste. These include liquid wastes such as flow back fluids, solid mining wastes such as overburden material, bore fragments and cuttings, industrial wastes such as used machinery and supplies, as well as more conventional wastes such as sewage, domestic water and construction waste. This section of the Report will just focus on the solid waste. Uranium Mining and SGD waste can be divided in general and hazardous waste. These operations should follow the waste management hierarchy as prescribed in the National Waste Management Act, 2009 (Act No. 59 of 2008) and manage waste in an integrated manner such as to minimise waste arising, promote the use of non-hazardous chemicals, reuse and recycling and minimise the impact of waste on water, the environment and communities. All hazardous waste types

which are not “pre-classified” have to be analysed at accredited laboratories and it must be accompanied by safety data sheet to inform the waste management facility owners of the disposal or treatment regime that must be followed with mentioned waste type.

In terms of Schedule 3: Category A (Hazardous Waste) of the National Environmental Management: Waste Act, 2008 (Act No 59 of 2008) (NEMWA), “Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals” including “.... wastes from mineral excavation” as well as “wastes from drilling muds and other drilling operations...” is classified (predefined) as hazardous waste” however a current law reform process is underway which might change this. The hazardous classification of the drill cuttings, drilling mud, flow back and produced water (or water residue) must be based on the presence of contaminants such as salts, including metals; organic hydrocarbons; inorganic and organic additives (e.g. used in hydraulic fracturing); and naturally occurring radio-active materials (NORM).

Waste management infrastructure will have to be addressed to ensure that waste which is currently generated and what will be generated in the future can be accommodated. There are no hazardous waste treatment or disposal facilities in the Karoo. Any hazardous waste generated as part of any large-scale development would need to be transported for treatment and disposal to appropriately authorised waste management facilities. The hazardous waste generated by hydraulic fracturing is likely to be Type 1 hazardous waste (in terms of the National Norms and Standards for the assessment of waste for landfill disposal) which means that all Type 1 hazardous waste generated in the in the Karoo will therefore have to be transported to a suitably designed and authorised hazardous waste disposal site in Gauteng, Port Elizabeth or Cape Town which will add to the environmental impacts of these types of developments and the cost of waste management.

Large scale developments, especially mining and SGD, will result in an influx of the people to Karoo and which will create general waste which is called municipal solid waste. The construction before operations commence will generate construction waste which will also be general waste. The Central Karoo District has currently limited landfill airspace to cater for the current residents and businesses. Therefore, any additional waste will put further pressure of the already limited available landfill airspace. It is therefore anticipated that new landfill sites will have to be established and it is recommended that this challenge be used to initiate the establishment of a regional waste disposal site and regional integrated waste management infrastructure to service the regional waste disposal. This will allow for increase recovered and beneficiation of waste material which will have a positive impact on the waste economy and job creation.

The level of compliance to the environmental authorisation of the current waste management facilities is also low due to limited budgets, institutional capacity, skills and knowledge to implement and enforce waste legislation. Therefore, capacity building of national, provincial and municipal waste management staff to deal with specialised waste types will be crucial towards successful implementation of Uranium Mining and SGD. The low attainment of compliance must be addressed to reduce the impacts on the environment. Therefore, funds will have to prioritised to improve the operation of the waste management facilities.

The Central Karoo District Municipality has now designated a Waste Management Officer to play a coordinating and monitoring role regarding waste management. Only Beaufort West Municipality has designated a Waste Management Officer (WMO) in terms of Section 58(1) of NEMWA. Each municipality authorised to carry out waste management services by the Municipal Structures Act, 1998 (Act No. 117 of 1998), must designate in writing a waste management officer from its administration to be responsible for coordinating matters pertaining to waste management in that municipality. A regional approach is needed which will facilitate the move towards regionalisation of waste management service. The establishment of a district waste management forum will benefit all the municipalities in the district and will also allow for the sharing of best practices in waste management and coordinating planning and services delivery.

Considering the lack of resources both human and financial, the establishment of a shared service centre which can be co-funded by all the relevant municipalities to serve all the municipalities regarding integrated waste management.

Currently the integrated waste management plans of the municipalities do not cater to deal with waste for potential large-scale developments, especially SGD or Uranium mining and this will have to be addressed and ensure that waste management plans deal with these specialist waste types and that it influences municipal waste management planning. The reporting of waste of quantities is also another area that will have to be addressed in the waste management planning and operations. Exact waste quantities and types of waste (waste characterisation) are crucial towards effective waste management planning.

Legislative review of the bylaws of the municipalities will have to be done because the current bylaws are not aligned to NEMWA and do not provide adequate tools for municipalities to management waste in an effective and integrated manner.

10.B.2. The following actions are proposed:

- **Action 8.1:** Establishment of District Waste Management Forum (DWMF) to facilitate a regional approach to waste management
- **Action 8.2:** Update Integrated Waste Management Plans to include provision for large scale developments
- **Action 8.3:** Review and update of bylaws to align with waste legislation
- **Action 8.4:** Implementing a regional approach to waste management
- **Action 8.5:** Improve levels of compliance, and performance at waste management facilities

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
Action 8.1: Establishment of District Waste Management Forum (DWMF) to facilitate a regional approach to waste management.	Forum to be coordinated by Central Karoo District Municipality <ul style="list-style-type: none"> • WC: DEA&DP • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality 	2019 – Established a DWMF Alternatively, the existing District Environmental Forum (with representivity from all the relevant Municipalities) must incorporate this action	Development of Terms of Reference for DWMF Forum meetings to be attended by relevant representatives from all three spheres of government	Operational resources from the District Municipality, local municipalities & WC: DEA&DP	Outcome: Improved coordination of waste management services Output: Establishment of DWMF or a District Environmental Forum that actively address a regional approach to waste management

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 8.2: Update Integrated Waste Management Plans to include provision for large scale developments</p> <p>Also see Action 2.2</p>	<p>Lead - Municipalities, with the support of WC: DEA&DP:</p> <ul style="list-style-type: none"> Central Karoo District Municipality Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality 	<p>IWMPs to be updated to include provision for SGD and other large-scale developments in 2021</p>	<p>NEMWA to guide the development of IWMPs</p>	<p>To be done in-house by municipalities with the assistance of WC: DEA&DP</p>	<p>Outcome: Improved waste management planning;</p> <p>Output: Updated IWMPs</p>
<p>Action 8.3: Review and update of by-laws to align with waste legislation</p> <p>Also see Action 2.3</p>	<p>WC: DEA&DP to lead and support municipalities:</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality 	<p>2019 – WC: DEA&DP commenced with the development of generic waste management bylaws</p> <p>2021 – Municipalities to adopt generic Bylaws or develop their own by-laws</p>	<p>WC: DEA&DP to develop generic waste management by-laws</p>	<p>Generic by-laws to be developed by WC: DEA&DP</p> <p>Municipal-specific bylaws to be done by municipalities in-house with the assistance of WC: DEA&DP</p>	<p>Outcome:</p> <p>Improved waste management bylaws</p> <p>Output:</p> <p>Aligned waste management bylaws</p>
<p>Action 8.4: Implementing a regional approach to waste management</p>	<p>WC: DEA&DP with CKDM and local municipalities</p>	<p>2019 – Initiated discussions of regional approach to waste management</p> <p>2020 onwards - implementation of a</p>	<p>Feasibility study undertaken.</p> <p>Business plan developed and agreed upon.</p>	<p>Additional resources required for -</p> <ul style="list-style-type: none"> the feasibility study and establishment of regional waste 	<p>Outcome:</p> <p>Improved waste management service</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
		<p>regional approach to waste management</p> <p>2021 CKDM in process of conducting a feasibility study on regional cooperation</p>	Implementation of regional waste solution.	management infrastructure.	<p>Output:</p> <ul style="list-style-type: none"> • Feasibility study • Business plan • Agreement • Implementation plan • Regional waste management facilities
<p>Action 8.5: Improve levels of compliance, and performance at waste management facilities</p> <p>This action links to Action 2.3 and to Action 1.6</p> <p>Note: This action includes the designation of Waste Management Officers (WMO) within each municipality or as an alternative, appoint a WMO for a shared service at a shared service centre</p>	<p>Lead: WC: DEA&DP in association with:</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • CKDM 	<p>2021 – Necessary budget to be provided for in the municipal budgets, and targets and indicators to be included in the performance management system.</p> <p>2021 – Designated WMOs per municipality / as a shared service</p>	<p>Inclusion in IDP (in accordance with the requirements of MSA, NEMWA, and the MFMA):</p> <ul style="list-style-type: none"> • Setting of targets and indicators • Auditing and monitoring • Training of staff • Continuous improvement • Provision of necessary budget (including the funding of critical posts) <p>DEA&DP to implement oversight/monitoring and support programme.</p>	<p>Municipal resources to be allocated within IDP process</p> <p>WC: DEA&DP own resources as part of the APP</p>	<p>Outcome:</p> <p>Improved levels of compliance, and performance at waste management facilities</p> <p>Output:</p> <ul style="list-style-type: none"> • targets and indicators • Auditing and monitoring programmes • Training programmes • Provision of necessary budget • DEA&DP oversight/monitoring and support programme.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
					<ul style="list-style-type: none"> Designated WMOs and additional staff

11. Theme 5: Electricity, roads, transport, and construction material

Theme coordinator: Carl October – Western Cape Department of Public Works and Transport (WC: DTPW)

A. Background

Note that although the information contained in this Theme is focused on mining and SGD, it is equally applicable to any large-scale development that will result in a significant increase in transport activities.

It is anticipated that the impact of large-scale development such as SGD (even during the exploration phase) and Uranium mining operations, on the transport infrastructure in the Karoo will be significant. For example, if SGD comes to fruition, it is anticipated that Beaufort West may become an activity hub with an increased frequency of heavy transport travelling through the town and the other major connecting roads. Based on various strategic documents such as the SEA and the Technical Readiness Study by ASSAf, as well as the regulatory applications, it is estimated that the first phase of exploration (i.e. stratigraphic drilling) will generate if the order of 36 000 truck trips for the transportation of construction material and water. Based on the information contained in the regulatory applications, it is anticipated that the appraisal stage of the exploration phase (to establish 42 well pads) will generate approximately 97 000 truck trips. The number of trips per day for both exploration stages will depend on the length of these stages, but if it is assumed that each stage will take 2 years, the two stages will generate approximately 70 and 186 daily truck trips respectively. Regarding uranium mining, the concentrated uranium ore will be transported from the various satellite operations to the CPP (to be situated to the south of Beaufort West). Uranium oxide concentrate will be transported from the CPP to a coastal location. No staff accommodation will be provided at the mining sites and the CPP and staff will be transported to and from the various satellite operations and the CPP. It is estimated that 192 truck trips per day will be generated. Although the above information is only an estimation and the routes to be impacted cannot be identified at this stage, it does emphasise the significance of the anticipated impacts and the need for interventions by the relevant transport authorities to be prepared for increased service delivery demands.

It is assumed that proponents for large scale development such as shale gas or mining will be responsible for road construction on private land. It is also assumed that private landowners will be responsible for the maintenance of these roads after decommissioning. However, the upgrade and maintenance of public roads are the responsibility of government. Baseline information must be gathered on the state of road infrastructure. Also, the ability of transport authorities to charge development (maintenance) levies/contributions from proponents for road maintenance as part of planning approvals, must be investigated.

When considering SGD in particular, the need for a Beaufort West Bypass should be considered, depending on the intensity of heavy transport traffic that can be tolerated through the town. There is also a need to identify sensitive routes (e.g. tourist routes or routes and structures of cultural-

historic value must be avoided by heavy duty vehicles. Also, it is assumed that unless unavoidable, only high order proclaimed roads will be used for the mining activities- i.e. that municipal streets and minor roads would be a no-go area unless earmarked for upgrading and change of status.

Based on the above, the following actions have been identified:

B. Strategic Issue 9: Upgrading and maintenance of proclaimed public roads:

- **Action 9.1:** Route Identification- determination of roads and municipal streets to be avoided and the posting of roads for maintenance purposes, the upgrade of public roads, the use and future-/end-use thereof.
- **Action 9.2:** Identification and protecting/securing existing and future sources of construction material.
- **Action 9.3:** In association with Action 1.4, investigate the methodology (supported by legal mechanisms as identified through Action 1.4) for charging of development (maintenance) levies/contributions or weight-distance charge or similar from proponents for large scale developments for road maintenance and the implementation thereof.
- **Action 9.4:** Planning for a Beaufort West and Laingsburg road Bypass
- **Action 9.5:** Investigate the possible role of increased rail transport and inclusion thereof in an integrated transport plan

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 9.1: Route Identification- determination of roads and municipal streets to be avoided and the posting of roads for maintenance purposes, the upgrade of public roads, the use and future-/end-use thereof.</p> <p>Note that although this Action is strongly focused on SGD, it will be triggered by any large-scale development that will result in a significant increase in transport activities.</p>	<p>The route identification as well as the roads and routes to be avoided is the responsibility of the Municipality in association with relevant provincial authorities, preferably as part of the SDF process.</p> <p>The applicants must compile integrated transport plans which identifies all routes to be used, roads to be upgraded or frequently maintained (including the sourcing of construction material) during and future-/end-use.</p>	<p>The designated route as well as roads/routes to be avoided must be identified prior to the commencement of the regulatory processes to inform project planning and the EIA process. Preferably, these routes/roads must be identified as part of the municipal SDF.</p> <p>Roads to be upgraded or frequently maintained can only be identified as part of the regulatory application process (e.g. the EIA). Discussions between the relevant</p>	<p>The route identification as well as the roads and routes to be avoided must be done in collaboration with the Municipality in association with relevant authorities, as part of the SDF and integrated transport plan amendment process.</p> <p>The applicants must, as part of the EIA process and EMP, compile integrated transport plans which identifies all routes to be used, roads to be upgraded or frequently maintained (including the sourcing of construction</p>	<p>There must be adequate skilled officials at regional, municipal and provincial level to –</p> <ul style="list-style-type: none"> • Identify the preferred route and routes to be avoided, • comment on the integrated transport plans of applicants, • do the posting of roads, • enter into negotiations with applicants and conclude on an 	<p>Outputs:</p> <p>Sensitive roads and roads identified are included in SDFs and integrated transport plan.</p> <p>The posting of roads is done prior to the finalisation of the regulatory processes.</p> <p>Agreements are entered into between transport authorities and applicants, including financial contributions, to cater for use, maintenance and</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>This action includes obtaining the GIS information from the SGD SEA to determine footprints for sensitive and "no-go" areas that can be overlaid with the Provincial Road Network (PRN).</p> <p>All Municipal streets and certain sensitive roads (e.g. tourist routes or routes and structures of cultural-historic value must be avoided by heavy duty vehicles. The proclaimed roads to be used on a regular basis by shale gas, mining or RE companies, must be identified with their status and condition determined. Where routes are not proclaimed, this will follow the normal statutory processes and transfer of ownership There will be a need to identify certain public roads that must be upgraded or frequently maintained to allow for access by heavy duty vehicles during and after the large-scale development, especially mining development activities. An agreement must be reached between the relevant authority and company on the use of these roads to ensure compliance to</p>	<p>For the posting of roads, the lead authority is the national/provincial department responsible for transport matters or the Municipality's transport department depending of the class and ownership of the road or street. The proponent must take the lead in consulting with the relevant authority to ensure that all aspects of the upgrade and future-/end-use are addressed in the regulatory application processes. In the case of SGD, this must already happen at the exploration phase.</p> <p>The national/provincial/ municipal transport authority must consult with the relevant decision-making authorities (permitting authorities i.e. municipalities, and DMRE) for their financial contribution requirements to be included in decision making of the different authorities.</p>	<p>authority and applicants must take place at the same time.</p> <p>Once the transport routes have been identified, the posting of roads, the determination of their use and future-/end-use (and associated required condition/grading) must happen prior to the finalisation of the regulatory processes to inform project planning, the EIA and decision-making processes.</p>	<p>material) during and future-/end-use. The above must be informed by the agreement reached between the relevant transport authority and the applicant during the regulatory decision-making process and prior to commencement of construction.</p> <p>For the posting of roads, the lead authority is the national/provincial department responsible for transport matters or the Municipality's transport department depending of the class, ownership or management agreement, of the road or street.</p>	<p>agreement with applicants on the use, maintenance and future-/end-use of routes, and</p> <ul style="list-style-type: none"> Do the required traffic impact and transport modelling analysis. 	<p>future-/end-use of all transport routes.</p> <p>Integrated Transport Plans (compiled by applicants) include all the above aspects.</p> <p>Proclamation issues</p> <p>High level costing of various alternatives</p> <p>Access management and land-take considerations</p> <p>Regulatory decisions contain information on financial provisioning.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>the applicable road asset management standards.</p> <p>Note: Where other roads and municipal streets will be subjected to increased volumes of usage due to generated and diversionary traffic caused by the large-scale development activities, the impacts would need to be assessed via a Traffic Impact Assessment or Traffic Model. This information should be used to determine development contributions by proponents.</p>					
<p>Action 9.2: Identification and protecting/securing existing and future sources of construction material</p> <p>Considering the anticipated increased need for construction material required for the construction of new roads, upgrade and rehabilitation of existing roads, and the maintenance of roads, there will be a significant increase in the demand for construction material. There is a need for transport authorities to secure existing and future</p>	<p>WC: DTPW in association with national government, is the lead authority in association with the relevant municipalities.</p>	<p>This is a high priority that must happen immediately, considering the existing regulatory processes.</p> <p>The identification of construction material for the ongoing maintenance programmes to be done by relevant transport authorities.</p>	<p>Studies conducted to identify sources of appropriate quality construction material inclusive of piloting alternative materials such as those with water-saving i.e. hydroscopic and self-compacting properties such as nano-emulsions and other green initiatives</p> <p>Permissions for the permanent or temporary expropriation of borrow pits</p> <p>The relevant regulatory processes in terms of the Road Ordinance, LUPA,</p>	<p>Studies for identifying additional construction material resources, and the piloting of alternatives, to be outsourced.</p> <p>Funds to be secured within the existing MTEF budget cycle for the regulatory processes, valuations, compensations, expropriation of land and replacement (and additional new) equipment – e.g. crushers and blenders</p>	<p>Outcome:</p> <p>strategic borrow pits and or additional construction material sources are secured.</p> <p>Output:</p> <p>completed studies, identifying land, and additional resources.</p> <p>Include in SEA Resource Plan (National)</p> <p>Studies into alternative materials concluded.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
sources of construction material to prevent unnecessary escalation of future road construction/maintenance costs.			EIA Regulations and the MPRDA must be completed. If required, financial guarantees, agreements must be entered into with landowners, DMRE and WC: DEA&DP to secure the future availability of the sources and the rehabilitation of borrow pits.		
<p>Action 9.3: In association with Action 1.4, investigate the methodology (supported by legal mechanisms as identified through Action 1.4) for charging of development (maintenance) levies/contributions or weight-distance charge or similar from proponents for large scale developments for road maintenance and the implementation thereof.</p> <p>Initiate a project to develop a methodology to determine development contributions or weight-distance charge or similar by developers towards the maintenance of infrastructure (especially road infrastructure). This includes the development</p>	WC: DTPW in conjunction with Provincial Treasury (in association with national treasury), DMRE and WC: DEA&DP. Linked to informants from the DTPW Road Use Charge experiment 2021/22	<p>The development of a methodology for the equitable determination of developer contributions, weight-distance charges or similar for road infrastructure (supported by legal mechanisms as identified through Action 1.4) must commence immediately.</p> <p>See Action 1.4 - the initiation of the project is a high priority that must happen immediately for the legal mechanism.</p>	<p>The appointment of external service providers to conduct the investigation will follow the normal procurement processes.</p> <p>The relevant policy and law reform processes to allow for the charging of development contributions or weight-distance charge or similar must be initiated immediately following the completion of the above study. Preferably the implementation of development contributions or weight-distance charge or similar must take place prior to the commencement of construction activities. In the case of SGD, this must take place prior to the 2nd exploration phase for SGD</p>	Funding required for the appointment of external service providers	<p>Outcome</p> <p>the implementation of a system where large-scale development projects contributes equitably towards the construction and maintenance of road infrastructure.</p> <p>Output</p> <p>A methodology for the equitable determination of developer contributions, weight-distance charges or similar for road infrastructure (supported by legal mechanisms as identified through Action 1.4)</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>of the appropriate methodology for the equitable determination of developer contributions, weight-distance charges or similar for road infrastructure (supported by legal mechanisms as identified through Action 1.4). Also investigate the most appropriate institutional arrangements for the governing of the charging of and utilisation of such development contributions or weight-distance charge or similar.</p> <p>Implementation of development contributions or weight-distance charge or similar for the maintenance of infrastructure.</p> <p>Note: This action has linkages with Action 9.1 above, and both actions must be undertaken with due consideration for the other.</p>			(requiring wellpad establishment).		
<p>Action 9.4: Planning for a Beaufort West and Laingsburg road Bypass</p> <p>Large scale developments, especially SGD will result in a significant increase in</p>	<p>Lead authority: WC: DTPW</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Laingsburg Municipality 	<p>The development of a traffic demand model to be completed within this Medium-Term Expenditure Framework (MTEF) cycle (i.e. within the next 3 years) – by 2022</p>	<p>A traffic demand model to be developed by the WCG led by the WC: DTPW.</p> <p>Ongoing monitoring of traffic and freight volumes to commence when the</p>	<p>Funds to be secured within the existing MTEF budget cycle for the development of the traffic demand model, as well as for the appointment of additional staff for the development</p>	<p>Outcome:</p> <p>The planning for and timeous development of Beaufort West and Laingsburg bypass.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>traffic volumes. This implies increased demands on existing road infrastructure. This will require the testing of road widening or bypass investment scenarios.</p> <p>An assessment to be done to determine the traffic and freight volumes that can be managed based on existing infrastructure.</p> <p>Traffic Demand Model to be developed to inform the need for additional road infrastructure interventions. Continuous monitoring of traffic and freight volumes to be done to feed into the model (for decision making purposes).</p>	<ul style="list-style-type: none"> Central Karoo District Municipality SANRAL 	<p>Monitoring of traffic and freight volumes to commence with the initiation of the project to develop a traffic demand model.</p> <p>A decision to go ahead with the bypass or road-widening schemes. Insofar as SGD is applicable, it is anticipated that this will only be required towards the end of the exploration phase if there is a proven significant shale gas resource</p>	<p>development of the traffic demand model is initiated.</p> <p>Development of the traffic demand model to be led by WC: DTPW in conjunction with other WCG Departments</p>	<p>of the traffic demand model.</p>	<p>Outputs:</p> <p>Model developed, and staff appointed</p>
<p>Action 9.5: Investigate the possible role of increased rail transport and inclusion thereof in an integrated transport plan</p> <p>Shale gas and other large-scale developments will result in a significant increase in traffic volumes. This implies increased demands on existing road and possibly rail infrastructure. This will require the testing of land</p>	<p>Lead authority: WC: DTPW with Transnet:</p> <ul style="list-style-type: none"> Beaufort West Municipality Laingsburg Municipality Central Karoo District Municipality Prince Albert Municipality 	<p>The development of a traffic demand model to be completed within this MTEF cycle (i.e. within the next 3 years)</p> <p>Monitoring of traffic, freight and passenger volumes to commence with the initiation of the project to develop a traffic demand model (Action 9.4).</p> <p>A decision to invest in rail schemes. Insofar as SGD is</p>	<p>A traffic demand model to be developed (by the WCG lead by the WC: DTPW).</p> <p>Ongoing monitoring of traffic, freight and passenger volumes to commence when the development of the traffic demand model is initiated.</p> <p>Early buy-in of Transnet Planning and programming.</p>	<p>Development of the traffic demand model to be led by WC: DTPW in conjunction with Transnet and other WCG Departments</p> <p>Funds to be secured within the existing MTEF budget cycle for the development of the traffic demand model, as well as the appointment of additional staff for the development</p>	<p>Outcome:</p> <p>Rail adequately considered as part of the effective traffic and transport services</p> <p>Outputs:</p> <p>A study of the use of rail as part of the effective traffic and transport services.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>transport investment scenarios.</p> <p>An assessment be done to determine the traffic, freight and passenger volumes that can be managed based on existing infrastructure</p> <p>Traffic Demand Model (see Action 9.4) to be developed to inform the need for additional road, freight rail and passenger rail infrastructure interventions. Continuous monitoring of traffic and freight volumes to be done to feed into the model (for decision making purposes)</p> <p>This must be included in an integrated transport plan.</p>		<p>applicable, it is anticipated that this will only be required towards the end of the exploration phase if there is a proven significant shale gas resource</p>		<p>of the traffic demand model.</p>	
<p>Action 9.6: Evaluation of electrical infrastructure to accommodate developmental backlogs as well as anticipated additional demand from large scale development.</p> <p>An evaluation of the current electrical infrastructure to facilitate future development including additional residential development.</p>	<p>Led by Eskom in conjunction with:</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Laingsburg Municipality • Prince Albert Municipality • Central Karoo District Municipality 	<p>Phase 1: Immediate</p> <p>Phase 2: Update of the SDF (next revision).</p>	<p>Phase 1: The updating of the SDFs for the various municipalities or for the region will elucidate the current developmental and infrastructural backlog. This information will indicate whether current electrical infrastructure can accommodate this backlog.</p> <p>Phase 2: Actions associated with</p>	<p>Use of internal resources.</p>	<p>Outcome:</p> <p>Electrical infrastructure that can accommodate current and future demand.</p> <p>Outputs:</p> <p>A chapter on the current state of electrical infrastructure to deal with current developmental demands in relevant</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
	<ul style="list-style-type: none"> MISA 		determining the anticipated future demand for housing and other ancillary development will indicate the extent of additional electrical reticulation and provisioning needed to meet demands.		<p>planning documents (i.e. IDP/SDF).</p> <p>Information on the anticipated future demand for electricity.</p>

C. Strategic Issue 10: Addressing the increased demand for traffic services:

- Action 10.1: Appointment of additional competent staff to deal with traffic control, enforcement, roadworthiness inspections, staffing of weighbridges, etc.
- Action 10.2: Various agreements between the municipalities, WC: DTPW, SANRAL and proponents of large-scale developments to address the management of traffic impacts

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 10.1: Appointment of additional competent staff to deal with traffic control, enforcement, roadworthiness inspections, staffing of weighbridges, etc.</p> <p>SGD and other large-scale developments will result in a significant increase in traffic volumes. This implies increased demands on traffic control services, law enforcement capabilities and roadworthiness</p>	<p>Lead WC: DTPW in collaboration with SANRAL:</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality 	<p>A decision to appoint additional staff to be informed by the results of the traffic demand model (Action 9.4). It is anticipated that the need for additional human resources will only be required towards the end of the exploration phase if there is a proven significant shale gas resource</p> <p>The weighbridge strategy forms part of the current joint planning strategy</p>	<p>WCG Traffic and Transport Forum engagements with SANRAL, PRASA, Transnet, Garden Route District Municipality, Economic Affairs, Tourism and Freight Forum.</p> <p>An approved Memoranda of Agreement (MOA) to facilitate year-on-year capital expenditure and operational expenditure, as well as the management of traffic impacts.</p>	<p>The need for funds to be secured within the existing MTEF budget cycle (OR as determined by the outcome of the transport modelling) for the appointment of additional staff and development of infrastructure to be informed by the traffic demand model.</p> <p>Legal advice and updated legislation for the Memoranda of</p>	<p>Outcome:</p> <p>Effective traffic services.</p> <p>Outputs:</p> <p>Adequate skilled human resources to deal with increased demand for traffic services</p> <p>Strategic ICT and smart transport/mobility plan.</p> <p>State of the art technology and</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>inspections. This will require the appointment of additional skilled personnel as the existing resources will be unable to cope with the increased demand.</p> <p>An assessment to be done to determine the traffic volumes that can be managed based on existing resources</p> <p>Traffic Demand Model to be used to inform the need for traffic interventions (including the appointment of additional staff, additional infrastructure, etc.). Continuous monitoring of traffic volumes to feed into the model (for decision making purposes).</p> <p>Compilation of a weighbridge strategy based on the Traffic Demand Model, which includes necessary upgrading, management and manning of weighbridges.</p>	<ul style="list-style-type: none"> Garden Route District Municipality WCG Traffic and Transport Forum Economic Affairs, Tourism and Freight Forum 	<p>between SANRAL and DTPW which has an MTEF horizon but will be flagged as critical to the Central Karoo readiness.</p> <p>Memoranda of Agreement surrounding capital and operational expenditure, including the management of traffic impacts must be in place before or when the appraisal stages for Shale Gas Development commences (and public private partnerships are formalised) - ~2022 onwards</p>	<p>The early support of establishing a Mobility Centre for Africa.</p> <p>Improve industry-readiness in terms of smart truck and connected-city/ smart-city options</p> <p>Recruitment process for the appointment of staff based on the demand outlined in the Traffic Demand Model.</p>	<p>Agreement. Refer to Action 10.1 as well.</p> <p>Early support of Mobility Centre for Africa and innovation think tank</p>	<p>infrastructure for overload control.</p> <p>Memoranda of Agreement and public private partnerships</p>
<p>Action 10.2: Various agreements between the municipalities, provincial DTPW, SANRAL and proponents of large-scale developments to address</p>	<p>This is the collective responsibility of the following authorities:</p> <ul style="list-style-type: none"> SANRAL 	<p>Medium term, or once the appraisal stages for SGD kick in can the Public-Private Partnerships (PPPs) be formalised but</p>	<p>PPP and MOAs</p> <p>Early buy-in of Mobility Centre for Africa</p>	<p>Legal advice and updated legislation</p> <p>Refer to Action 10.1 as well</p>	<p>Output and Outcome:</p> <p>Approved legal tool to secure life-cycle cost</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
the management of traffic impacts	<ul style="list-style-type: none"> WC: DTPW Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality Private Sector 	legislative reviews and provisions now needed			commitments from various stakeholders Refer to Action 10.1 as well

12. Theme 6: Emergency response services

Coordinator: Colin Deiner – WC: Dept. of Local Government

A. Background

It is anticipated that the current emergency response services of the Karoo will not be able to deal with the anticipated increase demand for emergency responses due to large scale developments and increased human activities. This includes response to spillages due to increased traffic, storage and transportation of hazardous materials, an increased vehicle rescue capability due to higher vehicle accident rates expected associated with an increase of vehicles, especially heavy vehicles, on the road, as well as increased fire risks. Capacity to deal with process accidents that might arise as a result of stratigraphic drilling and test fracturing, uranium mining, and the development of renewable energy infrastructure must also be evaluated.

Based on the above, the following actions have been identified:

B. Strategic Issue 11: Emergency response services:

- Action 11.1:** Evaluation of status quo to deal with existing demand, as well as to deal with future increased demand for response to spillages due to increased traffic, storage and transportation of hazardous materials

- **Action 11.2:** Evaluation of status quo to deal with existing demand, as well as to deal with increased vehicle rescue capability requirements due to higher vehicle accident rates expected associated with an increase of vehicles, especially heavy vehicles, on the road
- **Action 11.3:** Risk and security assessment for existing and future land users within the region.
- **Action 11.4:** Mapping of authorisation process including monitoring and compliance. Regulatory reform required for activities, including the rationalisation of the various legislation related to disaster management.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 11.1:</p> <p>Evaluation of status quo to deal with existing demand, as well as to deal with future increased demand for response to spillages due to increased traffic, storage and transportation of hazardous materials</p>	<ul style="list-style-type: none"> • WC: DTPW • DWS • DMRE • DEFF • District municipality • Local municipalities • SANRAL • PRASA 	<p>To be completed prior to the commencement of exploration/mining/development. This includes the implementation of mechanisms for cost recovery from proponents of large-scale developments. This action has linkage with Action 1.4 above.</p>	<p>Establish a meeting with the key role-players associated with emergency response to spillages within the 2020/21 financial year to understand existing capacity in the region, and the ability of role-players to increase capacity where needed.</p> <p>Based on the above:</p> <ul style="list-style-type: none"> • The development of spill response and remediation protocol and hazmat requirements. <p>Investigate appropriate legal mechanisms for cost recovery for emergency responses</p>	<p>The provision of budget, as well as contributions by companies, for the necessary services.</p> <p>Legal mechanisms for the implementation of cost recovery for emergency response services (see Action 1.4)</p>	<p>Outcome:</p> <p>Improved spill response, containment and remediation.</p>
<p>Action 11.2: Evaluation of status quo to deal with existing demand, as well as to deal with increased vehicle rescue capability requirements due to higher vehicle accident</p>	<ul style="list-style-type: none"> • Lead: WC: DTPW • District municipality • Local municipalities 	<p>To be completed prior to the commencement of exploration/mining/development. The identification of the need for</p>	<p>Establish a meeting with the key role-players associated with emergency response to vehicle rescue within the 2021/22 financial year to understand existing</p>	<p>The provision of budget, as well as contributions by companies, for the necessary services.</p>	<p>Outcomes:</p> <p>Improved response to accidents in the region.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>rates expected associated with an increase of vehicles, especially heavy vehicles, on the road.</p>	<ul style="list-style-type: none"> SANRAL 	<p>additional services, as well as the provisioning of additional budget</p>	<p>capacity in the region, and the ability of role-players to increase capacity where needed.</p> <p>Compilation of a risk assessment for the district that is risk specific.</p> <p>Set the requirement for proponents of large-scale developments to submit a risk assessment as part of regulatory applications.</p> <p>The development of a consolidated hazmat approach for the region or sub-regions which outlines the roles and responsibilities for role players.</p> <p>Investigate appropriate legal mechanisms for cost recovery for emergency responses</p> <p>Note: these issues are cross-cutting with Transport readiness actions</p>	<p>Legal mechanisms for the implementation of cost recovery for emergency response services (see Action 1.4)</p>	<p>Outputs:</p> <p>Various applicable strategies and plans</p>
<p>Action 11.3: Risk and security assessment for existing and future land users within the region.</p> <p>An evaluation of the risks posed by increased</p>	<ul style="list-style-type: none"> Centre for Disaster Management District Municipality Local Municipalities 	<p>2023/2024 - Within the next five years.</p> <p>Assessments and the updating of risk profiles to be conducted and</p>	<p>Assessments and the updating of risk profiles to be conducted and updated continuously throughout this period.</p>	<p>Capacity to monitor compliance.</p> <p>Potential for a shared service hazmat centre that will coordinate responses to spills and</p>	<p>Outputs</p> <ul style="list-style-type: none"> A risk and security assessment report, including a review schedule.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>human activities, including large scale development on existing and future land users, including an evaluation of the security concerns of such users to identify the risks anticipated to arise, and their significance (including mitigation thereof to ensure security). This includes the updating of risk registers and risk profiles at municipal and provincial levels</p>	<ul style="list-style-type: none"> South African Police Service 	<p>updated continuously throughout this period.</p>	<p>Enter into agreements with proponents and set as a requirement during regulatory decision making - Self-regulation on spills with the requirement of reporting spills to the relevant authorities.</p> <p>The development of a consolidated hazmat approach for the region or sub-regions which outlines the roles and responsibilities for role players.</p> <p>Efforts undertaken to ensure synergy between authorisations issued by different competent authorities so that similar conditions are shared, and that contradictory conditions are avoided.</p> <p>Ensure that the technical regulations capture these general concerns.</p> <p>Establish a review schedule to realign efforts as more clarity in terms of risks and demands become apparent.</p>	<p>emergency incidents for the region / sub-region.</p>	<ul style="list-style-type: none"> Agreement between regulators on requirements. <p>Outcomes:</p> <ul style="list-style-type: none"> Minimised risk to current and future land users, including the security of existing and future land uses. Improved clarity to authorisation holders on the measures required by authorisations in terms of spills and emergency response.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 11.4: Mapping of authorisation process including monitoring and compliance. Regulatory reform required for activities, including the rationalisation of the various legislation related to disaster management</p> <p>As the renewable energy and shale gas development sectors are relatively new to South Africa, it is possible that legislation to govern safety standards might not be in place. Therefore, this action will entail the evaluation of the existing legislation to adequately accommodate the emergency requirements associated with large-scale development. It will also result in a concise overview of the mandate, responsible entity, and process for each emergency element associated with large scale development, providing much needed clarity in terms of the process considering these elements, and the entities responsible for</p>	<ul style="list-style-type: none"> • Centre for Disaster Management and WC: DEA&DP with • Local Municipalities • CKDM • DMRE • DWS • BGCMA • WC Dept. Health 	<p>Within 2021/22 financial year, and prior to the awarding of exploration rights.</p>	<p>Centre for Disaster Management and WC: DEA&DP to coordinate the mapping of all authorisation processes that address emergency elements.</p> <p>Agreements between organs of State around overlapping mandates to be entered into.</p> <p>Supporting documentation aimed at officials and proponents</p>	<p>Internal resources.</p>	<p>Outputs:</p> <ul style="list-style-type: none"> • Authorisation process map clearly outlining applicable legislation, role players, and responsibilities. • Agreements between role players for overlapping mandates. <p>Outcome:</p> <ul style="list-style-type: none"> • Clarity in terms of emergency elements associated with authorising and servicing large scale development from an emergency response perspective.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
responding should an emergency event arise.					

13. Theme 7: Noise, light, and air quality management

Coordinator: Joy Leaner – WC: DEA&DP

A. Background:

From an air quality and climate change perspective, large scale developments in the Karoo provide both opportunities and risks. At a country-level, renewable energy developments and SGD provide strategic opportunities to lower GHG emissions – i.e. renewables reducing dependence of coal for electricity generation and shale gas replacing more emissions-intensive fuels). However, the benefits to be derived from SDG depends on the end-use of gas and the implementation of best practices to manage emissions during production phases. Large scale developments, especially mining related operations, also results in air pollution at local and regional scales.

B. Strategic issue 12: Effective air quality management.

In terms of air quality management, certain large-scale developments such as mining, and SGD may have a significant impact. With regards to SGD, in particular exploration and hydraulic fracturing, projects will need to be managed to reduce emissions from potential sources of air pollution, e.g. drilling operation and drilling development, drilling activities, as well as activities resulting from transporting of production equipment and hydraulic fracturing fluids.

The National Environment Management: Air Quality Act, 2004 (NEM: AQA, Act No. 39 of 2004) places the responsibility on the provincial MEC to:

- “Identify of substances or mixtures of substances in ambient air which, through ambient concentrations, bioaccumulation, deposition or any other way, present a threat to health or well-being or the environment, or which the MEC reasonably believes present such a threat, and the subsequent establishment of provincial standards for ambient air quality for these substances, and the establishment of provincial emission standards from point and non-point sources for these substances or mixture of substances if national standards are not sufficiently strict.
- Establish minimum emission standards in respect of a substance or mixture of substances resulting from the Listed Activity if implementing national standards does not achieve the desired improvement in ambient air quality in the Province.
- Prescribe measures for the control of dust, noise and offensive odours in the Province” (DEAT, 2007).

The below mentioned actions have been identified to manage air quality matters in the Central Karoo, as it relates to SGD and Uranium mining, pending the continuation of these activities. However, the various actions are applicable to any other large-scale developments that holds similar air quality implications.

The following actions are proposed:

- **Action 12.1:** Appoint and designate an AQO at the District and Local Municipality to focus on air quality management.
- **Action 12.2:** The appointment of Emissions Control Officers at industries
- **Action 12.3:** Train and designate Environmental Management Inspectors (EMI), via the National EMI Programme, at the District and Local Municipalities.
- **Action 12.4:** Designate Noise Control Officers (NCO) at the Local Municipalities
- **Action 12.5:** Train Noise Control Officers
- **Action 12.6:** Development of an Air Quality Management Strategy
 - Sub-Action 12.6.1: Develop and implement a Municipal Support Programme for air quality management.
 - Sub-Action 12.6.2: Develop and update the Air Quality Management Plans at Municipalities.
 - Sub-Action 12.6.3: Establish, operate and maintain at least one accredited ambient air quality monitoring station in the Central Karoo, to measure the baseline and ongoing ambient air pollutant trends in the area.
 - Sub-Action 12.6.4: Establish an air quality screening programme in areas potentially to be affected by large scale developments, such as shale gas development and uranium-molybdenum in order to cover a broader area in the Central Karoo.
 - Sub-Action 12.6.5: Engage with industry and mining operations to establish air quality monitoring systems at their premises or mining operations, as a requirement of Atmospheric Emissions Licence conditions or non-listed activities (bylaws)
 - Sub-Action 12.6.6: Upload ambient air quality monitoring data for the Central Karoo to South African Air Quality Information System.
 - Sub-Action 12.6.7: Manage and maintain air quality complaints handling databases at Municipal level in the District and Local Municipalities.
 - Sub-Action 12.6.8: Establish and maintain a user-friendly system for the public to lodge air quality complaints to the municipalities, province of the shared service centre

- Sub-Action 12.6.9: Conduct spatial and temporal trend analyses and modelling of air pollutants to inform airshed planning, as well as town (regional and spatial) and transport planning in the Central Karoo
- Sub-Action 12.6.10: Declare a Priority Area and develop associated Air Quality Management Plans, if required in the Central Karoo.
- **Action 12.7:** Implement appropriate administrative systems to process Atmospheric Emissions License applications received by the District Municipality, DEA&DP, DEFF or the shared service centre, depending on the type of AEL application.
- **Action 12.8:** Engage with donor agencies to fund specialised training and projects via donor-funded programmes.
- **Action 12.9:** Improve the Air Quality Compliance and Enforcement Programme and the implementation thereof.
- **Action 12.10:** Establish a sharing of best practice via a recognition programme around air pollution prevention in mining operations and industries.
- **Action 12.11:** Develop and implement By-laws and guidelines to manage air quality (including noise, odour and dust).
- **Action 12.12:** Establish and operate vehicle emission (diesel or selected pollutants) testing programmes for testing at roadsides and weighbridges.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 12.1: Appoint and designate an AQO at the District and Local Municipality to focus on air quality management.</p> <p>If this function is combined with other additional functions, adequate resources must be available to address the shared service.</p> <p>Alternatively appoint an AQO at a District level to provide a shared service to</p>	<ul style="list-style-type: none"> • Lead: WC: DEA&DP with CKDM and DEFF: • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality 	<p>High priority – AQOs are designated in the region, but have multi-disciplinary functions that dilute their focus on air quality management and related functions (odour, noise, dust etc.) Future development anticipated to substantially increase the urgency of this requirement.</p> <p>Short-term in 2020 or as soon as possible.</p>	<p>Determine the level of service required to inform required resources.</p> <p>Cost Benefit Analysis on functions splitting vs Shared Service.</p> <p>Conventional recruitment process appointing an AQO on a permanent basis, solely for air quality management.</p> <p>For the option of a shared service:</p>	<p>Financial provisioning for cost of employment</p> <p>Workspace and stationery.</p> <p>Vehicles that can be used to access facilities to be inspected. Municipality may need extra vehicles if staff appointed. DM use private vehicles, while LMs use Municipal vehicles.</p> <p>Operating costs (e.g. fuel, protective clothing, etc.)</p> <p>Environmental Monitoring Inspector training for</p>	<p>Outcome:</p> <p>Municipalities all perform air quality functions</p> <p>Output:</p> <p>Appointment of an AQO either in the Municipalities or at a shared service centre, that focus on air quality management and related matters (e.g. odour, noise, dust, etc.)</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>all Local Municipalities in the region.</p> <p>Key priority: Shared service for air quality and agreed to by all three spheres of government.</p>		<p>For the option of a shared service:</p> <ul style="list-style-type: none"> • Prior to the finalisation of regulatory applications for shale gas development (involving hydraulic fracturing)– sign agreement between Local Municipalities for a shared service AQO & secure funding for the appointment of said AQO. • Prior to the implementation of shale gas development (involving hydraulic fracturing)– recruit AQO for the region (if resources are available). 	<ul style="list-style-type: none"> • Agreement to be signed between all municipalities • Agree on job description & job requirements • Recruitment process • Appointment 	<p>officials conducting inspections.</p>	<p>A report on the service requirement as well as a cost benefit analysis.</p>
<p>Action 12.2: The appointment of Emissions Control Officers at industries</p> <p>(to assist industries or mines with air quality management, including duty of care actions and to perform monitoring and reporting duties</p>	<p>Whilst the NEM:AQA calls for the appointment of industry staff to deal with Emissions Control, the relevant decision-making authorities may include this as an AEL condition.</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality 	<p>Short-term (prior to the commencement of any drilling operations, i.e. during the exploration phase for SGD).</p> <p>High priority – may be set as a condition of approval. Insofar as SGD is concerned, this should take place at the exploration stage.</p>	<p>Agreement to be entered into between industries and decision-making authorities, as well as between, municipalities, DEFF, WC: DEA&DP to define roles and responsibilities.</p> <p>Identification of a priority area in terms of air quality management.</p>	<p>Industry to identify their resource requirements.</p>	<p>Outcome:</p> <p>Air quality requirements met by industry</p> <p>Output:</p> <p>Appointment of Emission Control Officers (technical staff) by industries.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
Note: To be identified in industry air quality emissions plans)	<ul style="list-style-type: none"> Laingsburg Municipality Central Karoo District Municipality WC: DEA&DP DEFF 				
Action 12.3: Train and designate Environmental Management Inspectors (EMI), via the National EMI Programme, at the District and Local Municipalities.	<p>Led by DEFF in association with:</p> <ul style="list-style-type: none"> WC: DEA&DP; Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality 	<p>Short-term and Continuous.</p> <p>High priority – this is a legislative requirement that is not being met. The urgency of this requirement is likely to increase with the anticipated commencement of large-scale developments.</p>	<p>Officials to attend EMI training provided by the National EMI Programme.</p> <p>National DEFF conducts training – not additional function. There is already a well-established programme. Designation at MEC level</p>	<p>Costs associated with training courses.</p>	<p>Outcome:</p> <p>Effective air quality and noise management.</p> <p>Skills development for a sustained air quality compliance and enforcement base</p> <p>Output:</p> <p>Designation of EMIs and Noise Control Officers specialising in Air Quality.</p> <p>EMI and Noise control training courses presented and attended by officials</p>
Action 12.4: Designate Noise Control Officers (NCO) at the Local Municipalities. Alternatively, appoint/designate an NCO at a district level that can provide a shared service to all the local municipalities within the district.	<ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality WC: DEA&DP 	<p>Short-term: within 3 years prior to the commencement of large-scale mining of SGD.</p> <p>High priority – this is a legislative requirement that is not being met. The urgency of this requirement is likely to increase with the</p>	<p>Conventional procurement process appointing officials on a permanent or contract basis.</p> <p>The option of appointing supporting officials in each local municipality to assist the AQO appointed at the district level must be explored.</p>	<p>Financial provisioning of a permanent salary at level 10.</p> <p>Operational costs (Workspace, equipment, transport, protective clothing, stationary and ongoing training)</p>	

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
		<p>anticipated developments.</p> <p>For the option of a shared service (depending on the availability of resources):</p> <ul style="list-style-type: none"> • 2021 – sign agreement between municipalities for a shared service NCO & designate this duty, or secure funding for appointment of an NCO. Flagged: Will be difficult to have an agreement like this, since distances too far. • 2022 – recruit NCO for each town in the region (if appointment of a new official is the preferred option) • Between municipalities for an NCO appointment – will be difficult – distance between municipalities is concerning. And not a district function. • It is a B municipality function. If it someone appointed at district level – they can move across boundaries. If they have the skills and capacity. 	<p>For the option of a shared service:</p> <ul style="list-style-type: none"> • Agreement to be signed between all municipalities • Agree on job description & job requirements • Designate official or follow recruitment process 		

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
Action 12.5: Train Noise Control Officers	<ul style="list-style-type: none"> WC: DEA&DP; Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality 	<p>Short-term and continuous.</p> <p>High priority – this is a legislative requirement that is not being met. The urgency of this requirement is likely to increase with the anticipated developments.</p>	<p>Officials to attend Noise training facilitated by the WC: DEA&DP.</p> <p>Look at specialist on noise in terms of shale gas.</p> <p>Look for specialist on noise i.e. shale gas etc. to share information.</p>	Costs associated with training courses	
<p>Action 12.6: Development of an Air Quality Management Strategy</p> <p>Compiling an Air Quality Management Strategy within which air quality management measures can be undertaken in a coordinated manner.</p> <p>This document is represented by the air quality management plan for the region if it is designated as a priority area.</p>	<p>Lead: DEFF and WC: DEA&DP</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality SALGA 	<p>Task team to be established in the short-term (2021/22)</p> <p>Strategy to be in place, with MOAs before the commencement of large-scale development that will result in air quality concerns (e.g. SGD).</p>	<p>Establishing a task team responsible for considering the most appropriate means of promoting interaction necessary to develop the strategy.</p> <p>A support strategy must be developed that could include:</p> <ul style="list-style-type: none"> Convene workshops with Councillors and Municipal Managers to promote the roles and responsibilities of the NEM: AQA at District and Local Municipalities. Engage with relevant Local Municipalities to ensure that NEM: AQA mandates and applicable budgets 	In-house resources.	<p>Outcome</p> <p>Coordinated and improved air quality management.</p> <p>Outputs</p> <p>An Air Quality Management Strategy</p> <p>Memoranda of Agreement to realise improved air quality management.</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
			<p>are included in their Municipal IDPs.</p> <ul style="list-style-type: none"> Regular engagement for information sharing pertaining to air quality management. 		
Sub-actions of Action 12.6					
<p>Sub-Action 12.6.1: Development and implementation of a Municipal Support Programme for air quality management.</p> <p>This support could include training, guidelines, support staff, secondments, AQOFs etc.</p>	<p>Lead: DEFF and WC: DEA&DP</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality SALGA 	<p>Task team to be established in the short-term (20120/21) and continuous</p>	<p>Establishing a task team responsible for considering the most appropriate means of promoting interaction (linkages with Action 1.1).</p> <p>A support strategy must be developed that could include:</p> <ul style="list-style-type: none"> Convene workshops with Councillors and Municipal Managers to promote the roles and responsibilities of the NEM: AQA at District and Local Municipalities. Engage with relevant Local Municipalities to ensure that NEM: AQA mandates and applicable budgets are included in their Municipal IDPs. Regular engagement for information sharing 	<p>To be determined based on the strategy but could include:</p> <ul style="list-style-type: none"> General operational costs. Capacity Building sessions on air quality management. DEFF provides Municipal Support. Air Quality Officers Forum SALGA Meetings Councillor Training (DEFF) 	<p>Outcome:</p> <p>Improved governance with fully functional air quality institutional mechanisms and structures.</p> <p>Output:</p> <p>Municipal support programme for air quality management</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
			pertaining to air quality management.		
<p>Sub-Action 12.6.2: Develop and update the Air Quality Management Plans at Municipalities.</p> <p>Air Quality Management Plans at municipalities (especially CKDM and Beaufort West LM), must be updated to include large scale development, including Shale Gas Development and other mining related activities (e.g. uranium).</p> <p>Note: Look at synergy with Climate Change Action Plans (in terms of waste and air quality).</p> <p>Linkage with Action 1.5 and Action 2.1 and 12.8</p>	<p>Facilitated by WC: DEA&DP and DEFF</p> <p>Developed by:</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality 	<p>Phase 1: Short-term in 2019/20 (inclusion of existing information in the IDP/SDF/Air Quality Management Plans, with Beaufort West Local Municipality's AQMP as highest priority.</p> <p>Phase 2: Updating of SDFs/IDPs/Air Quality Management Plans with additional relevant research. Please see Action 12.8 for further details in this regard.</p>	<p>Phase 1: WC: DEA&DP with the relevant municipal officers to include available information in IDP/SDF/ Air Quality Management Plans.</p> <p>Phase 2: WC: DEA&DP and municipal officers to include further research through baseline monitoring and ancillary research in the subsequent revision of IDPs/SDFs/Air Quality Management Plans (See Action 12.8 below).</p>	<p>General operational costs.</p> <p>Immediate: WC: DEA&DP with municipalities to develop Beaufort West Local Municipality AQMP. Funding will be required to develop and update plans if specialist input from a service provider is needed.</p> <p>Update AQMPs of CKDM (as 1st priority) and all Local Municipalities.</p>	<p>Output:</p> <p>Air Quality Management Plan included in IDP/SDFs (relevant and workable)</p>
<p>Sub-Action 12.6.3: Establish, operate and maintain at least one accredited ambient air quality monitoring station in the Central Karoo, to measure the baseline and ongoing ambient air pollutant trends in the area.</p>	<p>Lead: WC: DEA&DP an DEFF</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality 	<p>Medium-term (2022 – 2023) and Continuous (this should be in place prior to the implementation of large-scale development that will impact on air quality) (dependent on the availability of resources)</p>	<p>Allocate enough budget for the construction of an accredited ambient air quality monitoring station.</p> <p>Hold discussions with DEFF and DEA&DP on this being a shared service across the region.</p>	<p>This action is dependent on the availability of financial resources for the construction of the facilities, the maintenance thereof, and the associated human resources (including the option of a private public partnership).</p>	<p>Outcome:</p> <p>Improved monitoring of long-term air quality trends in the region.</p> <p>Output:</p> <p>Air Quality Monitoring Network, comprising of at least one accredited ambient air quality monitoring station, and</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
	<ul style="list-style-type: none"> Central Karoo District Municipality 		<p>Explore inclusion of area as part of the NAQI stations (DEFF).</p> <p>Publish a request for information for the construction of such a facility.</p> <p>Put the construction of such a facility out to tender.</p> <p>Appoint a contractor.</p> <p>Allocate responsibilities for the operation and maintenance for the facility, including budget allowances.</p> <p>Alternatively, enter into an agreement with industries for the public private partnership for the co-funding of the establishment and operation of a monitoring station.</p>		<p>screening of criteria pollutants, in the Central Karoo District Municipal region.</p>
<p>Sub-Action 12.6.4: Establish an air quality screening programme in areas potentially to be affected by large scale developments, such as shale gas development and uranium-molybdenum to</p>	<ul style="list-style-type: none"> DEFF WC: DEA&DP; Beaufort West Municipality Prince Albert Municipality 	<p>Short-term and continuous (this should be in place prior to the implementation of large-scale development that will impact on air quality) (dependent on financial resources)</p>	<p>Allocate financial resources to the setting up of the necessary institutional arrangements to undertake this task.</p>	<p>This action is dependent on the availability of financial resources.</p>	<p>Outcome:</p> <p>Improved screening to determine areas for long-term air quality monitoring in the region.</p> <p>Output: Screening programme, using portable air quality</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
cover a broader area in the Central Karoo.	<ul style="list-style-type: none"> Laingsburg Municipality Central Karoo District Municipality 				analysers or passive sampling methodologies, identify areas to do longer-term continuous ambient air quality monitoring.
Sub-Action 12.6.5: Engage with industry and mining operations to establish air quality monitoring systems at their premises or mining operations, as a requirement of Atmospheric Emissions Licence conditions or non-listed activities (bylaws)	<p>Lead: The relevant decision-making authority (DMRE or District Municipality) with WC: DEA&DP</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Central Karoo District Municipality Industry and Mining Operations with AELs DEFF 	<p>Prior to the commencement of stratigraphic drilling and continuous thereafter.</p> <p>This is likely to be a legislative requirement (i.e. condition of approval).</p>	<p>Enter into an agreement with industries on the way they should implement their approval conditions.</p> <p>Provide officials tasked with this responsibility with the necessary resources to engage with industry and mining operations. This will include an initial contact session with each, as well as ongoing compliance monitoring. Penalties for not adhering to monitoring requirements must be fair and unceremoniously executed.</p> <p>Dust and odour control needs to be included into EMPrs.</p> <p>Develop and implement bylaws.</p>	<p>Cost of monitoring system to be borne by applicants (Industries).</p> <p>Officials (provincial and municipalities) must be skilled to analyse monitoring data</p> <p>Financial resources will need to be budgeted for.</p>	<p>Outcome:</p> <p>Effective air quality monitoring and management is being implemented by industries and mining companies.</p> <p>Output:</p> <p>Establishment of air quality monitoring programme at mining sites</p>
Sub-Action 12.6.6: Upload ambient air quality monitoring data for the Central Karoo to South African Air Quality Information System.	See Action 1.3 and sub-action 12.6.3.and 12.6.4.	<p>See Action 1.3 and sub-action 12.6.3.and 12.6.4.</p> <p>Dependent of the availability of financial resources</p>	See Action 1.3 and sub-action 12.6.3.and 12.6.4.	<p>See Action 1.3 and sub-action 12.6.3.and 12.6.4.</p> <p>Dependent of the availability of financial resources</p>	<p>Outcome:</p> <p>Effective data storage, data analysis and research towards continuous</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
This action has been included as a method step in Action 1.3 above.					improvement in reporting and adequate response.
Sub-Action 12.6.7: Manage and maintain air quality complaints handling databases at Municipal level in the District and Local Municipalities.	<p>Lead: DEFF for mining and SGD, all others would be District Municipality</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • WC: DEA&DP; 	Prior to development commencing).	Database and procedures to be developed in-house.	In-house resources.	<p>Output:</p> <p>Information to be included in the National SAAQIS.</p> <p>Complaints register and databases.</p> <p>Trend analyses to inform future reviews of Air Quality Management Plans as well as regulatory permits.</p> <p>Declaration of priority areas, if required.</p>
Sub-Action 12.6.8: Establish and maintain a user-friendly system for the public to lodge air quality complaints to the municipalities, province or the shared service centre.	<ul style="list-style-type: none"> • This links to 12.6.7 above. • DEFF for mining and SGD • Central Karoo District Municipality • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality 	To be implemented when mining/shale gas operations commence) and continuous	<p>Compile a task team of officials to consider the most appropriate method of creating such a platform. This just include input from the intended users of such a platform.</p> <p>Providing the necessary resources for the establishment of the system (register or internet-based system).</p>	Costs associated with the development and operation of the system (which would be dependent on the form it takes).	

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
	<ul style="list-style-type: none"> WC: DEA&DP; 				
Sub-Action 12.6.9: Conduct spatial and temporal trend analyses and modelling of air pollutants to inform airshed planning, as well as town (regional and spatial) and transport planning in the Central Karoo	Coordinator: WC: DEA&DP in collaboration with: <ul style="list-style-type: none"> DST DEFF, CKDM Local Municipalities This is linked to 12.6.3 for data generation.	Medium-term (initiated with the commencement of large-scale development) and continuous, depending on the availability of financial resources.	Consultants to be procured through the conventional procurement process and provided with a terms of reference clearly outlining the relevant authority's requirements in this regard. Identification of limits of acceptable change for airsheds through the procurement of software and meteorological data to model scenarios.	Less than R1 million for airshed modelling	
Sub-Action 12.6.10: Declare a Priority Area and develop associated Air Quality Management Plans (see 12.6 above), if required, in the Central Karoo. This action has linkage to Action 12.3 and 12.7 above.	Lead: DEFF Coordinator: WC: DEA&DP in collaboration with: <ul style="list-style-type: none"> CKDM Local Municipalities DST 	The timing of this Action will be informed by the trend analysis in Action 12.6, as well as regulatory applications that may result in a concentration of large-scale developments that may compromise air quality in the region.	Identify priority areas based on the trend analyses undertaken in Action 12.6 above. Follow the required regulatory procedures.	Costs part of above study (Action 12.6) on contribution of different pollutant sources	
Action 12.7: Implement appropriate administrative systems to process Atmospheric Emissions License applications received by the District Municipality, DEA&DP, DEFF or the shared service	Coordinated by WC: DEA&DP <ul style="list-style-type: none"> DEFF (National related activities) 	Short-term (to be in place prior to finalisation of regulatory applications that require AELs) and continuous. This is a legislative requirement.	Task team to be appointed. The appropriate institutional arrangements would be needed to ensure that applicants know where to submit	In-house resources.	Outcome: Effective Atmospheric Emissions Licensing System Output:

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
centre, depending on the type of AEL application.	<ul style="list-style-type: none"> CKDM (all other Listed Activities), WC: DEA&DP (Municipal Listed Activities) Shared service centre 		applications, and who would be the responsible contact person / office in this regard.		Donor-funded training. Administrative system for AELs
Action 12.8: Engage with donor agencies to fund specialised training and projects via donor-funded programmes.	<p>Lead: WC: DEA&DP in conjunction with:</p> <ul style="list-style-type: none"> DEFF DMRE Donor Agencies 	Medium-term (to be initiated once the initial regulatory applications for AELs for large scale development has been concluded))	<p>Officials will need to make use of available avenues to access donor funding. This may require networking, which in turn requires enough human resources to allow officials to network with industry stakeholders.</p> <p>Air Quality linked to Climate Change initiatives to be explored.</p>	Operational costs, including enough human resources to facilitate networking.	
<p>Action 12.9: Drafting of an Air Quality Compliance and Enforcement Programme and the implementation thereof.</p> <p>It is anticipated that large scale developments, such as shale gas development and uranium-molybdenum will impact on air quality in the broader area of the Central Karoo. This will require improved institutional arrangements</p>	<p>Lead: WC: DEA&DP in collaboration with all the relevant decision-making authorities (DMRE, DEFF and CKDM):</p> <ul style="list-style-type: none"> Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality Shared service centre 	Immediate and continuous. This is a legislative requirement.	<p>Decision making authorities to establish a task team to evaluate the required institutional arrangements for the implementation of an enforcement programme related to air quality management in the Central Karoo area.</p> <p>The programme to improve enforcement efforts related to air quality management must be drafted with such institutional arrangements in mind (i.e. develop a</p>	<p>Operational costs and ancillary costs associated with establishing the necessary institutional arrangements for improved performance.</p> <p>Additional coordination to be done through existing local-provincial and national-provincial governance forums.</p>	<p>Outcome:</p> <p>Compliance with all air quality policies and legislation.</p> <p>Output:</p> <p>Improved Air Quality Compliance and Enforcement Programme in the Central Karoo</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
for the implementation of an enforcement programme.			cooperation agreement). This will have to be co-created between the parties involved to ensure continued support.		
<p>Action 12.10: Establish a sharing of best practice via a recognition programme around air pollution prevention in mining operations and industries.</p> <p>This action has linkage with Action 1.5.</p> <p>Engage with industries to adopt environmental best practice and develop and implement climate mitigation action plans to reduce emissions from mining operations and industries.</p>	<p>Lead: WC: DEA&DP</p> <ul style="list-style-type: none"> • DEFF • DMRE • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • Shared service centre 	<p>Initiated in the short-term (2021/22) and to be continued.</p>	<p>Measures to identify and promote best practice in conjunction with the industry to be explored and agreed upon.</p> <p>Engage with industries to adopt environmental best practice and develop and implement climate mitigation action plans to reduce emissions from mining operations and industries.</p>	<p>In-house resources.</p>	<p>Outcome:</p> <p>Improved air quality by a compliance-driven industry</p> <p>Output:</p> <p>Sharing of best practice</p>
<p>Action 12.11: Develop and implement By-laws and guidelines to manage air quality (including noise, odour and dust).</p> <p>This action as linkage with Action 1.5 and Action 1.8</p>	<ul style="list-style-type: none"> • Facilitated by WC: DEA&DP in conjunction with: • DEFF • DMRE • Beaufort West Municipality 	<p>Medium term – to be completed within this Medium-Term Expenditure Framework (MTEF) cycle (i.e. within the next 3 years)</p> <p>Bylaw to be in place in each Municipality by – by 2022</p>	<p>A task team must be established to identify a regulatory framework that would ease air quality management within the Central Karoo.</p> <p>Municipal Systems Act steps to develop a bylaw.</p>	<p>In-house resources with the assistance of WC: DEA&DP and DEFF</p> <p>Alternatively, financial resources required for the appointment of consultants to provide legal opinions, and or specialised services.</p>	<p>Outcome:</p> <p>Municipalities better equipped to process AELs and perform air quality management functions via the existence of an effective air quality regulatory framework</p> <p>Output:</p> <p>Municipal Bylaws on air quality management and</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
	<ul style="list-style-type: none"> • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality 				related air quality matters (dust, noise, odour, etc.)
<p>Action 12.12: Establish and operate vehicle emission (diesel or selected pollutants) testing programmes for testing at roadsides and weighbridges.</p>	<p>Facilitated by WC: DEA&DP and DEFF</p> <p>Developed by:</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • Shared service centre • WC: DTPW • SANRAL 	Long-term (2024 onwards)	<p>A task team to implement this initiative must be established:</p> <ul style="list-style-type: none"> • A project proposal to be developed • Funding must be sourced to procure emission testing equipment. 	Additional funding to be arranged for capital and operational costs, amounting to R500 000 p.a.	<p>Outcome:</p> <p>Reduction of emissions related to transport.</p> <p>Output:</p> <p>Vehicle Emission Testing Programme.</p>

14. Theme 8: Economic opportunities, skills, and social cohesion

Coordinators: Ajay Trikam and Chantell van Niekerk – WC Department of Economic Development and Tourism (WC: DEDAT)

A. Background

This action plan has been developed as a result of the thematic area of work on Economic opportunities, skills and social cohesion and encompasses two objectives identified from the workshop held in Beaufort west

- **Objective 1:** Capacity and skills development
- **Objective 2:** Economic opportunities: Socio-Economic Development

A cursory analysis of skills development from the Local Economic Development Strategies of the Central Karoo District municipalities revealed that this is an area that requires review and updating. Work undertaken by WC: DEDAT in Local Economic Development in this region supports ASSAf report findings of an out-migration of skilled people from the Central Karoo region due to a lack of local economic opportunities (ASSAf, 2016). This exacerbates the skills shortage, whilst increasing the budget required to upskill and replace lost staff, even though there is a wide acceptance and emphasis for the need to grow the local economy and create job opportunities. Further exacerbating the skills shortage is the influx of migrants (mostly unskilled labour) from the farms to the towns, and the migration from the more densely populated areas in the Eastern Cape towards the Karoo, which are creating immense pressures on the existing infrastructure (ASSAf, 2016). Analysis of the LED strategies & LGMTEC of the Central Karoo District Municipalities also reveal actual implementation of projects has proven to be problematic largely due to limited revenue and increased reliance on external funding impacting on economic value add and development and growth opportunities

B. Skills required

The ASSAf report (ASSAf, 2016) identifies the upstream oil and gas sector as not well developed with skills shortages in disciplines of well engineer, production geologist, exploration geoscientist, reservoir engineer, geophysicist, petro-physicist, production technologist and management. Also identified are transferable skills (Production and maintenance operators, project and discipline engineers, process engineers, health/safety/environment practitioners, qualified artisans from all trades) and available skills (human resources, information technology, finance, procurement, communications, and regulatory engagement).

C. Skills offerings

It is unclear whether there are any established tertiary education programmes that could produce scarce skills such as well engineers, petroleum engineers and reservoir engineers etc. To address this, the CKDM should consider aligning the skill requirements of the SGD industry to the current programmes of the tertiary institutions located within the Karoo. The quantum of tertiary institutions present in the Karoo also needs to be investigated. The culmination of these elements as well as other lead to an identification a skills institutional gap analysis to be performed that would be able to identify programmatic offerings in conjunction with reputed local and international institutions in the respective discipline area.

D. Budgetary perspective

Whilst the need for capacity development at both provincial and municipal level is recognised, limited budget allocations are provided for, especially due to the reprioritisation of budget expenditure following the COVID-19 pandemic.

E. Institutional perspective

Beaufort West municipality sourced R50m for the construction of a Skills and Development Trade Test Centre in 2016/17. The Central Karoo district has also created a Central Karoo Education and Skills Forum in its effort to increase the number of employable youths within the region. These initiatives show an awareness and contribution towards skills and development in the respective municipalities, with the opportunity of focussing elements towards the “transferable” and “available” skills development as described in ASSAf report. Additional elements that support this could include linkages to prioritised council projects and to supplier development programmes.

The previously established Central Karoo District Economic Development Agency has been deregistered and no longer exists. The Local Economic Development (LED) strategy has been reviewed in 2019 and LSD has been included in the strategy. Beaufort West is in the process of finalising their strategy. Currently skills development is executed in the municipalities by their skills development facilitators.

F. Current skills demand and capacity to undertake skills development

The readiness initiative focuses on a five to ten-year time horizon, which would encompass the initial exploration phases of shale gas development. Given that the production of gas will not occur within the next ten years, along with the current severely limited capacity of the various government agencies to make the Central Karoo a skills development priority (compounded by the low degree of economic activity taking place in the region), the following actions are subject to change. Two factors that will influence intergovernmental readiness would be (1) the discovery of considerable amounts of economically viable shale gas, and (2) increased funding to roll out existing skills development initiatives to the Central Karoo district.

Currently skills development is executed in the municipalities by their skills development facilitators. A learnership on Oil & Gas is currently being rolled out by the CKDM through the Chemical Industry Education & Training Authority (CHETA)

G. Strategic Issue 13: Capacity and Skills Development

- **Action 13.1:** Undertaking a wide Knowledge, Skills and Capacity gap analysis across the district and the municipalities with respect to readiness for SGD, Uranium mining and other major developments.
- **Action 13.2:** Development of a skills development programme in conjunction with local and international providers to ensure upstream, transferable and available skills are targeted and developed
- **Action 13.3:** Determine the viability of establishing a shared Skills Development Centre aimed at focussing requirements for readiness for large scale development such as SGD, Uranium mining and other major developments.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 13.1: Undertaking a wide Knowledge, Skills and Capacity gap analysis across the district and the municipalities with respect to readiness for SGD, Uranium mining and other major developments</p>	<p>Technical structure: Task team comprising of</p> <ul style="list-style-type: none"> • WC: DEDAT Skills Development and Innovation DEA&DP • Central Karoo District • Africa Skills Initiative Rep • Academia: NMMU/UCT/WITS/ Stellenbosch 	<p>The Knowledge, Capacity and Skills Gap analysis to be commenced within this Medium-Term Expenditure Framework (MTEF) cycle (i.e. within the next 3 years) subject to funding.</p>	<p>The scope of the Capacity and Skills Gap analysis to be determined in consultation with the other stakeholders</p> <p>There is need to consider the following:</p> <ul style="list-style-type: none"> • Africa Skills Initiative, Oil and Gas Learnership programme are existing programmes or resources that may provide enough information. Also, to determine what are transferable skills from farmworkers or existing industry/knowledge • Determine the need to develop basic education or alternative education towards occupations required e.g. sustainability of now defunct Shell maths learning centres programme – link to relevant Department of Education programme or accelerators • To consider cross cutting initiatives such as Operation Phakisa / 	<p>External funds are required to undertake the gap analysis.</p>	<p>Outcome:</p> <p>Appropriate skills and capacity base developed.</p> <p>Outputs:</p> <ul style="list-style-type: none"> • A Knowledge, Capacity and Skills gap analysis report • Skills Development Implementation plan • Potential additional uses and functions that would support / be supported by a shared resource centre, such as symposiums, and community meetings.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
			Khulisa skills strategy initiative.		
<p>Action 13.2: Development of a skills development programme in conjunction with local and international providers to ensure upstream, transferable and available skills are targeted and developed</p>	<p>Technical structure: Task team comprising of:</p> <ul style="list-style-type: none"> WC: DEDAT Skills Development and Innovation WC: DEA&DP Central Karoo District Africa skills initiative Rep – Academia: NMMU/UCT/WITS/ Stellenbosch South Cape College and other training institutions Chemical Industry Education & Training Authority (CHETA). 	<p>The development and implementation of programmes will be determined based on the outcome of the Capacity and Skills Gap analysis and is expected in 3-5 years</p> <p>The current CHETA initiatives is funding an Oil & Gas Learnership from Level 2-4 district wide</p>	<p>To be determined based on the outcome of the Capacity and Skills Gap analysis.</p> <p>Could be guided by International cooperation and private public partnerships to be investigated. - Pennsylvania State University programme, and other international best practice examples.</p> <p>Align with other cross cutting initiative such as Operation Phakisa / Khulisa skills strategy initiative</p>	<p>Funds are required to co-ordinate the development of programmatic skills offerings and the focussing towards a shared development centre.</p> <p>International cooperation and private public partnerships to be investigated.</p>	<p>Outcome:</p> <p>Coordinated skills development programme is implemented.</p> <p>Outputs:</p> <ul style="list-style-type: none"> Skills Development Programme Establishment of a shared resource centre to facilitate knowledge sharing and skills development Private public partnerships and international cooperation agreements.
<p>Action 13.3: Determine the viability of establishing a shared Skills Development Centre aimed at focussing requirements for readiness for large scale development such as SGD, Uranium mining and other major developments.</p> <p>Investigate the option of combining this share</p>	<p>Technical structure:</p> <ul style="list-style-type: none"> WC: DEDAT: Skills Development and Innovation WC: DEA&DP WC: DLG 	<p>The viability of a skills development centre is dependent on the capacity and skills gap analysis but expected in 3-5 years</p>	<p>Business Case development based on the outcome of the Capacity and Skills Gap analysis.</p> <p>To draw upon local initiatives: Beaufort West Skills and Development Trade Test Centre, Prince Albert Economic</p>	<p>External funds will be required to undertake such a viability study.</p>	<p>Outcome:</p> <p>Appropriate skills and capacity base developed.</p> <p>Outputs:</p> <p>Establishment of a shared resource centre to develop skills and facilitate</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
service skills development centre with the share services centre referred to in Action 1.2	<ul style="list-style-type: none"> Government Technical Advisory Centre - GTAC (an agency of National Treasury) Central Karoo District Municipality Beaufort West Municipality Prince Albert Municipality Laingsburg Municipality 		<p>Education Centre, Youth Development initiative.</p> <p>Align with other cross cutting initiatives such as Theme 1: Co-operative governance</p>		knowledge sharing and development

H. Strategic Issue 14: Socially inclusive development

- **Action 14.1:** Establishment a shared service specifically on local enterprise development and innovation and supply chain development
- **Action 14.2:** Development and roll out a guideline (or code of best practice) to assist Municipalities in optimising opportunities for corporate social investment (in local communities) by development companies.
- **Action 14.3:** Promotion and Identification of a pipeline of social investment opportunities per Municipality to inform interactions between municipalities and development companies.
- **Action 14.4:** Protocols and agreements to deal with increased risks of health and other social challenges associated with large scale developments.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>Action 14.1: Establishment of a shared service specifically on Local enterprise development and innovation and supply chain development</p> <p>The option of including this service within the share Skills Development Centre referred to in Action 13.3 above must be investigated.</p>	<p>Technical structure:</p> <ul style="list-style-type: none"> • WC: DEDAT: Enterprise Development • WC: DEA&DP • WC: DLG • GTAC • Central Karoo District Municipality • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • EDP 	<p>After feasibility and expected within 3-5 years, depending on need.</p>	<p>Legislative and financial requirements to be determined in consultation with the other key stakeholders</p> <p>Determining the most appropriate location for this share service i.e. as the shared Skills Development Centre or the Shared Services Centre, inter alia.</p> <p>Align with other cross-cutting actions within Theme 1: Co-operative governance</p>	<p>Funds are required for the appointment of an external service provider to undertake the business case.</p>	<p>Outcome:</p> <p>Effective co-ordination and facilitation to ensure the implementation of economic initiatives:</p> <p>Output:</p> <p>A shared service specifically on Local enterprise development and innovation and supply chain development is established</p>
<p>Action 14.2: Development and roll out a guideline (or code of best practice) to assist Municipalities in optimising opportunities for corporate social investment (in local communities) by development companies.</p> <p>This action has linkage to Action 1.5</p>	<p>Technical structure:</p> <p>Lead is WC: DEDAT: Green Economy in association with:</p> <ul style="list-style-type: none"> • EC: DEDEAT, • DMRE • CKDM • EDP 	<p>The development of guidelines / best practice must happen from 2020 onwards.</p> <p>Consideration should also be given to existing initiatives such as the Shale Gas toolkit already developed by EC DEDEAT.</p>	<p>Appointment of external service provider to develop guidelines and best practice including the consideration of the Shale Gas toolkit already developed by EC DEDEAT</p> <p>Consideration must be given to the REIPPP programme Social Investment requirements, as well as the Social and</p>	<p>Funds are required to extend the toolkit and work undertaken through EC: DEDEAT including funding to undertake municipal workshops</p>	<p>Outcome:</p> <p>Effective co-ordination and facilitation to ensure the implementation of economic initiatives:</p> <p>Outputs:</p> <p>Guidance for municipalities on optimising CSI into local communities</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
			Labour Plans developed in terms of the MPRDA.		
<p>Action 14.3: Promotion and Identification of a pipeline of social investment opportunities per Municipality to inform interactions between municipalities and development companies.</p>	<p>Lead: WC: DEDAT, in association with:</p> <ul style="list-style-type: none"> • Beaufort West Municipality • Prince Albert Municipality • Laingsburg Municipality • Central Karoo District Municipality • WESGRO • EC: DEDEAT • DTI • DMRE • EDP 	<p>Identification of a pipeline of initiatives to be incorporated within the IDP. To be commenced within next planning cycle.</p>	<ul style="list-style-type: none"> • Pipeline to be identified as part of the IDP planning process. <p>Consideration must be given to:</p> <ul style="list-style-type: none"> • the alignment with DMRE and DTI investment pipeline methodologies, • Saldanha open forum • Cross cutting – Operation Phakisa and Khulisa 	<p>In-house as part of the IDP planning process and LED work.</p>	<p>Outcome:</p> <p>Pipeline of social investment opportunities (captured in the IDP).</p>
<p>Action 14.4: Protocols and agreements to deal with increased risks of health and other social challenges associated with large scale developments.</p> <p>Large scale development will result in the influx of job seekers. This also increases the risk of social challenges</p>	<p>Municipalities in collaboration with Applicants for large scale developments to develop protocols and agreements to address the increased risk of social challenges.</p> <p>Municipalities in collaboration with the WC Dept of Health to assess the state of readiness of</p>	<p>High priority: Prior to the implementation of large-scale development (especially mining and SGD) the Department of Health in collaboration with Municipalities to assess the state of readiness of Municipalities to address the anticipated</p>	<ul style="list-style-type: none"> • Applicants for large scale developments to develop protocols and agreements as part of their regulatory applications. They need to provide human resources and infrastructure in support of the Municipalities, to 	<ul style="list-style-type: none"> • Applicants for large scale developments to provide human resources and infrastructure in support of the Municipalities, to address social challenges • The readiness assessment to 	<p>Outputs:</p> <p>Agreements and protocols to address social/health challenges associated with large scale developments</p> <p>Outcome:</p> <p>Effective management of social/health challenges</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed – if required or appropriate	Resources Required	Desired outcome and outputs
<p>such as the spreading of diseases (e.g. HIV AIDs and the COVID-19) and gender-based violence). Addressing these challenges requires a whole-of-society approach.</p> <p>Applicants for large scale developments must, in collaboration with Municipalities and relevant decision-making authorities, develop management measures to address these social challenges</p>	<p>Municipalities (i.e. adequacy of human resources and infrastructure) to deal with the anticipated increased social challenges</p>	<p>increased social challenges.</p> <p>Applicants for large scale developments to develop protocols and agreements as part of their regulatory applications</p>	<p>address social challenges</p> <ul style="list-style-type: none"> Decision making authorities are to set conditions as part of regulatory decision, formalising the implementation of protocols and agreements 	<p>determine the need for additional human resources and infrastructure required to deal with the anticipated increase of social/health challenges</p>	<p>associated with large scale developments</p>

15. Theme 9: Stakeholder communication and awareness:

Coordinator: Rudolf van Jaarsveld – WC: DEA&DP and Barbara Brown – Central Karoo District Municipality

A. Background

Communication to stakeholders on the status of large-scale developments has been one of the biggest challenges to date. This is clearly illustrated by the strong public reactions captured in the social media related to shale gas development and Uranium mining. Unfortunately, the lack of a coordinated information sharing strategy by government has contributed to the polarised views that currently characterises shale gas development.

Regarding SGD in particular, it must be acknowledged that data and knowledge management will become one of the most important aspects in future - coordinating the collection of data, data quality, warehousing, data analyses, knowledge creation, and the dissemination of information to different stakeholders. This Theme particularly relates to the need to communicate scientific information to empowers stakeholders. Whilst it is not the purpose of this Karoo Readiness Action Plan to coordinate information sharing related to large scale development, it is acknowledged that the WCG must collaborate with other organs of state to ensure that information sharing takes place. The WCG does however,

have a responsibility to share the information contained in the Karoo Readiness Action Plan, with relevant stakeholders to ensure that its implementation promotes a whole-of-society approach.

Based on the above, the purpose of the actions proposed as part of this Theme, is:

- In collaboration with the various decision-making authorities involved in large scale development, to share information with all stakeholders on the status specific large-scale developments (i.e. the status of regulatory applications, research and other relevant information);
- To share information contained in this Karoo Readiness Action Plan with relevant shareholders and where relevant, establish relationships with stakeholders (including local community leaders) to ensure the implementation of this thereof

B. Strategic Issue 15: Stakeholder communication and awareness

- **Action 15.1:** Facilitate a workshop with external stakeholders about the Karoo Readiness Action Plan to explore opportunities for cooperation, information sharing and establishment of a communication strategy.
- **Action 15.2:** Complete a comprehensive stakeholder mapping exercise in 3 categories, namely, primary, secondary and key stakeholders influenced by large scale developments
- **Action 15.3:** Establish a Reference Group
- **Action 15.4:** Identify modalities and outlets for communication:
 - Identify different audiences
 - Identify stakeholder engagement opportunities
 - Categorise information to be disseminated
 - Develop new communication protocol to be developed
 - Identify individuals in different Government spheres who will distribute information
- **Action 15.5:** Implementation of communication strategy for large scale development in the Karoo region.

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 15.1: Facilitate a workshop with external stakeholders about the Karoo Readiness Action Plan to explore opportunities for cooperation, information sharing and establishment of a communication strategy.</p> <p>The consultation of external stakeholders will be most effective at the stage when there is more clarity on the status of the regulatory application related to large scale developments,</p>	<p>Led by CKDM and WC: DEA&DP in association with:</p> <ul style="list-style-type: none"> • DMRE • DST • External stakeholders • All relevant WCG departments • EDP 	<p>External stakeholder workshop to be held prior to the finalisation of regulatory applications, when there is more certainty regarding the status of large-scale development.</p>	<p>The coordination of an external stakeholder engagement/workshop on the Karoo Readiness Action Plan in partnership with other organs of state.</p> <p>Revise the Karoo Readiness Action Plan based on the inputs of external stakeholders</p>	<p>Internal resources to be used.</p>	<p>Outcome:</p> <ul style="list-style-type: none"> • Improved readiness for large scale development through collaboration between government and civil society stakeholders. <p>Output:</p> <ul style="list-style-type: none"> • Workshop held • Report on workshop

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>Action 15.2: Complete a comprehensive stakeholder mapping exercise in 3 categories, namely, primary, secondary and key stakeholders influenced by large scale development</p>	<p>CKDM and WC: DEA&DP in collaboration with EDP.</p>	<p>Exercise commenced in 2021/22, and to be finalised prior to finalisation of regulatory applications for SGD or uranium mining.</p>	<ul style="list-style-type: none"> Identifying: listing relevant groups, organisations, and people Analysing: understanding stakeholder perspectives and interests Mapping: visualising relationships to objectives and other stakeholders Prioritising: ranking stakeholder relevance and identifying issues 	<p>Internal and from EDP</p>	<p>Outcome:</p> <ul style="list-style-type: none"> Improved collaboration between governmental and civil society stakeholders. <p>Outputs:</p> <p>A report, providing:</p> <ul style="list-style-type: none"> A clear understanding of who all stakeholders are. Understanding the needs of the identified stakeholders. A visual representation of all stakeholders involved.
<p>Action 15.3: Establish a Reference Group</p> <p>The purpose of the reference group is to identify all the relevant stakeholders to whom information regarding readiness for large scale development are to be distributed.</p>	<p>Lead: CKDM in collaboration with WC: DEA&DP</p> <p>Other partners to be identified in stakeholder mapping (Action 15.2)</p> <p>It is important to note that it will not be the responsibility of the CKDM, with support from WC: DEA&DP, to coordinate all information sharing related to large scale</p>	<p>Reference Group to be established in 2021/22</p>	<p>Identify the relevant individuals that will form part of the Reference Group, in consultation with other authorities.</p>	<p>Internal resources from CKDM and WC: DEA&DP</p>	<p>Outcome:</p> <ul style="list-style-type: none"> Coherence and consistency in information sharing and gathering <p>Output</p> <ul style="list-style-type: none"> Reference group

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
	<p>development. It will primarily focus on providing feedback on the implementation of the actions contained in this Karoo Readiness Action Plan.</p> <p>The Reference Group does, however, provide a stakeholder platform that can be used by other authorities to share information regarding the status of large-scale development, research and other relevant information.</p>				
<p>Action 15.4: Identify modalities and outlets for communication of information:</p> <ul style="list-style-type: none"> Identify different audiences Identify stakeholder engagement opportunities Categorise information to be disseminated New communication collateral to be developed. This will include the following: 	<p>WC: DEA&DP in association with CKDM and EDP, and in consultation with DMRE, DEFF and other decision-making authorities, as well as the National Hydraulic Fracturing Monitoring Committee</p>	<p>After workshop referred to in Action 15.1 above</p>	<p>Literature review on current material available, including the Science Action Plan (drafted by DST), and this Karoo Readiness Action Plan.</p> <p>Communication channels mapping</p> <p>Consideration must be given to the communication strategy on shale gas, as approved by Cabinet.</p>	<p>WC: DEA&DP and CKDM in collaboration with EDP</p>	<p>Outcome</p> <p>Improved communication</p> <p>Output</p> <p>A report that provides:</p> <ul style="list-style-type: none"> Clear understanding of what content is available and how to disseminate it. Modalities and outlets identified Audience identified Stakeholder engagement

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<ul style="list-style-type: none"> • Brochures • Information booklet • Presence on the WC: DEA&DP Website • Newsletter (to be decided on) • Feature article in the Provincial Magazine – BT Magazine • Identify individuals in different Government spheres who will distribute information • Collaboration with DMRE and the National Hydraulic Fracturing Monitoring Committee, on communication of information related to SGD 					<p>opportunities identified</p> <ul style="list-style-type: none"> • Information for dissemination categorised • New communication collateral developed. • Government institutions to distribute information identified
<p>Action 15.5: Implementation of the communication strategy on the implementation of the Karoo Readiness Action Plan</p> <p>This action item is dependent on the identification of information management, communication and</p>	<p>Phase 1: the CKDM in collaboration with WC: DEA&DP share the Karoo Readiness Action Plan with external stakeholders (i.e. the Reference Group).</p> <p>Phase 2: To be decided on a case by case basis in terms of the various sub-</p>	<p>Phase 1: WC: DEAD&DP with CKDM to develop a communication strategy to communicate the Karoo Readiness Action Plan to external stakeholders before 2nd quarter of 2021/22</p> <p>Phase 2: WC: DEAD&DP with CKDM to arrange a</p>	<p>Phase 1: WC: DEAD&DP with CKDM to develop a communication strategy for the communication of the Karoo Readiness Action Plan to external stakeholders</p> <p>Phase 2: WC: DEAD&DP with CKDM to arrange a workshop with external</p>	<p>Internal resources</p>	<p>Outcome:</p> <p>A consolidated and harmonised communication strategy surrounding the various topics at hand.</p> <p>Outputs:</p>

Action Step Description	Roles and Responsibilities:	Implementation Schedule	Methodologies, Process or Procedures to be followed	Resources Required	Desired outcome and outputs
<p>capacity building needs from other action themes as well as the preceding actions within this theme.</p> <p>The roles, implementation schedule, method, and resources will all depend on the intervention required.</p> <p>Phase 1 is sharing the Karoo Readiness Action Plan with external stakeholders (i.e. the Reference Group)</p> <p>Phase 2 is inviting stakeholders to a workshop on the Karoo Readiness Action Plan.</p>	<p>components that would constitute this strategy.</p> <p>Phase 2: arranging a workshop with external stakeholders on the Karoo Readiness Action Plan with the purpose of revising the document. The workshop will be planning in collaboration with all the state-stakeholders that has been involved in drafting the Karoo Readiness Action Plan.</p>	<p>workshop with external stakeholders when there is more clarity on the finalisation of regulatory applications related to SGD and Uranium mining</p>	<p>stakeholders the purpose of revising the Consolidated Readiness Action Plan</p> <p>WC: DEAD&DP with CKDM to revise communication strategy based on the above</p> <p>Ongoing tweaking of communication strategy.</p>		<p>A communication strategy plan.</p>

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