Strategic Environmental Assessment of Shale Gas Development in the Central Karoo

Phase 3:
Decision Support Tools Report

APPENDIX 1a

Record of Stakeholder Engagement

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1. ANNEX 1. PROJECT EXECUTIVE COMMITTEE MEETING NOTES (INCL. ATTENDANCE)

1.1 Inception Meeting Notes (12-13 February 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Inception Meeting for the Strategic Environmental Assessment for Shale Gas Development in South Africa.

Date of the meeting

12-13 February, 2015.

Location

DEA Environment House, Pretoria.

List of attendees

Name	Organisation		12 February 2015	13 February 2015
Henk Coetzee	CGS		✓	✓
V.R.K. Vadapalli	CGS		✓	-
Abulele Adams	CSIR		✓	✓
Biffy van Rooyen	CSIR		-	✓
Greg Schreiner	CSIR		✓	✓
Luanita van der Walt	CSIR		✓	✓
Paul Lochner	CSIR		✓	✓
Alf Wills	DEA		✓	-
Dee Fischer	DEA		Joined from 12:00	-
Janine Hambury	DEA		✓	✓
Marianie Moodley	DEA		✓	✓
Peter Lukey	DEA		✓	✓
Surprise Zwane	DEA		✓	✓
Paul Hardcastle	DEADP (WC)		✓	✓
Alistair McMaster	DEDEAT (EC)		✓	-
Bryan Fischer	DENC (NC)		✓	✓
Ernst Bertram	DWS		✓	✓
Mkhevu Mnisi	DWS		✓	-
Namisha Muthraparsad	DWS		-	✓
Jeff Manuel	SANBI		✓	✓
Kristal Maze	SANBI		✓	-
Bob Scholes	Wits/CSIR		✓	✓

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Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

List of acronyms

CGS	Council for Geoscience
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EMPr	Environmental Management Programme
NGO	Non-Government Organisation
PCG	Process Custodians Group
PEC	Project Executive Committee
SANBI	South African National Biodiversity Institute
SEA	Strategic Environmental Assessment
SIP	Strategic Integrated Project

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Strategic Environmental Assessment for Shale Gas Development in South Africa
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Meeting Notes:

1. *Welcome and introduction*

An opinion exists that the current Environmental Management System in South Africa is delaying development which is driving the need for a more improved and streamlined process. This should be achieved by utilising Integrated Environmental Management Tools which provide flexibility, effectiveness efficiency. One of those tools is the Strategic Environmental Assessment (SEA) which enables the screening of sensitive areas and assists in understanding broad issues within a wider geographic area. SEAs can be used to inform which assessment tools are most suitable at an area and project-specific level.

Shale gas development in South Africa is not currently classified as a SIP. However, it is a national priority and if resources are determined and established to be viable, it could be translated into a SIP. The exploration and exploitation of shale gas is recognised by the Minister as a socio-economic opportunity, but there are also known detrimental environmental impacts to consider. DEA is taking a proactive approach to identify the best tools, processes, and decision-making framework for shale gas development if it occurs.

2. *Workshop outline*

Inputs and Clarifications on "Shale Gas Debate" in South Africa

- In July 2012, DEA commented on the report of the DMR inter-departmental Task Team Study and recommended a "first-pass" SEA to suggest best practice techniques and environmental management principles to augment the regulatory framework
- Falcon-Chevron has initiated updates to their EMPr in addition to Bundu. Shell has not initiated an EMPr update process to our knowledge.

- A core message that needs to be communicated throughout the SEA process: Departments, Councils, and Provinces are working together to enable evidence-based decision-making.
- Close collaboration between DEA and DWS is necessary as water is a fundamental issue to we addressed in the SEA.
- An important aspect to consider throughout the SEA process is that shale gas development will only happen if it the resource is economically viable to exploit, it is not a fate complete.
- The SEA process should not provide a platform for the wider political debate on shale gas, but only on the scientific information collected during and relevant to the SEA process. The assessment is thus policy-relevant, but not policy-prescriptive.
- The message that is being communicated from the SEA process on the science should be simple, transparent, honest and robust.
- A high-level commitment has already been made to the exploration of shale gas, which may lead to question why the SEA is being undertaken at this stage. It should be clearly stated that provisional permission has been granted on shale gas exploration – the provision being the environmental aspects that will be informed by the SEA.
- Currently the landscape-scale impact of shale gas is unknown, therefore it must be emphasised that the SEA aims to remove the shale gas risks from a speculative domain and base it on facts.

3. *SEA approach*

Terminological clarifications

- The SEA is following a risk-assessment approach, but opportunities are also being considered as "Risk Discounted Benefits".
- The term "expert" for the review teams should rather be indicated as "knowledgeable persons" or "persons with relevant expertise".

- NGOs and Public Interest Groups (PIGs) will add useful comments (they are not scientist or academics), but they are on the ground and may be seen 'expert' on public and community opinions.
- South African authors who have described the Karoo Sense of Place may be considered "experts" on the sense of place Strategic Issue. This is more in line with "softer" issues (compared to hard science) which may require the expertise from people such as lawyers, environment historians, writers etc.
- Agreement on the study area for the study based on the existing Exploration Rights applications from Shell, Bund and Falcon/Chevron.
- The SEA is not a consensus-building exercise, but an evidence-building exercise, additionally the SEA cannot be held up by trying to reach consensus within management of the process. Divergent views and polarisation should be adequately captured through the process.
- Public participation at the local and community scale will contribute to building evidence for social fabric and sensitivities as well as the opportunities for benefit sharing.
- It is important to inform communities of the realistic opportunities from shale gas development and also the detrimental effects it may have on their health and their environment (clear up any misconceptions they may have on the risks/opportunities of shale gas development). The scale at which the study is being conducted does however limit the degree to which the public can be engaged.
- There needs to be an understanding of the 'types' of social contacts which emanate from the drilling programmes and how to implement these in a sustainable manner. There also need to be some kind of provisioning the SEA which considers the legacy impact of shale gas development e.g. well closure, monitoring etc.

4. *Vision and Sustainability Objectives*

Edits to the Draft Vision for Shale Gas Development in South Africa

- Add "institutions" into the vision to entail the implementation of the decision-making frameworks.
- Expand the term "environment" to social, ecological and economical in the actual text.
- The prejudgement that shale gas development will definitely happen, should be removed, therefore a phrase such as "potential shale gas development" or "if shale gas development should occur" must be inserted.

Consideration for the Sustainability Objectives

- Other official documentation such as the MPRDA and the National Water Resources Strategy should be considered for the development of the Sustainability Objectives.

Clarifications on the SEA objectives

- Outputs of the SEA will be assessment tools and a decision-informing framework for the regulation of shale gas activities

5. *Project governance*

- Department of Mineral Resources (DMR) should be represented on the Project Executive Committee (PEC), however this coordination should be arranged at a high level (e.g. DEA DG to DMR DG).
- To make sure that the local communities within the three provinces (Western Cape, Northern Cape and Eastern Cape) are actively engaged on the process and results of the SEA, the Provincial Governments need to develop a local communication strategy where Municipalities within the study area are kept informed.
- The PEC is responsible for the management of the SEA process (i.e. ensuring that the project is on scope, on time, and on budget) and should function under the principle of cooperation.
- The Process Custodians Group's (PCG) responsibility is to ensure that the SEA process is transparent, sound and managed in a responsible way that does not discredit or compromise the project. The PCG are will be focused on verifying process related aspects of the SEA only e.g. that expert authors have been selected in a credible manner, that review procedures have been implemented in a structured way etc.
- All communications and documents relating to the process should be made public to ensure transparency, except of for the internal discussion of the PEC.
- The Multi-Author Teams need could also fulfill the role of an "Expert Reference Group". All inputs into the SEA may not necessarily be provided by "expert authors" but also by people who have local and indigenous knowledge (such as Farmers Associations, Oil and Gas Associations, Regulators, Parastatals etc.). Documents get value when subjected to a workshop discussion and ensures that information has not been lost and that a wider scope of people, expertise and views are included and considered.
- It is suggested that a PCG be appointed though a forum that is to be facilitated by DEA with the support of the Project Team. PCG members should be 'experts' in process and not necessarily 'experts' in shale gas.
- SALGA should probably be considered for to be a member on the PCG.
- DEA recommended that the governance process should remain flexible should we need to include workshops for key stakeholders and NGOs.

6. *Technical evaluation and socio-economic analysis of shale gas in the Eastern Cape*

- This project is being undertaken by the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism aimed to create a credible environmental baseline (pre- shale gas development) for the Eastern Cape Province, especially to assist in any litigation.
- The outcomes of the study is i) to provide independent, robust, scientific-based advise to the Eastern Cape Government, whilst factoring in the needs of the rural poor communities; and ii) create public sector capacity to identify, monitor, and manage risks.

7. *Opportunities and risks of shale gas extraction in the Western Cape*

- This study considered the pros and cons of shale gas development (focusing on the central Karoo district), and was stimulated by lack information flowing to provincial government.

8. Strategic Issues

- The type of technology used (hydraulic fracturing) will determine the frequency and magnitude of effects on different spheres of issues.
- Consider adding another sphere called "Governance" that deals with the enforcement of policies and frameworks, or Governance/Institutional Capacity could be a cross-cutting theme through Strategic Issues.
- The end-use of the shale gas should be considered as this will also have impacts relating to different impacts e.g. greenhouse gas emissions and employment opportunities.
- Different scenarios need to be considered within 3 broad paradigms namely i) Exploration, ii) Exploitation and iii) Utilisation. Recommendations based on the analysis of these different scenarios should be made.

9. Bioblitz Assessment

- Shale gas development poses a risk to biodiversity. There is a historical trend of 'undersampling' in the proposed study area.
- Key impacts that need to be considered are associated with rivers, drainage lines, and riparian zones (regardless of ephemerality). These areas should be comprehensively represented using effective field methods (e.g. SASS method).
- The Bioblitz Assessment is the only main primary research that will be conducted. Substantial information gaps will be identified by the Multi-Author Teams and may be subjected to primary research where necessary and practical.
- The bioblitz will be undertaken as part of phase 1 of the SEA to inform phase 2 which is the Strategic Assessment.
- The SANBI bioblitz will:
    - Inform species assessments; distribution; threat status
    - Increased confidence on absence/occurrence of species throughout area of interest
    - Contribute to identification of highly sensitive/no-go areas based on species presence.
    - Increases confidence in specialist studies

10. Project Team and Process

- The Public Briefing Sessions have shifted to align with the public commenting period (before the Final Assessment Report).
- The deliverables of the SEA should be explicit "decision-making products" or "decision-support tools" that include Standards, Policy Options and Regulations.
- It will be useful to conclude the SEA with a "Regulators Workshop" or "Institutional Workshop for Capacity Development" to brief regulators and industry on the decision-making products (decision-support tools), build capacity, and add to a discussion on the practicality of the developed tools.
- The sustainability of the SEA and its outputs should be considered; there needs to be a plan on how to address ever-changing technologies, knowledge and science beyond the SEA process.

11. *Discussions on the Media and Communications Strategy*

- There are two spheres of communication which should be considered separately during the SEA process: i) The broader political debate on shale gas ii) The SEA process
- The science should be communicated by the competent scientists, without them making value judgments or commenting on the politics of the broader shale gas discussion. Positions should always be neutral and propaganda statements avoided e.g. there is definitely economically recoverable shale gas.
- A rapid-response mechanism should be implemented to respond to media and communication requests as journalists work on a short turn-around time.
- The Shale Gas SEA website (hosted by CSIR) will serve as an interactive knowledge basis ("Credible information portal").

12. *Closing comments*

- The SEA is going to be challenging and controversial. There needs to be a credible and pioneering approach to this assessment. We do not see ourselves as fitting within the 'usual' client/consultant model, but rather as a science consortium supporting government in the best interests of the country. We see this as a highly collaborative process.
- In order to make a positive difference there needs to be efficient collaboration within the SEA team and throughout the governance structures. Furthermore, the stakeholder engagement that is to be undertaken as part of this process must be meaningful.
- The SEA process will not provide an 'answer' to the wider political debate on shale gas, but only on the scientific information collected during and relevant to the SEA process. The assessment is thus policy-relevant, but not policy-descriptive.
- The language used throughout the SEA process should be robust and help achieve the effective communication. Language needs to be used very carefully through the process to ensure that we communicate honest and credible messages to all involved.
- DMR would be a useful entity to be represented in the PEC, however this coordination should be arranged at a high level.
- The Multi-Author Teams need will also fulfill the role of an "Expert Reference Group". All inputs into the SEA may not necessarily be provided by "expert authors" but also by people who have local and indigenous knowledge (such as Farmers Associations, Oil and Gas Associations and Parastatals).
- Different scenarios need to be considered within 3 broad paradigms namely i) Exploration, ii) Exploitation and iii) Utilisation. Recommendations based on the analysis of these different scenarios should be made.
- There are two spheres of communication which should be considered separately during the SEA process: i) The broader political debate on shale gas ii) The SEA process

Key actions and way forward

Action	Responsible party
Circulate the Draft Shale Gas Vision and Sustainability Objectives for comment (to the Inception Meeting Attendees), and include other relevant documentation in the development of the Sustainability Objectives.	CSIR
Draft a "Governance Operating Document" which will serve as a guideline for the operating the SEA process.	CSIR

Create a list of explicit SEA deliverables (decision-making products / decision-support tools) to be included in the Detailed Work Plan	CSIR
Develop a website that will be used as a "Knowledge Portal" for the SEA process	CSIR
Department of Mineral Resources (DMR) should be represented in the Project Executive Committee (PEC); this coordination should be arranged at a high level (e.g. DG to DG letter).	DEA
Facilitate a forum for NGOs/Public Interest Groups, Government and Commerce/Private Sectors to select representatives to the PCG, to be implemented in terms of the "Governance Operating Document"	DEA
Draft an internal Media and Communications Strategy (week of 16 February) and the Communications Teams from DEA, CSIR, SANBI and CGS should have a follow-up meeting (preliminary date set for Tuesday, 24 February).	DEA
Launch the SEA early/mid-March, preferably with the DEA Minster	DEA
Develop a complete communications strategy (addressing mechanisms such as how, where, and when to communicate, as well as create a database of media communicants).	Project communications teams (DEA, CSIR, SANBI, CGS)
Provinces need to develop a Local Communication Strategy to efficiently engage with the District and Local Municipalities in the study area	Provincial PEC representatives (Eastern-, Western, and Northern Cape)

1.2 Project Executive Committee Meeting 1 Notes (22 July 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Project Executive Committee Meeting 1

Date:

22 July, 2015.

Location:

CSIR Pretoria.

List of attendees:

Name	Organisation	
Henk Coetzee	CGS	
Gerry Pienaar	DEDEA (EC)	
Greg Schreiner	CSIR	
Lusnita van der Walt	CSIR	
Paul Lochner	CSIR	
Dee Fischer	DEA	
Lydia Bosoga	DAFF	
Surprise Zwane	DEA	
Paul Hardcastle	DEADP (WC)	
Patience Sehlapo	DEA	
Bayanda Zenzile	DWS	
Natalie Uys	DENC (NC)	
Muzi Mkhize	DoE	
Mkhevu Mnisi	DWS	
Jeff Manuel	SANBI	
Bob Scholes	Wits/CSIR	

Apologies received:

- Representative from DST
- Representative from DMR
- Henri Fortuin – DEADP (Paul Hardcastle as alternative representative)
- Ernst Bertram – DWS.

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environmental affairs | water & sanitation | science & technology | mineral resources | energy

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

CSIR | SANBI Biodiversity for Life | Council for Geoscience

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List of acronyms

CGS	Council for Geoscience
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DENC	Department of Environment and Nature Conservation
DMR	Department of Mineral Resources
DoE	Department of Energy
DWS	Department of Water and Sanitation
EC	Eastern Cape
EMPr	Environmental Management Programme
IRP	Integrated Resource Plan
NC	Northern Cape
NDP	National Development Plan
NGO	Non-Government Organisation
PASA	Petroleum Agency South Africa
PCG	Process Custodians Group
PEC	Project Executive Committee
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SIP	Strategic Integrated Project
SPLUMA	Spatial Planning and Land Use Management Act
TORs	Terms of Reference
WC	Western Cape

Strategic Environmental Assessment for Shale Gas Development in South Africa
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1. *Clarifications on Inception Workshop notes (12 - 13 February, 2015)*

- At the Inception Workshop it was stated that Shale Gas Development (SGD) is not a Strategic Integrated Project (SIP). Questions arose on whether SGD would not be classified as 'Green Economy' according to the National Development Plan (NDP). Furthermore, the Integrated Resource Plan (IRP) makes provision for SGD, and the infrastructure associated with SGD (such as gas power stations) might fall under SIP 10 (Electricity transmission and distribution for all). However, it was concluded that SGD is not a SIP, but a national priority with downstream opportunities which could contribute to SIPs in the future.

2. *Project Executive Committee (PEC) Terms of Reference (TORs) and project background*

- Presentation by Surprise Zwane (DEA).

PEC TORs

- The PEC TORs were agreed upon, and are broadly to:
  - Ensure that the project remains on scope, timelines and budget;
  - Check that strategic and policy level questions are addressed sufficiently;
  - Evaluate feedback from the Process Custodians Group (PCG);
  - Be a conduit for and coordinate information.

Spatial planning and SGD

- It was recommended that DEA consider involving the Department of Rural Development and Land Reform in discussions during the SEA with regards to spatial planning implications of SGD. This also relates to the implementation of the Spatial Planning and Land Use Management Act (SPLUMA) and the Spatial Development Frameworks (SDFs) of local municipalities in the SEA study area. This should contribute to understanding SGD from a spatial planning perspective, which can also be seen as an integral part of environmental management.

PEC meetings

- A request was made to ensure that dates on which the PEC is to convene be communicated well in advance to enable PEC members to secure funding and make travel arrangements. It was confirmed that the PEC needs to convene whenever outputs have been produced for discussion and PEC meeting should be held following PCG meetings so that feedback from the PCG can be provided to the PEC. The Project Team will try and provide provisional meeting dates as early as possible, and PEC members are able to ask DEA for assistance if they have any financial constraints that prevent them from attending the meetings. The months of PEC meetings dates are provide in the attached "SEA Process Document".

PCG meetings

- It was established that as the top governance structure of the SEA the PEC would be pro-actively be informed of PCG meetings and the outcomes of such meetings. This is especially important for awareness and information flow to the PEC members, such as the Provincial

representatives who has a responsibility to relay relevant information throughout their Departments.

- A suggestion was made that the PEC members to observe PCG meetings. The initial intention wasn't to have the PEC sit in on PCG meetings, as the PCG is a balanced group (approximately 4 x representatives each from government, NGOs, research institutions and industry). Furthermore, the PCG must be allowed to fulfil its function unimpaired. The Petroleum Agency of South Africa (PASA) is not represented on the PEC or the PCG, however PASA are working with the Project Team with regards to understanding the shale gas resource scenarios in the Karoo Basin. It is not the role of the SEA, or PASA within the SEA, to convey updates to the PEC with regards to the progress of shale gas Exploration Rights application processing, but any information available to the Project Team and various structures (such as DMR) that relates to the ever-changing shale gas 'scene' should be shared through the PEC were possible.

Communication on SGD

- If a Government Department (e.g. DAFF, DoE, etc.) is contacted with queries relating to SGD, the query should be responded to by the competent Department in their own capacity and in accordance with their mandate. Queries relating SGD do not have to be relayed to the SEA Project Team (who are only responsible for the SEA process). The PEC was reminded of the fact that the SEA does not represented the overall discussion on shale gas in South Africa which is a government function, other formal governmental communications on SGD should be created as required e.g. through provincial structures.

SEA-policy interactions

- The various Departments and the represented Provinces in the PEC need to understand how Departments make decisions on SGD, how those decisions feed into the SEA, and how information from the SEA feeds into Department policies – this will contribute to the PEC meeting their mandate.

3. *Summary of Inception Workshop and SEA progress*

- Presentation by Greg Schreiner (CSIR).

Study area

- The extent of the study area was informed by the areas currently under applications for Explorations Rights (by the operators Shell, Bundu, Falcon). In October 2014, the DMR Minister confirmed this and was quoted in parliament as saying "there are currently five (5) applications to explore for shale gas in the Karoo area. Applications were received from Falcon (x1), Bundu (x1) and Shell (x3). The applications have not been assessed and therefore no applications have been approved or refused. DMR are currently in the process of augmenting the regulatory framework. Once the regulatory framework is augmented, the processing of applications will commence". It was acknowledged that additional desk-top Technical Cooperation Permit applications have been submitted to PASA in the last 4 years, but that many of these had expired. Considering that PASA's

sweet spot reserve estimates are succinctly aligned with the current Exploration Right applications, this region represents the obvious area to initiate the "first pass" SEA process.

- The official shapefiles from PASA delineating the existing Exploration Rights applications were used to define the study area (with a 20 km buffer around existing Exploration Rights application areas). The study area includes 27 local municipalities and encompasses 171 811 km².

Scope

- Even though Coalbed Methane is also an unconventional gas, this SEA will only consider shale gas.
- The scopes of the Strategic Issues should be shared with the PEC in the form of a 'Zero Order Draft'. These will only be defined after the first author workshop and available from mid-October 2015. The PEC should meet in October after the teams have been determined and the scope has been defined.
- The description of the SGD scenarios and activities is on an accelerated timeframe to feed into the author workshops planned for end-September. This can be made available to the PEC once completed in draft format (available end September) and will provide the technical scope of SGD.

Timelines

- The PEC should convene at key junctures where there is material on the table to discuss. A detailed project plan should be provided to the PEC which also indicates the key points of PEC intervention. This has been attached as the SEA "Process Document".

Author workshops

- A request was made to have PEC members attend author workshops, as observers to gain information. It was agreed that PEC members can make themselves available at those workshops in an observer capacity as required.

4. *SANBI Bioblitz update*

- Presentation by Jeff Manuel (SANBI)
- Key challenges facing the Bioblitz are the seasonal opportunities to gather biodiversity data and obtaining the Threatened or Protected Species (TOPS) permits from Provincial Authorities.
- The Bioblitz will include landscape functionality and ecological type information. Furthermore, the biodiversity information also has links to the water component and aspects such as sense of place, but the Bioblitz does not have scope to provide primary data into components other than the biodiversity component.

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

5. *Key actions and way forward*

Action	Responsible party	Timeframe
1. Consideration to include Department of Rural Development and Land Reform in the SEA process	DEA	-
2. The communication teams of the involved Departments to meet to convey a common messages, goals and language relating to SGD.	DEA	-
3. Provide the PEC with the SEA study area map, shapefile and rationale.	CSIR	Mid - August 2015
4. Circulate meeting dates, agendas, notes, and a short communique explaining the key outcomes and issues identified from PCG meetings which should be considered, discussed, and responded to by the PEC if required	CSIR	Mid - August 2015
5. Provide the PEC with a detailed SEA project plan which includes: o Timeframes; o Scope; o Anticipated PEC interaction points; o Conceptual scope for SGD scenarios.	CSIR	Mid - August 2015
6. Provide a letter to SANBI to streamline the process of obtaining TOPS permits from Provincial Authorities.	DEA	-
7. Present approach of the SEA to Western Cape DEA&DP Shale Gas Forum to inform SGD planning by the Western Cape Government.	CSIR	06 August 2015
8. PEC to convene for Meeting #2 in October following the first specialist workshop	PEC	October 2015

1.3 Project Executive Committee Meeting 2 Notes (22 November 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Project Executive Committee Meeting 2

Date:

22 November, 2015.

Location:

Knowledge Commons, CSIR Pretoria.

List of attendees:

Name	Organisation
Bob Scholes	Wits/CSIR
Dee Fischer	DEA
Gerry Pienaar	DEDEA (EC)
Greg Schreiner	CSIR
Kristal maze	SANBI
Lusnita van der Walt	CSIR
Marianie Moodley	DEA
Mkhevu Mnisi	DWS
Mmboneno Muofhe	DST
Muvhuso Musethsho	CGS
Muzi Mkhize	DoE
Nametshego Gumbi	DST
Nhlahla Jali	DMR
Paul Hardcastle	DEADP (WC)
Paul Lochner	CSIR
Somila Xosa	DST
Stella Mamogale	DoE
Thato Kgari	CGS

Apologies received:
Jeff Manuel (SANBI)
Nandi Malumbazo (CGS)

Absent:
Bayanda Zenzile (DWS)

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Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

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Strategic Environmental Assessment for Shale Gas Development in South Africa
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List of acronyms

ASSAf	Academy of Science of South Africa
BID	Background Information Document
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DENC	Department of Environment and Nature Conservation
DMR	Department of Mineral Resources
DoE	Department of Energy
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
IMC	Inter-Ministerial Committee
PASA	Petroleum Agency South Africa
PCG	Process Custodians Group
PEC	Project Executive Committee
SANBI	South African National Biodiversity Institute
SALGA	South African Local Government Agency
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SKA	Square Kilometre Array

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

1. *Introductions and adoption of the PEC Meeting #1 Notes*

- The Project Executive Committee (PEC) adopted the PEC Meeting #1 Notes.

Action items from PEC Meeting #1

Action	Status
1. Consideration to include Department of Rural Development and Land Reform (DRDLR) in the SEA process	A letter had been sent to DRDLR, but no nomination has been made.
2. The communication teams of the involved National Departments to meet to convey a common messages, goals and language relating to Shale Gas Development (SGD).	Communications teams have not met as of yet. As a start, there need to be an agreed PEC media statement about the shale gas SEA process. This, along with the ministerial media launch briefing document, will be circulated with the meeting notes to the PEC on 04 November
3. Provide the PEC with the Strategic Environmental Assessment (SEA) study area map, shapefile and rationale.	This action has been completed.
4. Circulate meeting dates, agendas, notes, and a short communique explaining the key outcomes and issues identified from Process Custodians Group (PCG) meetings which should be considered, discussed, and responded to by the PEC if required	This action has been completed. Agenda item on 22 October dealt specifically with key messages communicated from the PCG to the PEC. PCG meeting notes are available to the PEC
5. Provide the PEC with a detailed SEA project plan which includes: o Timeframes; o Scope; o Anticipated PEC interaction points; o Conceptual scope for SGD scenarios.	This action has been completed with the publication pf the SEA process document on 17 August.
6. Provide a letter to South African National Biodiversity Institute (SANBI) to streamline the process of obtaining TOPS permits from Provincial Authorities.	SANBI to provide feedback permitting processes for the bioblitz and if any are required from DEA
7. Present approach of the SEA to Western Cape DEA&DP Shale Gas Forum to inform SGD planning by the Western Cape Government.	CSIR presented to DEA&DP on 06 August
8. PEC to convene for Meeting #2 in October following the first specialist workshop.	PEC Meeting #2 (current meeting) held ion 22 October, 2015.

2. *Update on project progress*

- Presentation by Greg Schreiner (CSIR) and Bob Scholes (Wits/CSIR)

Scenarios and Activities

- There are three SGD scenarios being considered in the SEA (exploration only, small scale production, large scale production). Each of these scenarios is compared with a counterfactual

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'base-case' scenario in which no SGD occurs. These scenarios and the SGD activities associated with each are described in Chapter 1 of the SEA in the Scenarios and Activities Document.

- The SEA is considering the exploration (including exploration hydraulic fracturing), production and decommissioning (including potential legacy/post-decommissioning risks) (e.g. full life-cycle) of SGD. The spatial and temporal extent of the issues considered is determined extent to which a risk can still be considered material.

3. *Zero Order Draft*

SEA Assumptions

- General shared assumptions that are taken into account by all the author teams are stated in the Scenarios and Activities Document, which includes detailed break-down of the SGD activities that may be expected. Within each Strategic Issue, authors may also make relevant assumptions where necessary such as in the water resources section where they may make assumptions about the most plausible water availability options.

Human health

- The Human Health Strategic Issue will focus on common pollution vectors such as water and air and how contamination might affect people in the region.

Radio astronomy

- Light and dust pollution need to be considered by the author teams.

Sustainability objectives

- It was mentioned that the limits of acceptable changes should be based on developed sustainability objectives which will then be very useful for EIA decision making on shale gas activities.

Institutional capacity

- Institutional readiness, skills, human resources and capacity to deal with environmental change brought about by SGD are raised by many stakeholders. The Academy of Science of South Africa (ASSAf) has completed an internationally peer reviewed report on South Africa's institutional readiness for shale gas development. This report is currently with the Minister of DST, the project team have not managed to get access to the report through ASSAf.

Impact of the SEA on current Exploration Areas Licensing

- Currently there is sufficient information and legislation to allow the permitting processes to unfold. The SEA will augment any policy going forward and shouldn't be anticipated as a block to the current licensing processes.

Relevance of the SEA

- The SEA and its results may be kept relevant, taking into account a rapidly changing industry, by revisiting and augmenting the results with new relevant information in a few years' time.

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Alignment of the SEA with current research

- The multi-author team approach ensures that authors are included in the team that are widely involved with shale gas research in South Africa. These authors are also well-connected and have access to many different research projects for data. Furthermore, the SEA will always be followed by Environmental Impact Assessments (EIA) that need to flag and address new issues that did not arise during the SEA.

4. *Feedback on public outreach*

- Presentation by Greg Schreiner (CSIR)

Public Briefings Round 1

- There are two rounds of public briefings planned for the SEA. Round 1 is to be held on 09 – 13 November 2015 with the purpose of informing stakeholders of the SEA process and to register additional stakeholders.
- PEC members are invited to represent at the public briefings.
- There is a call to the PEC, and especially the Provincial Governments, to distribute word of the public briefings throughout their networks to ensure that the meetings are well-attended.

Western Cape DEA&DP Shale Gas Forum

- Western Cape Shale Gas Forum is a task team that also includes the affected municipalities in the SEA study area. The mandate of this Forum is to i) advise the Western Cape Government on the state of readiness for SGD; ii) facilitate information flow from SEA and into SEA; iii) build capacity and awareness. On 29 October 2015 there is a meeting planned with the Municipal Managers of the affected municipalities which provides an opportunity to distribute information on the public briefings.

Communications

- The Inter-Ministerial Committee (IMC) who launched the SEA represents cooperative Government buy-in into the process. The press release for the SEA launch may be used as a reference and shared position for all represented on the IMC and to facilitate a shared vision on the policy-relevant questions the SEA will address.

5. *Feedback from the PCG*

Transport of stakeholders to public briefings

- Request for Provincial Governments to facilitate the provision of transport for stakeholders from neighbouring to the public briefings.
    - At such short notice this may not be achievable. However, the Provincial Governments will mention it to the Local and District Municipalities.

Inclusion of poor communities in the outreach programme

- The Project Team will facilitate registration of stakeholders with preferred method of communication to include people who do not have internet access.
    - It was suggested that a national interdepartmental communication strategy be developed for shale gas development, on how to share information consistently, beyond public briefing sessions. Furthermore, a national communication strategy could serve as a framework for information flows that could be facilitated by environmental education centres at various levels over the lifespan of the SEA. The representative from DMR indicated that DMR has a shale gas communications strategy that has been approved by cabinet, therefore there is a need to identify how communication processes and initiatives can be aligned.
    - It is proposed that the South African Local Government Agency (SALGA), who is represented on the PCG, should rather be sit on the PEC as a representative of relevant decision-makers at a local authority level.
    - Municipalities should be consulted for recommendations on to how best to reach communities, especially rural communities within their areas.

Advertisements of public outreach to municipalities

- Advertisements with regards to the public outreach sessions will mainly be facilitated by the project team and DEA through newspaper adverts, email invitations, radio (if possible), direct interaction with all District and Local Municipalities in the study area. There is also the expectation that Provincial Governments can assist by distributing advertisements for public briefings and the SEA Background Information Document (BID) within their Local Government networks, such a District- and Local Municipalities and ward councillors.

6. *Other issues raised*

Clarification of PEC mandate

- The PEC needs to be mindful of how they need to function in order to reach their mandate. The SEA is a science-policy interface focused on a co-generation of information. The substantive mechanism for the PEC to contribute to this is through the review of draft reports, thereby interacting with the content and confirming that it is sufficient to answer policy-relevant questions.

SGD seminar

- A recommendation was made to present a SGD seminar as an information sharing tool to Provincial and Local Government as well as other stakeholders. This seminar should focus of what SGD entails, not just on what the SEA process entails. This is along the lines of what is planned for the registered stakeholder outreach planned in Cape Town on 13 November 2015 as part of the first rounds of the public outreach sessions.

PEC Meeting #3

- PEC Meeting #3 scheduled for April 2016 to discuss the output of the SEA First Order Draft

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7. *Key actions and way forward*

Action	Responsible party	Timeframe
1. Project Team and DST interface on the status and availability of the ASSAf study.	Project Team	04 November
2. Release updated itinerary of Public Briefings Round 1 to PEC.	Project Team	04 November
3. Re-circulate the Shale Gas SEA IMC launch press release to PEC.	Project Team	04 November
4. Produce a short description on how the SEA augments SGD processes, systems and legislation going forward, towards a shared vision on the policy-relevant questions the SEA will seek to address.	Project Team	04 November
5. PEC (especially Provincial Government) to distribute the notice of the public briefings.	PEC	November 2015
6. Inform SALGA that there have been requests for them to represent on the PEC instead of the PCG. SALGA are to make a decision on where they feel they would be best represented.	Project Team and SALGA	04 November
7. DEA to review the SEA process document and decide on the status of the document to guide the mandate of the two governance groups and whether any changes need to be made.	DEA	End-2015
8. PEC to convene for Meeting #3 around April/May 2016 following the release of the First Order Draft of the SEA.	PEC	April/May 2016

1.4 Project Executive Committee Meeting 3 Notes (04 May 2016)

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Strategic Environmental Assessment for Shale Gas Development in South Africa:

Project Executive Committee Meeting 3

Date:

04 May, 2016.

Location:

Demo Room, Building 22, CSIR Pretoria.

List of attendees:

Name	Organisation
Bob Scholes	Wits/CSIR
Bryan Fisher	DENC NC
Dee Fischer	DEA
Edwin Mametja	DAFF
Garry Paterson	ARC (o.b.o. DAFF)
Greg Schreiner	CSIR
Henri Fortuin	DEADP WC
Jeffrey Manuel	SANBI
Lydia Bosoga	DAFF
Megan de Jager	CSIR
Mkhevu Mnisi	DWS
Muzi Mkhize	DoE
Nhlanhla Jali	DMR
Paul Hardcastle	DEADP WC
Paul Lochner	CSIR
Thato Kgari	CGS
Viswanath Vadapalli	CGS

Apologies received:

- Gerrie Pienaar (DEDEA EC)
- Kristal Maze (SANBI)
- Marianie Moodley (DEA)
- Stella Mamogale (DoE)

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List of acronyms

AAA	Astronomy Advantage Area
ARC	Agricultural Research Council
ASSAf	Academy of Science of South Africa
BW	Beaufort West
CGS	Council for Geoscience
CSIR	Council for Scientific and Industrial Research
CT	Cape Town
DAFF	Department of Agriculture, Forestry and Fisheries
DEADP WC	Department of Environmental Affairs and Development Planning Western Cape
DENC NC	Department of Environment and Nature Conservation Northern Cape
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoE	Department of Energy
DPME	Department of Mineral and Energy
DST	Department of Science and Technology
DWS	Department of Water and Sanitation
EDD	Economic Development Department
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
EMPr	Environmental Management Programme
FOD	First Order Draft
GFR	Graaff-Reinet
GTL	Gas-to-Liquid
IAIAsa	International Association for Impact Assessment South Africa
IMC	Interministerial Committee
NMMU AEON	Nelson Mandela Metropolitan University Africa Earth Observatory Network
NORM	Naturally Occurring Radioactive Material
PCG	Process Custodians Group
PEC	Project Executive Committee
SAEON	South African Environmental Observation Network
SAIAB	South African Institute for Aquatic Biodiversity
SALGA	South African Local Government Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SKA	Square Kilometre Array
USA	United States of America
VW	Victoria West
Wits	University of the Witwatersrand
ZOD	Zero Order Draft

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1. *Introduction and adoption of PEC Meeting #2 notes*

Actions from PEC Meeting #2 (22 October, 2015)

1. Project Team and DST interface on the status and availability of the ASSAf study.	Request for access to the ASSAf study was made in mid-2015, but it has not yet been made available. Rudi Dicks (on the PCG) and Dee Fischer (DEA) to follow up for availability within next 2 weeks to enable authors to use for SODs.
2. Release updated itinerary of Public Briefings Round 1 to PEC.	This action was completed via Dropbox link on 04 November 2015.
3. Re-circulate the Shale Gas SEA IMC launch press release to PEC.	This action was completed via Dropbox link on 04 November 2015.
4. Produce a short description on how the SEA augments SGD processes, systems and legislation going forward, towards a shared vision on the policy-relevant questions the SEA will seek to address.	The PEC Statement on SGD was produced on the 27 October and was shared with the PEC via Dropbox on 04 November 2015.
5. PEC (especially Provincial Government) to distribute the notice of the public briefings.	This action was completed.
6. Inform SALGA that there have been requests for them to represent on the PEC instead of the PCG. SALGA are to make a decision on where they feel they would be best represented.	SALGA were informed of the requests, but no feedback has been provided as yet. Notification and request to distribute notification of Round 1b public briefings were provided to SALGA at the Broader Karoo Region Small Town Regeneration & Regional Economic Development Conference in Beaufort West on 07 April 2016.
7. DEA to review the SEA process document and decide on the status of the document to guide the mandate of the two governance groups and whether any changes need to be made.	This action was completed by 30 November 2015.
8. PEC to convene for Meeting #3 around April/May 2016 following the release of the First Order Draft of the SEA.	Peer Review of the FOD's began on 22 February, and the comments were shared with the author teams prior to the 2nd Multi-Author Workshop on 18-20 April 2016.

The PEC members approved the meeting notes from PEC Meeting #2.

2. *Update on project status and progress*

- Presentation by Greg Schreiner (CSIR)
- The PEC are reminded of the project management role they are mandated to fulfil, which includes ensuring the project remains on scope and within timelines; checking that strategic and policy level questions are sufficiently addressed; evaluating feedback from the PEC; and coordinating and acting as a conduit of information e.g. through provincial forums.

- With reference to the presented timeline for the entire SEA, it was indicated that the project is now in Phase 2 of the Scientific Assessment. The First Order Drafts (FODs) of the Scientific Assessment have been peer reviewed, and these comments have been addressed by the author teams who are in the process of drafting the Second Order Drafts (SOD's). The SOD's are to be submitted by the author teams by 31 May 2016, after which they will be released for public comment. Thereafter a Final Scientific Assessment Report will be finalised, which marks the end of Phase 2 of the project. This Final Scientific Assessment Report will provide the information basis for Phase 3. It was noted that the Scenarios and Activities chapter was completed before phase 2 as to provide the framework against which author teams can base their specialist assessments.

Questions:

- Paul Hardcastle (DEADP WC) queried how the author teams will integrate linkages between mitigation measures and limits of acceptable change into the risk mapping.
    - Greg Schreiner (CSIR) responded by noting that the project team will start to compile the risk mapping once the SOD's are received. The Project Team provided the authors with spatial information for the FODs and we will use the updated/ additional spatial information provided by the author teams in the SODs for this purpose as well. Risk mapping is performed with and without mitigation, in order to assess how the risk profiles change.

<u>Outreach feedback and programme</u>

- Three public briefings took place in Graaff- Reinet, Beaufort West and Victoria West on 10-12 November, and one full day stakeholder workshop was held in Cape Town at the Iziko Museum on 13 November. These locations were chosen to represent the three provinces of the study area based on accessibility and relatively large population sizes.
- People were able to register as stakeholders by filling in a form at the public briefings, which were incorporated into the SEA registered stakeholder database, which currently comprises ~450 registered stakeholders.
- Common concerns which arose at the public briefings included 1] a need for greater municipal and ward involvement in the public briefings, 2] governance/ policing (of regulations) issues, should shale gas development (SGD) be permitted to take place, and 3] the 17 strategic issues of the SEA and ensuring that all sensitive topics have been considered.
- Key learnings from the first round of public briefings, with particular reference to the first concern noted previously, resulted in the distribution of letters from the Minister of Environmental Affairs to the offices of the affected local municipalities, notifying them of the next round of public briefings to take place in May. In the letters the Minister requested the local municipalities to distribute notice of the public briefings (dates and times) through the Local Government structures, namely through Ward Councillors to encourage and promote attendance at the briefings.
- Additional key learning included pre-meetings with municipalities to introduce the process to the community in a more formalised manner.
- The SOD's of the strategic issues chapters will be released for public comment mid-June, with 4 weeks provided for commenting.

- Round 2 public briefings are planned for 18-22 July 2016, with public meetings in Graaff- Reinet, Beaufort West and Victoria West, a full day workshop in Cape Town, and a full day PEC workshop.

Questions:

- Muzi Mkhiza (DoE) queried whether the district and local municipalities are involved throughout the SEA process and whether they are provided with the briefing notes for public engagement so that when questions are asked etc. everyone is able to provide the same answer, particularly with regards to timeframes?
    - Greg Schreiner (CSIR) agreed that it is a challenge to ensure the municipalities are up to date on the process and informed of the timeframes. It was evident from the round of public briefings in November how the SEA process differs from Environmental Management Programmes (EMPr's) and the Department of Mineral Resources (DMR) public participation process in early 2016, which may be disorientating to municipalities. An interdepartmental communication strategy would be beneficial to clearly convey purpose of public meetings at the outset.
    - Dee Fischer (DEA) emphasised that it is difficult to place a sense of urgency around SGD, because municipalities have other pressing matters and they don't know what their roles are in terms of the SEA and shale gas, so it should be an item for the Interministerial Committee (IMC) when the SEA is completed and more info is available on licensing procedures and timings. The IMC should then make municipalities a priority, and the municipality's responsibilities within each scenario should be clearer once the SEA is completed. It was suggested that at some point the IMC should invite municipal managers to communicate the scenarios and timeframes, thus making them for more tangible and understandable for municipalities.
    - Paul Hardcastle (DEADP WC) added that the information from the FODs is already being used to inform discussion on regulatory readiness.
- Greg Schreiner (CSIR) implored the PEC to mobilise their structures for the public briefings in May 2016 and to invite representatives from Government to attend the full day PEC workshop planned for 13 June 2016.

<u>Scenarios and Activities SOD</u>

- The Scenarios and Activities SOD has been made available to the author teams for their assessments. The data on which the resource probability map is based provides the specialist teams with an area where SGD is most probable, but this is not definitive and further work still needs to be done. The resource probability map was compiled by overlaying 4 existing studies examining shale gas resource probability, namely the EIA model, Doug Cole by CGS 2014, Petroleum Agency 2015, and NMMU AEON 2015 models to generate a synthesis model. The Shale Gas Resource Probability map should not be published in isolation (without the 17 strategic issue chapters) to ensure the information conveyed therein is not misleading. The four scenarios are unpacked in great detail in the Scenarios and Activities Chapter, which provides a spatial indication of the footprint SGD, would potentially have. International Peer Reviewers have assisted significantly with these calculations. The Chapter is will be made available for public comment in July. The graphic representation of the potential footprint of the well pads is merely conceptual and the representations have not considered sensitive features or associated buffers.

Questions:

- Paul Hardcastle (DEADP WC) questioned the discrepancy in number of well pads between the SOD and FOD of the Scenarios & Activities Chapter.
    - Greg Schreiner (CSIR) responded by stating that in the peer review it was indicated that modern technology increases the amount of gas that can be produced from each well pad and so fewer wells are required, thus lowering the number of well pads in the SOD.
- Viswanath Vadapalli (CGS) queried the potential implications if a reserve of more than 20tcf was discovered.
    - Greg Schreiner (CSIR) noted that such a discovery (say in the region of 30Tcf) would not materially change the footprint of the big gas scenario, or how the gas is utilised downstream.
- Edwin Mametja (DAFF) raised a question as to the size of the workforce that could be expected over the full lifecycle of SGD.
    - Greg Schreiner (CSIR) stated that all data that is quantifiable and explained has been included for each scenario including number of labourers etc.

<u>Peer Review Process of FODs</u>

- Based on the accepted strategic issues presented in the ZOD, peer review experts were identified for each strategic issue from the extensive literature collection of the shared library, as well as through recommendations from stakeholders, the PEC, PCG and authors.
- Peer reviewers are independent from the assessment writing process, and represent universities, consultancies, government agencies and others. A minimum of 2 peer reviewers was required for each chapter, with more complex and double chapters (i.e. surface and groundwater resources) having up to 6 peer reviewers. The chapters were reviewed by 45 international and 26 South African experts, predominantly from the USA and Australia, and also from Canada, France, the Netherlands, UK and Japan.
- Peer reviewers were provided with the ZOD and FOD of the Scenarios and Activities chapter for context, and an allocated time, which was suitable to the SEA timeframe for the peer review process, was provided to the experts within which to submit their comments. Comments were provided in a standardised template form, and additional reference materials were provided by some expert reviewers to the author teams. Author teams have responded to every comment and are in the process of incorporating the relevant comments into the SOD's.
- FODs were circulated to the PEC on 3 March 2016, and comments were received up until 14 April 2016 (6 weeks).
- As a mandated item for the PCG, the manner of author responses to the peer review and registered stakeholder comments will be checked by the PCG.

3. *SANBI BioBlitz*

- Presentation by Jeffrey Manuel (SANBI).
- As a result of the Karoo being severely under sampled, there is low confidence in predicting impacts relating to SGD in the Karoo. Accordingly, the foundational biodiversity knowledge must be improved, namely by means of mobilising existing records and fieldwork.

- The assessment covers plants and animals, including invertebrates and is conducted over 113 days through coordinated inputs from a range of specialists and partner institutes, such as SAEON, SAIAB and museums etc.
- Bioblitzes are planned for spring, mid-summer, and late summer, but due to drought and poor rainfall the schedule had to be revised.
- The assessments on 11 taxanomic groups have been conducted in August and December, and focused largely on plants, invertebrates, using a stratified sampling approach. An Open Day was held on 15 April 2016, with ~80 participants and sampling still underway.
- The window to inform assessments has lapsed (only done ~50% of planned work so far), but it is imperative to continue to improve spatial accuracy for inclusion in phase 3 and implementation of the shale gas SEA; SKA SEA and implementation; and uranium mining applications.
- Going forward:
    - Efforts expended in mobilising existing data and pilot field studies have provided a good sense of just how significant the data gaps are and where
    - Imperative to continue with assessments in coming Spring and Summer
    - Successfully retrieved funding from NRF for BioGaps project: filling biodiversity info gaps to support development decision making in the Karoo
    - 3 year programme, aligned with SAEON long term monitoring shale gas project
    - Designed to complement areas targeted for shale gas development.

Questions:

- Bryan Fisher (DENC NC) queried what SANBI's association is with conservation agencies?
    - Jeffrey Manuel (SANBI) replied by noting that a large amount of data come from these agencies, particularly with regards to fauna. Work is being done in conjunction with the agencies to the extent where there is capacity.
- Bryan Fisher (DENC NC) questioned whether the assessment will take place in winter and autumn?
    - Jeffrey Manuel (SANBI) stated those seasons were decided upon in which the most information could be gathered. It is done to specifically inform the risk assessment of biodiversity chapter. The BioGaps Project will be a more complete assessment, aimed at improving our knowledge of the Karoo.

4. *Preliminary feedback on Chapter First Order Drafts (FODs)*

- Presentation by Greg Schreiner (CSIR)
- Each chapter follows a particular structure which includes an Executive Summary; Introduction and Scope; Key potential impacts and their Mitigation; Risk Assessment; Best Practice Guidelines and Monitoring Requirements; Topic on which information is inadequate for decision- making; and References.
- The Risk Assessment follows a well- structured risk evaluation process, which involves defining the nature of the impact, mapping the receiving environments, defining mitigation technologies and consequence levels for each type of impact for each scenario. Each chapter provides spatially explicit risk maps which identify key issues that need to be addressed in terms of guidelines and regulations. The project team will use the risk assessment information to produce a risk surface for each type of impact, and subsequently a

composite risk map will be created with reference to mitigation and another risk map without mitigation to give an indication of how risks may proliferate across the production scenarios.

- Author teams are asked to consider what the implications are with respect to monitoring to end of activity, and in some cases beyond end of activity.

Surface Water and Groundwater

Water availability in study area is severely constrained, which may be compounded by cumulative use from activities such as road construction for SGD and uranium mining. Surface spills on-site and along transport routes are most likely causes of contamination. Legacy impacts are highly likely, necessitating baseline and ongoing monitoring. Limited infrastructure and capacity for water management is a constraint. There is potential to develop non-potable groundwater resources at a limited scale. SGD provides a learning opportunity to improve understanding of local water resources.

Questions:

- Viswanath Vadapalli (CGS) commented that the Department of Water Affairs & Sanitation (DWS) is in the process of conducting baseline monitoring prior to fracking.
    - Greg Schreiner (CSIR) noted that the DWS study is quite broad and over a non-specific study area, while baseline monitoring needs to be site-specific.
    - Mkhevu Mnisi (DWS) confirmed the said study is over a broad area, and DWS will be consulting Danita Hohne about her work relating to sampling SOEKOR boreholes and methane analysis in the Karoo.
    - Greg Schreiner (CSIR) noted that Danita is on the Groundwater author team for the Scientific Assessment.
- Garry Paterson (ARC) commented that in most Environmental Impact Assessments (EIAs), surface and ground water are treated separately, and mitigation cannot be combined.
    - Greg Schreiner (CSIR) explained that the surface and ground water chapter is treated as a double chapter, and baseline monitoring will be specific to surface and ground water, as separate issues.
- Bryan Fisher (DENC NC) queried whether the water chapter examines the reuse and recycling of water.
    - Greg Schreiner (CSIR) noted that this topic is discussed in the Waste Planning and Management Chapter.
- Paul Hardcastle (DEADP WC) commented on the possibility of well failure and groundwater pollution at some point of SGD, and as such, groundwater monitoring exercises are key tasks and its incorporation into legislation/ policy/ regulations is important.
    - Dee Fischer (DEA) reiterated that one of the key outputs of the SEA are guidelines for pre- and post- baseline monitoring.

Loss of Biodiversity

The SEA study area has high levels of biodiversity, which is largely threatened by landscape fragmentation due to linear infrastructure e.g. roads and powerlines. Impacts have cascading effects on species and processes, thus requiring landscape level mitigation; achieved by means of prohibiting certain activities in high risk areas. Risk mapping will inform development planning. Cumulative effects and effectiveness of mitigation must be monitored, and environmental compliance applied to areas of medium low and low

biodiversity sensitivity. Cumulative and unforeseen impacts and effectiveness of mitigation must be monitored.

Planning & Infrastructure

Towns close to SGD will expand significantly, increasing service delivery demand. The construction of private local access road networks and well pads are expected to impart largest direct impact; requiring consideration of regional Spatial Development Frameworks. Increased heavy vehicle traffic on regional roads associated with SGD will require increased governance and law enforcement. Integrated spatial planning will be essential.

Questions:

- Paul Hardcastle (DEADP WC) queried the issue of opportunity cost in relation to the relative scarcity of construction material, of which much is required for SGD. Therefore, it is assumed local authorities will have to source it from afar. Local demand and supply of such resources need to be protected and it should be ensured that SGD does not deplete the cheaper resources.
    - Greg Schreiner (CSIR) stated that relevant recommendations to avoid this are made in the Scientific Assessment.
- Dee Fischer (DEA) questioned whether any consideration has been given to rail in the assessment, as railway lines are located seemingly close to the "sweet spot".
    - Greg Schreiner (CSIR) confirmed that the railway must be considered in the Scientific Assessment as a potential means to alleviate potential impacts.

Visual

Key risks which may affect identified scenic visual hotspots in the Karoo include visual fragmentation, the transformation of the Karoo's pastoral nature or wilderness to one of industrial character, and the potential effect of secondary activities.

Economics

Positive macro-economic impacts of SGD may be realised; whereby the risk of exchange rate appreciation is considered manageable; the risk of crowding out other sectors is low provided SGD does not compete with local water users or pollutes supplies; and there is opportunity for employment at large scale production, of which up to 35% of positions could be filled by locals. Adversely, local government finances are likely to suffer significant strain and risks to farm property values are likely. Financial and compensation mechanisms must be implemented to ensure adequate financial provision by the state to land owners to cover use of their land and in cases where environmental and other damages cannot be mitigated.

Questions:

- Bryan Fisher (DENC NC) noted that local government is already under strain, and queried whether the Economics Chapter assesses means of financially supporting local government/ communities.
    - Greg Schreiner (CSIR) confirmed that planning and mechanisms to support local government is discussed therein.
    - Viswanath Vadapalli (CGS) reaffirmed that wastewater treatment plans will fall in under the mandate of the application companies, and furthermore local facilities don't have

adequate capacity at present to support SGD; which is addressed in the Waste Planning and Management Chapter.

- Dee Fischer (DEA) responded further by querying the local governments' responsibility to support SGD, while it should ultimately support itself. SGD should be commercialised and not be categories as a government activity. Consideration should be given to commercialising/ industrialising agricultural land, which would increase leasing rates and afford local municipalities the potential opportunities to support themselves. Such recommendations are expected from the Scientific Assessment.
- Paul Hardcastle (DEADP WC) commented further, making reference to the polluter based principle, which employs mechanisms of contribution by developers to foot the bill(s) for maintenance which may arise prematurely or are unforeseen.
- Greg Schreiner (CSIR) confirmed that a Pennsylvanian peer reviewer brought these recommendations to the authors' attention.

- Lydia Bosoga (DAFF) queried whether food security was considered in this chapter.
  - Greg Schreiner (CSIR) confirmed it was addressed in the Agriculture Chapter, with reference to the Agricultural sectors contribution to food security.

Energy

South Africa has 3 gas supply options, including 1] imported pipeline gas, 2] imported Liquefied Natural Gas, and 3] domestic supply options. High volumes of shale gas would enable integration of more renewables, and support an improved trade balance, as well as reduce exposure to international market volatility. Shale gas can be used in other economy sectors e.g. GTL, and could improve energy delivery to historically disadvantages populations. Energy planning risks are minimal, but stranded gas infrastructure investment is possible.

Noise

The Karoo has noise levels ~10 dB lower than typical levels, making it a quiet area. Noise risks are derived mainly from vehicle traffic, which will likely be localised and over a short duration for the exploration phase. The construction, operation and decommissioning phases are likely to cause noise impacts within 5 km proximity from drilling sites, thus requiring individual Noise Impact Assessment for proposed sites to in accordance with SANS 10328 to determine the likelihood and severity of these impacts.

Questions:

- Thato Kgari (CGS) queried whether the technical regulations for the Astronomy Advantage Area (AAA) have been considered in this chapter.
  - Greg Schreiner (CSIR) confirmed that this issue is addressed in the Electromagnetic Interference (EMI) Chapter.
- Bryan Fisher (DENC NC) commented that short duration intermittent noise could be more irritating than a consistent noise and the psychological impact this noise may cause should be taken into consideration.
- Paul Hardcastle (DEADP WC) suggested a potential exclusion zone around sensitive areas.
  - Greg Schreiner (CSIR) noted there is a minimum 5km distance that well pads can be located next to each other, which provide exclusion/ buffer areas.

Earthquakes

SGD increases the likelihood of low magnitude earth tremors. Heritage buildings and poorly constructed low-cost housing are most vulnerable. The risk of earthquakes from SGD can be reduced to very low by ensuring the location of fracking sites are more than 20 km from towns and through the continued regulations against waste disposal by deep injection.

Heritage

Heritage resources are distributed in various densities throughout study area, but the actual distribution of resources is poorly known. Some categories of heritage are more sensitive than others based on landscape character e.g. river valleys are more sensitive than open plains. The significance of impacts may be reduced by micro-siting infrastructure, including buffer zones, and implementing mitigation measures during all phases of SGD. Improvement will be required to the currently limited institutional capacity for the application of the National Heritage Resource Act.

Electromagnetic Interference with the SKA

Being a uniquely South African situation, the South African Radio Astronomy Service is a key standard which provides protection threshold levels for radio astronomy. Five classes of separation distance are prescribed with legislated mitigation requirements for each class, to reduce the detrimental impact to acceptable levels of change. There is a strict limitation on the types of equipment that can be used within the "buffer/ exclusion zones" surrounding each spiral arm.

Questions:

- Dee Fischer (DEA) queried whether the red area on the image, labelled as Class 5, is an exclusion zone.
    - Greg Schreiner (CSIR) stated that this is not necessarily the case, but sensitivity is very high for this class, which implies some areas will ultimately not be allowed for development.
    - Paul Hardcastle elaborated further stating that the requirements are so stringent within that area that it basically is an exclusion zone.
    - Muzi Mkhiza (DoE) noted that thresholds are placed in these areas rather than having exclusion zones, and that these thresholds should be used to determine what exactly constitutes an exclusion zone.
    - Bob Scholes (Wits/ CSIR) stated further that the thresholds apply to specific/ exact locations in terms of the SKA spiral arms. It may be that an activity is allowed given certain situations e.g. not in direct line of sight/ over a hill.
    - Thato Kgari (CGS) reiterated that the regulations provide a list of activities and instruments prohibited within certain proximity to the SKA area, which should be included in this chapter.
- Garry Paterson (ARC) queried the timeline for the completion of the SKA and whether it would run parallel to SGD.
    - Bob Scholes (Wits/ CSIR) indicated that the SKA would run parallel with entire lifecycle of SGD.

Air Quality & Greenhouse Gas Emissions

Shale gas presents a risk of increased emissions, as well as opportunities to reduced emissions if gas is used in addition to-, or displaces coal or other low-carbon sources. There is a moderate risk for occupational exposure from air pollutants, particularly silica. For large scale SGD, the risk of fugitive methane emissions is assessed as high without mitigation, and moderate with mitigation and best practice.

Questions:

- Paul Hardcastle (DEADP WC) raised concern of flaring of gas during exploration.
    - Greg Schreiner (CSIR) noted that the regulations do have recommendations for flaring.

Human Health

The health status of the present local population is below national average; making them more vulnerable to adverse human health effects. Key risks are occupational i.e. exposure to toxic chemicals during shale gas operations which could cause short term dermal and respiratory symptoms. Negative health impacts through air, water and noise pollution may be experienced by people living close to shale gas infrastructure. The application of mitigation and exclusion zones may reduce such impacts. Baseline monitoring is crucial.

Questions:

- Viswanath Vadapalli (CGS) commented that the people living in the study area are predominantly poor, which reflects the negative health issues. Job opportunity via SGD may help improve economic status and access to health care.

Social Fabric & Sense of Place

Rapid in-migration could result from "boomtown" conditions in the local economy due to large investments in small town areas. Rapid development is associated with disruption of the social fabric and feelings of insecurity, and the capacity to meet demands for basic services is likely to be exceeded, at least in medium term. Benefits of local economic multipliers may enhance opportunities, however, local governance processes and institutions require strengthening to enhance positive outcomes and minimize unintended ones. Sense of place values will be positively and negatively affected by SGD, and some effects may prove irreversible.

Waste

The application of waste management hierarchy is important i.e. cleaner production, minimisation, re-use, recycle, treatment and disposal. Under current legislation, hazardous mining-related waste requires specialised disposal sites and procedures, however if this legislation were to change, SGD wastes could be legally disposed in municipal landfills which are currently inadequate for this purpose. Leach management and treatment must be a pre-requisite for disposal of waste to landfills due to chemical additives and leachable NORMs. The application and enforcement of waste management provisions within the Petroleum Exploration and Development Regulations (2015) is mandatory and should not be relaxed with future amendments.

Questions:

- Paul Hardcastle (DEADP WC) emphasises that a close link must be made in policy and legislation and how minimum requirements must be set. Paul also queried that if drill cuttings are not radioactive, would it be disposed of at general waste facilities?
    - Greg Schreiner (CSIR) confirmed that that the KARIN project, which has drilled up to 700m, has not brought up Naturally Occurring Radioactive Materials (NORMs) thus far.
    - Dee Fischer (DEA) noted further that the waste management hierarchy is key function, regardless of legislation. Additionally, drill cuttings can be organically processed.
- Muzi Mkhize (DoE) raised the issue that policy changes are a drawn out process, so it would help to extract these issues at this stage so we can start thinking about it to make policy making/change potentially smoother/ easier. The concern is timing; where policy could delay everything, when it could have moved in sync with development.
    - Dee Fischer (DEA) responded by noting that policy development is not a part of this process, instead policy already exists, with hierarchy. Government will need to examine how to implement the recommendations coming from the SEA.
    - Paul Hardcastle (DEADP WC) argued that certain issues have best practice, which may have policy, and thus policy development should be an outcome from this process.

<u>Tourism</u>

Tourism is a key sector, with capacity to drive economic growth and rural upliftment. Three main tourist groupings can be identified, each with different sensitivities. Main negative impacts are focused around traffic densification from trucks and noise. Mitigation opportunities may be enhanced through the recognition and protection of tourism nodes and routes, which could reduce impacts. Current management of tourism in the study area is fragmented; therefore integrated tourism management is required.

<u>Agriculture</u>

The land capability of the study area is moderate to low. Provided the threat to groundwater resources is adequately managed, SGD will not significantly impact long term productivity; however it will place the privacy and security of land users at risk, particularly through the risk of livestock theft. Natural agricultural resources are protected by existing policy, legislation and regulation, but enforcement is required. Local economic development associated with SGD will stimulate local markets of agricultural products and increase income from land rental and infrastructure. Long term monitoring and evaluation is required to determine effectiveness and efficiency of mitigation measures.

Questions:

- Dee Fischer (DEA) queried how baseline monitoring would be employed in the Agricultural sector, and who would be responsible.
    - Greg Schreiner (CSIR) explained that economic activity per farm could be measured at present and compared to that in 2030.
    - Bob Scholes (Wits/ CSIR) explained further that DAFF runs specific agricultural census, and Statistics South Africa would play a role. These are quite comprehensive and the intensity level at which they are conducted could be increased in the area of SGD.

- Dee Fischer (DEA) commented that the onus of potential negative impacts of SGD on agriculture would be difficult to place on developers.
    - Bob Scholes (Wits/ CSIR) offered a suggestion in which a dedicated monitoring unit be employed and financed out of licensing fee payable by developers to cover issues of incremental costs etc.
- Paul Hardcastle (DEADP WC) raised the issue of potential destabilisation should the local knowledge base (as labour force) be removed from the farms to opportunities in SGD. Additionally, the availability of water for agriculture after treatment may be limited, which is a concern since farmers require a consistent sustainable water source for long term agricultural benefits.
- Lydia Bosoga (DAFF) queried whether the chapter provides recommendations for mitigation should land owners impose land use changes, and what the implications would be for food security.
    - Greg Schreiner (CSIR) explained that SGD would not significantly alter land use or marginalise productivity of agriculture in the region.
- Garry Paterson (ARC) noted that much of the Karoo is specialised agriculture i.e. sheep farming, which is successful because of the specialist environment of the Karoo.
    - Greg Schreiner (CSIR) stated that the author team has realised positive spin off opportunities which may in fact enhance agriculture in the area.
- Garry Paterson (ARC) noted that the land capability map does in fact include a climate component, which is a limiting factor. Furthermore, there may be enough small scale irrigation schemes in the Karoo for opportunity for small scale specialised farming that is not yet present in the Karoo. DWS has developed a 30m data source that may be useful.

4. Key actions and way forward

	Key Actions	Responsible party	Timeframe
1	Share presentations, meeting notes, attendance register with the PEC.	Project Team	End-May
2	Share Second Order Drafts of 17 strategic Issues Chapters with the PEC.	Project Team	Early-June
3	Distribute notices of the public outreach session to Local and District Municipalities.	Project Team	Mid-June
4	Distribute final public outreach itinerary to the PEC	Project Team	Mid-June
5	Release SODs to stakeholders for comment (and Share consolidated comments spreadsheet for each strategic issue).	Project Team	14 June
6	PEC Workshop prior to SOD release		13 June
7	Provide comments to the author teams on the SOD's (Project team will collate all public/ stakeholder comments (including the comments made by the general public, via website). Comments will not be responded to individually)	Project Team	14 June - 15 July
8	Public Outreach, Round 2 (GFR, BW, VW & CT)	Project Team	18- 22 July
9	Multi-Author Team Workshop #3	Project Team	25-27 July
10	Final draft of Scientific Assessment due	Project Team	22 August
12	PEC Meeting #4 to discuss decision-making framework		15 Aug
13	Phase 2: Scientific assessment (final outputs)	Project Team	Mid-Oct
14	Phase 3: Decision-making framework (draft outputs)	Project Team	Dec 2016

15	Phase 3: Decision-making framework (final outputs)	Project Team	Feb 2017

1.5 Project Executive Committee Meeting 4 Notes (13 June 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Project Executive Committee Meeting #4

Date:

13 June, 2016.

Location:

Knowledge Commons, Ulwazi Room, CSIR Pretoria.

List of attendees:

Name	Organisation
Andile Dludla	CSIR
Bob Scholes	Wits/CSIR
Bryan Fisher	DENC NC
Dee Fischer (Chair)	DEA
Faheima Daniels	SANBI
Greg Schreiner	CSIR
Henk Cetzee	CGS
Muzi Mkhize	DoE
Paul Lochner	CSIR
Somila Xosa	DST
Stella Mamogale	DoE

Apologies received:

- Henri Fortuin and Paul Hardcastle (DEA&DP WC)
- Kristal Maze and Jeff Manuel (SANBI)

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Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Contents

List of acronyms

AAA	Astronomy Advantage Area
ARC	Agricultural Research Council
ASSAf	Academy of Science of South Africa
BW	Beaufort West
CGS	Council for Geoscience
CSIR	Council for Scientific and Industrial Research
CT	Cape Town
CTL	Coal-to-Liquid
DAFF	Department of Agriculture, Forestry and Fisheries
DEADP WC	Department of Environmental Affairs and Development Planning Western Cape
DENC NC	Department of Environment and Nature Conservation Northern Cape
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoE	Department of Energy
DPME	Department of Mineral and Energy
DST	Department of Science and Technology
DWS	Department of Water and Sanitation
EDD	Economic Development Department
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
EMPr	Environmental Management Programme
FOD	First Order Draft
GFR	Graaff-Reinet
GTL	Gas-to-Liquid
GUMP	Gas Utilisation Master Plan
IEP	Integrated Energy Plan
IMC	Interministerial Committee
NMMU AEON	Nelson Mandela Metropolitan University Africa Earth Observatory Network
NORM	Naturally Occurring Radioactive Material
PCG	Process Custodians Group
PEC	Project Executive Committee
SAEON	South African Environmental Observation Network
SAHRA	South African Heritage Resource Agency
SAIAB	South African Institute for Aquatic Biodiversity
SALGA	South African Local Government Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SKA	Square Kilometre Array
USA	United States of America
VW	Victoria West
ZOD	Zero Order Draft

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

1. *Introduction and adoption of PEC Meeting #3 notes*

Dee Fischer (Chair from DEA) opened the meeting by going through the Agenda and indicating that the purpose of the PEC meeting was to discuss the Second Order Draft of the 18 Chapters of the Scientific Assessment (Phase 2) of the overarching SEA, which will be released to the public tomorrow (14 June), unless there are any significant issues raised during the PEC meeting.

Apologies from Paul Hardcastle and Henri Fortuin (DEA&DP WC) were registered. In addition they informed Greg Schreiner (Project Manager) that they had no objecti0on to the SOD chapters being released for stakeholder review.

Muzi Mkhize thanked the team for participating on the PEC and indicated that he will no longer be part of the PEC as he will be leaving the Department of Energy (DoE).

Actions from PEC Meeting #3 (27 May, 2016)

	Key Actions	Responsible party	Timeframe
1	Share presentations, meeting notes, attendance register with the PEC.	Project Team	End-May
2	Share Second Order Drafts of 17 strategic Issues Chapters with the PEC.	Project Team	Early-June
3	Distribute notices of the public outreach session to Local and District Municipalities.	Project Team	Mid-June
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The PEC members approved the meeting notes from PEC Meeting #3.

2. *Preliminary feedback on Summary for Policy Makers Document (SPM)*

- Presentation by Greg Schreiner (CSIR)
- A brief introduction on to the document was made, highlighting the chapter structure, their contents as specified in the content page, and risk assessment.

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Chapter 1: Scenarios and Activities

A description of the 4 scenarios; Baseline reference, Exploration only, Limited production of 5 Tcf and Extensive production of 20 Tcf was presented according to the contents on the SPM.

Chapter 2: Energy Planning

Presentation:

Many policies are moving towards gas to power options, and the three supply options are provided for in the document. The primary risk associated with Energy Planning is the state making the assumption that shale gas will materialise before there is any evidence that shale gas development could ever materialise into a production phase.

Questions:

- Dee Fischer (DEA) questioned whether a larger Big Gas scenario could materialise.
    - Greg responded by saying that the GUMP assumes a there is a 9 trillion cubic feet (tcf) find, the scenarios in the assessment straddle these very well. These are also considered plausible scenarios by industry. Bob Scholes (WITS) added that an increase in the Big Gas scenario (from say 20 tcf to 30 tcf) would not make a qualitative difference to the risks, only quantitatively. What is important is having a balance across the scenarios to see how risk changes qualitatively i.e. from 0 tcf – 20 tcf.
- Dee Fischer (DEA) also suggested that authors should get the GUMP document to provide more content.
    - Greg Schreiner (CSIR) indicated that authors had access to the draft GUMP document, and they have indicated where that information was used in the report.
- Dee Fischer asked whether it is credible to use a document that is not yet in the public domain. She asked DOE whether there is an indication of when GUMP will be released to the public.
    - Muzi Mkhize (DoE) mentioned that there has been no go ahead to release the document to the public, there are still on-going internal discussions and he has no clear indication in terms of its time frame. He added that DoE in principle are keen to get the document into the public domain. He did not have any objection to the Energy Chapter using the draft GUMP to inform their study.

Chapter 3: Air Quality (AQ)

Presentation:

There is a high risk for occupational exposure from air pollutants resulting from SGD without mitigation, reduced with mitigation. Under scenarios of small and big gas development there is a moderate risk of local community exposure to air pollutants. There is insufficient information on AQ and GHG concentrations in the Karoo to form a reliable baseline against which to measure the impacts of SGD.

Questions:

- Muzi Mkhize (DoE) asked whether there is any recommendation in the chapter on what energy mix should be chosen and in turn, how it would affect GHGs?

- Greg Schreiner (CSIR) highlighted that the authors are not mandated to say which option should be made or preferred to go ahead, their responsibilities is to sketch out the risks and opportunities associated with various options.

- Somila Xosa (DST) followed up on the issue of AQ particulate matter from trucks etc., that there should be a way to address these issues if fracking does proceed. It is clear that Silica will affect the workers, however it is not clear how the impacts of AQ on community members will be mitigated. He also recommended that with regards to GHG, projects such as project mthombo which looked at liquid fuels etc. be considered.
- Bryan Fischer (DENC) suggested that dust modelling be a prerequisite so provinces can start planning for towns that will be affected by the start e.g. in the Northern Cape the iron ore mining activity has resulted in plant death from plant leaf pores becoming blocked by iron ore dust.
  - Greg Schreiner (CSIR) responded by saying that would be best during the EIA phase where it would be done for site specific area and development plan so that the modelling could trace particulates back to their point source.
- Muzi Mkhize (DoE) queried the displacement of energy, whether it is based on the quantity?
  - Bob Scholes (WITS) responded by saying that as part of the IEP there is an energy quantity requirement, which indicates the breakdown from from gas, coal, renewables, nuclear etc.
- Dee Fischer (DEA) mentioned that the quantity is not explicitly defined on the document, it is just summarised.

<u>Chapter 4: Earthquakes</u>

Presentation:

SGD by hydraulic fracturing increases the likelihood of low-magnitude earth tremors. Heritage buildings made of unbaked clay bricks, and poorly-constructed low-cost housing are the most vulnerable. Locating sites of hydraulic fracturing more than 20 km from towns, and continuing to forbid waste disposal by deep injection, reduces the risk of earthquakes resulting from SGD to very low.

Questions:

- Dee Fischer (DEA) questioned the "20km radius from town", that it does not state where this number comes from, there is no support for this recommendation.
  - Greg Schreiner (CSIR) suggested that it is to achieve a moderate - low risk but noted Dee Fischer's concern.
- Dee Fischer (DEA) stressed that the issue is the '20km' is based on what? That is the issue. Bob Scholes (WITS) concurred and noted it as a matter to be looked into moving forward.
- Somila Xosa (DST) pointed out that the word 'towns' is concerning because property in GFT can be of same value as a house outside the town. Settlements might need to be considered, he suggested that we rethink the word 'towns' as it might seem as if that the study is only protective of towns
- Muzi Mkhize (DoE) raised a concern that 20km becomes prescriptive, and queried if the issue is around human safety or safeguarding the heritage valuable? What are we aiming to protect?

- Bob Scholes (WITS) indicated that we are aware that we do not have to be policy descriptive and that was communicated to the authors. And added that protection is a combination of both human safety and heritage.

- Henk Coetzee (CGS) mentioned that in earthquake or tremor activities no one actually gets killed by the natural disasters but it is death related to falling objects. He also added that mentioning poorly constructed houses will be an acknowledgement of poorly constructed houses being built in the future. There are cases where miners use poorly constructed house as an excuse to damages on their houses whereas it is related to their activities.

Chapter 5: Water Resources

Presentation:

Water availability for SGD in the study area is severely constrained. Improved water resources monitoring both before and during SGD is an imperative and surface, groundwater and wetland reserve determination .There is a shortage of laboratories in South Africa to undertake the necessary water chemistry analysis for monitoring in relation to SGD. Surface spills on-site and along transport networks are the most likely source of water resource contamination. Cumulative impacts from other activities will compound water scarcity and quality concerns. Post-SGD legacy impacts on water resources will occur, Central Karoo landowners are mainly reliant on groundwater resources for domestic and stock water supplies. Lack of infrastructure and institutional capacity for water management is a constraint. SGD provides a learning opportunity that will improve understanding of local water resources

Questions:

- Dee Fischer (DEA) queried the issue of shortage of laboratories to undertake necessary water chemistry analysis, whether this is the case now or will also be an issue 20years from now as well. It should be specified that the analysis is for baseline monitoring. Not all issues will be dealt by Government, some issues are not duties of government, there are instruments such as the polluter pays principle etc. that will be paid by responsible parties.

Chapter 6: Waste Planning and Management

Presentation:

SGD will generate substantial volumes and new types of waste in the study area, the table are on chapter 1 of the report. Potential waste from SGD must be managed in an integrated way in-line with the waste management hierarchy and the principles for integrated waste management in South Africa. Mining-related waste, including that from SGD, is currently classified as hazardous, thus requiring specialized disposal sites and procedures. Municipal landfills are currently completely inadequate for this purpose and could have health impacts if people are exposed to it. Application of the waste management provisions within the 2015 Petroleum Exploration and Development Regulations are adequate to reduce the waste-related risks to low, if rigorously enforced

Questions:

- Dee Fischer (DEA) suggested that the image of waste disposal hierarchy be removed from the slide because it is not relevant for liquid waste. She added she would like more discussion around the issues of wastewater treatment facilities and what treatment will be required for this sort of liquid rather than landfill sites. She also advised that the last point on " Application of the waste management provisions within the 2015 Petroleum Exploration and Development Regulations are adequate to reduce the waste-related risks to low, if rigorously enforced" be removed from the power point slide.

Chapter 7: Biodiversity and Ecosystems

Presentation:

Greg Presented on a sensitivity map of the study area which identified areas as being of Very High ecological importance and sensitivity are irreplaceable. He also mentioned Impacts on species, ecosystems and ecological processes extend well beyond the actual activity or physical footprint. The major concern is that the extensive linear infrastructure associated with SGD will result in fragmentation of the landscape. The Very High and High sensitivity areas make up an estimated 55 % of the study area. Only 5 % of the study area is formally protected. Offsets in areas of Very High and High sensitivity, environmental compliance in areas of Medium-Low and Low ecological importance and sensitivity required. The cumulative and unforeseen impacts of SGD on biodiversity, as well as effectiveness of mitigation, must be monitored.

Questions:

- Dee Fischer (DEA) requested the "Offsets in areas of Very High and High sensitivity" be removed from the slide as this will send the wrong message to the mining industry.
    - Bob Scholes (WITS) mentioned that we need to attempt to balance both sides where we have to mention offsets as a possible mitigation option.
- Henk Coetzee (CGS) asked if the land use maps were also overlaid on the sensitivity maps?
    - Bob Scholes (WITS) confirmed that this is the case

Chapter 8: Agriculture

SGD will not have a significant impact on productivity if the threat to ground water resources is addressed. Sufficient policy, legislation and regulation exist to protect the natural agricultural resources, but there needs to be enforcement. Local economic development associated with SGD will stimulate local markets for agricultural products and increase income from the rental of land and infrastructure. SGD will put the protection of the privacy and security of landowner and labourers at risk, primarily through the risk of livestock theft.

- Somila Xosa (DST) raised a query which was raised at the Public Briefing where a member of the community asked about the different timeframes between the SANBI bioblitz which will be

completed in five-years' time and the SEA which will be completed next year, how will that affect the SEA?

- Greg Schreiner (CSIR) explained that SANBI bioblitz was initially meant to assist the biodiversity component of the SEA, and a lot of the SANBI bioblitz data has gone into the chapter. The SEA will use the data available currently and cannot wait until the bioblitz is completed.
- Bob Scholes (WITS) suggested that we add in the document that there is ongoing research but the current information is sufficient for the assessment.

Chapter 9: Impacts on Tourism

Presentation:

Tourism as a growing economic sector with the capacity to drive growth and uplift rural areas. Three tourist groupings are identified, each with different sensitivities, main negative impacts on tourism traffic densification from trucks ferrying materials needed for shale gas operations and associated noise. Negative impacts on the tourism sector would increase the risk of losses of employment and value addition to local economies. Recognition and protection of tourism nodes (e.g. niche towns) and routes (e.g. N9 and mountain passes) will enhance mitigation opportunities to reduce impacts. Current management of tourism in study area is fragmented, integrated tourism management is required. He also touched on the Tourism Map

Questions:

None

Chapter 10: Impacts on the Economy

Presentation:

Shale gas development could deliver highly significant economic opportunities, but the extractive nature of SGD also brings economic risks. High volumes of shale gas would support an improved trade balance and reduce exposure to international market volatility and exchange rate risk. Measures for benefit maximisation in the study area must be implemented Greg mentioned that what they have proposed a model similar to the renewable energy projects. Local government finances are likely to be put under significant strain. The risk that SGD could 'crowd out' other sectors is generally low if SGD does not compete with local water users, or pollute supplies. Financial mechanisms to ensure adequate financial provisions allowing the state to deal with externalities are required. Risks to property values on farms are likely to decrease. Property values in towns, on the other hand, are likely to increase due to increased economic activity. Adequate and unambiguous compensation mechanisms should be put in place. Greg also touched on a table depicting the different scenarios and the number of jobs that would be created for each stage.

Questions:

- Bryan Fischer (DENC) probed about the jobs created whether the low skilled jobs will be sourced from local people because there is an indication from Shell that they will migrate workers from other countries.
    - Greg Schreiner (CSIR) mentioned that 15 to 35% of low skilled workers will be locally based according the estimates in the assessment.
- Dee Fischer (DEA) queried on a point on the presentation slide "Measures for benefit maximisation in the study area must be implemented", she asked why is this the case for shale gas whereas other mines did not have this option, financial provisions should be based on the current financial provisions. She also added that the proposed model for renewable energy should not be used because the mining industry is different. Dee also asked if there has been any work done with regards to determining how much the mine has to provide for housing of employees working on site, or is it governments' responsibility?
- Muzi Mkhize (DoE) suggested that maybe the chapter can also look at SADC regional planning in terms of economy, there might be some neighbouring countries such as Mozambique etc. who are also interested in tapping into the shale gas discovery in the country.
- Somila Xosa (DST) interrogated the statement on the presentation slide "Risks to property values on farms are likely to decrease", saying that if you are in the oil and gas industry getting a house near the sight maybe a priority, therefore increase price, therefore it depends on how you look at it. Unless there is a criteria used to measure decrease and increase of property value.
    - Dee Fischer (DEA) mentioned that the Wind and Solar SEA looked at contractual conditions of the farmers and lessons on the international valuation.

<u>Chapter 11: Social Fabric</u>

Large investments in small-town areas will create 'boomtown' conditions in the local economy which will stimulate in-migration. Demands on water reticulation, electricity, sewerage, schools, clinics and local roads are likely to exceed capacity at least in medium-term. Rapid development and change is associated with disruption of the social fabric and feelings of insecurity. Benefits of local economic multipliers may enhance opportunities. Local governance processes and institutions should be strengthened to minimize unintended outcomes and enhance positive ones. Key mitigation: Integrate SGD in a phased manner into local government planning (IDP & SDFs), budgeting and implementation process.

Questions:

- Somila Xosa (DST) suggested that it might not necessarily create a 'boomtown' but more of a 'boom and bust' town.
- Following up on the previous question Henk Coetzee (CGS) asked whether a decommissioning phase scenario where lots of infrastructure being left for the municipality to deal with has been considered.
    - Greg Schreiner (CSIR) said it is addressed by the chapter
- Dee Fischer (DEA) enquired that if it assumed that there will be an influx of people, do you necessarily need new infrastructure to cater for those people? "Demands on water reticulation,

electricity, sewerage, schools, clinics and local roads are likely to exceed capacity at least in medium-term" conveys a message that the municipality will not be able to cope, how true is this?

- Bob Scholes (Wits) asserted this point that municipalities will not be able to cope and that is also addressed in the spatial planning chapter.

- Dee Fischer (DEA) suggested that it might be necessary to do an assessment at a strategic level which looks at the assumptions of municipalities having to rezone, this assessment can look at the regional planning in terms of municipalities and be done before shale gas development proceeds.

Chapter 12: Human Health

Presentation:

Health status of present local population is below national average making them more vulnerable to adverse human health effects. People living close to shale gas infrastructure can anticipate negative health impacts through air, water and noise pollution →apply mitigation and exclusion zones to reduce impacts. Workers will be directly exposed to toxic chemicals during shale gas operations →short-term dermal and respiratory symptoms. Uncertainties in the chemicals to be used and evidence of the health impacts that might be expected are the major restriction in the health impact section of this study. Potential health impacts resulting from SGD will require that baseline monitoring for air and water quality, as well as baseline health monitoring including additional health symptoms associated with SGD.

Questions:

- Dee Fischer (DEA) queried what is meant by 'baseline health monitoring', all the other chapters are clear on their baseline monitoring.
  - Greg Schreiner (CSIR) stated that they will have to specify what they mean by baseline health monitoring. He added that human health impacts are a result of air, water etc. which lie within other chapters.
  - Dee Fischer (DEA) suggested that it may be useful to look at international standards on minimum requirements for human health.
- Somila Xosa (DST) asked what are the recommendations for baseline monitoring on human health issues? Should it perhaps look at health institutions such as clinics etc. and request data from them?
  - Dee Fischer (DEA) responded by saying that approach would be subjective because in some cases you cannot disclose health status of patients and a few clinics disclose certain diseases, therefore it would be difficult to get such information.

Chapter 13: Sense of Place

Presentation:

There is not one, but are several, "senses of place" in the Karoo. Shale gas development in the Karoo will affect sense of place values, both positively and negatively. Strategic level assessments are not able to provide detailed analyses of senses of place but they can draw limits of acceptable change based on the existing landscape and its land use.

Questions:

- Dee Fischer (DEA) highlighted the fact that the FOD was not useful to her, and no relevant link was made between the impact of shale gas development and sense of place. It needs to be drastically improved or be left out from the study.
    - Bob Scholes (WITS) concurred with Dee in that it was poorly done but it should not be left out, we should use the public review process to assist in making it better.
    - Muzi Mkhize (DoE) and Somila Xhosa (DST) echoed Bob Scholes sentiments of including it in the chapter because it will provoke debate and has always been part of the process work-plan.

Chapter 14: Impacts on Visual and Scenic Resources

Presentation:

SGD and its associated secondary developments, without mitigation, is likely to lead to the visual fragmentation of Karoo landscapes, and transformation of its pastoral or wilderness character to an industrial connotation in the affected areas. Study identified scenic visual 'hotspots' that could be affected by SGD, key risks arising from SGD are the visual fragmentation of Karoo landscapes. There is no standard approach to mapping or rating the value of scenic resources in South Africa.

Questions:

- Dee Fischer (DEA) suggested that the visual mapping can be used as a start point for sense of place.

Chapter 15: Impacts on Heritage

Presentation:

Heritage resources are distributed in variable densities throughout the study area but the actual distribution of resources is poorly known. River valleys, rocky ridges and the undulating uplands tend to be more sensitive than the open plains for some categories of heritage. Micro-siting of the infrastructure (including buffer zones) and the implementation of mitigation measures during all phases will help to reduce the significance of the impacts. Current institutional capacity in terms of application of the National Heritage Resource Act is limited and improvement will be required

Questions:

- Dee Fischer queried the "Current institutional capacity in terms of application of the National Heritage Resource Act is limited and improvement will be required" statement on the presentation slide, saying that she does not agree with this.

- Bob Scholes (WITS) indicated that the observation amongst people in this industry is that the SAHRA have to authorise every application document which creates a backlog in applications awaiting approval/authorisation.
- Paul Lochner (CSIR) indicated that for the Wind and Solar SEA the authorities responsible for heritage applications were able to work efficiently in that process.

Chapter 16: Noise generating activities

Presentation:

The Karoo area is a quiet area. Residual day- and night time noise levels are approximately LAeq 33 dBA and 25 dBA respectively, 10 dB below the typical levels. Exploration phase noise impact is likely to be localised and of short duration, primarily from trucks. The construction, operation and decommissioning phases will likely cause noise impacts for humans and animals on sites within at least 5 km of the drilling sites. There is additionally a risk of road noise impacts emanating from the surrounding roads due to increased heavy goods vehicle road traffic. Proposed sites will need individual Noise Impact Assessments in accordance with SANS 10328 to determine the likelihood and severity of these impacts.

Questions:

- Dee Fischer (DEA) commented that the minimum requirements for heritage and noise fit perfectly.

Chapter 17: EMI noise

Presentation:

South African Radio Astronomy Service is a key standard which provides protection threshold levels for radio astronomy. Electrical motors, switchgear, spark-ignited engine motors and communication devices are the types of equipment used in SGD which can potentially cause EMI. The key mitigation is to exclude EMI-generating sources for up to 40 km for the most sensitive parts of the SKA. 5 classes of sensitivity are prescribed, each with varying degrees of required mitigation in order to reduce the detrimental impact to acceptable levels of change.

Questions:

- Dee Fischer (DEA) was concerned about the EMI from SKA having an effect on the 'sweet spot', and about the SKA affecting SGD and how the SKA mitigation requirements eventually lead to 'no go zones'. She also raised concerns about DST instructing DMR to sterilize the land for 20 years which could be difficult to implement.
  - Somil Xosa (DST) mentioned that there is a clear arrangement on the hydraulic fracturing regulations regarding SKA activities. He added that there have been discussions for the past 18 months between astronomers, DST, PASA, DMR etc. therefore this issue is being looked into at a very high political level.
  - Muzi Mkhize (DoE) stated that it is clear that this is a matter between the policy makers of DMR and DST, and hopefully they will reach consensus on the issue.

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Chapter 18: Integrated Planning and Infrastructure

Presentation

Towns in close proximity to SGD will experience growth exceeding projections based on past trends → increasing service delivery demand. The largest direct impact is expected to result from the construction of private local access road networks and well pads which may require consideration of regional Spatial Development Frameworks. Regulatory uncertainties and limited municipal capacity to facilitate an ongoing processes of land use and land development applications. The increase in traffic by heavy vehicles on regional roads will be substantial →require increased governance and law enforcement, integrated spatial planning will be essential but governance capacity is limited.

Questions:

- Dee Fischer (DEA) queried the statement "Regulatory uncertainties and limited municipal capacity to facilitate an ongoing processes of land use and land development applications", adding that local government normally rezone land as mining area once they have received mining permit. She also highlighted that SPLUMA does not get involved in land use change applications; it sets a framework for provincial authorities to follow.
    - Greg Schreiner (CSIR) mentioned that the LUPA is still applicable in the Western Cape and this can cause procedural uncertainty with regards to land use and land development applications.

3 Update on project status and progress

Outreach feedback and programme

- Greg Schreiner (CSIR) presented feedback on the past public outreach meetings, he gave an indication of the growth in attendance for the previous meetings; he attributed the significance growth and success of meetings to the ministerial letters to the municipalities which resulted in a great deal of local support. The radio and SMS communication also assisted significantly. The attendance and representation of national government .
- Round 2 schedule will take place, Graaff- Reinet, Beaufort West and Victoria West will be from 18 – 20 July 2016, a one day break then one in Cape Town on 22 July 2016 at Iziko Museum. The purpose of the Outreach #2 is to present the draft finding on the independent Scientific Assessment. The material that will be released to the stakeholders include; Released summaries and chapters on 14 June on website, SODs (high & low res), commenting forms, 30 days stakeholder comment = 14 June to 15 July (excl. 16 June), hard copies & CDs to libraries. Summary documentation will be provided at meetings, Draft findings to be presented on powerpoint at outreach if possible, and comments on findings to be captured at outreach.
- Stakeholders will be notified of meetings via Letters from DEA Minister, Emails, Sms's, District and Local Munics., Radio and Newspaper adverts (local and provincial)

Key Dates going forward

1.	Release of SOD for registered stakeholder comment, 14 June
2.	30 days public comment (14 June to 15 July)
3.	Collate all public/stakeholder comments and send to specialists, 22 July
4.	Public outreach planned for week of 18-22 July additional comments
5.	Specialist workshop (AM#3) on 25-27 July at Goudini
6.	PEC meeting # 5, Phase 3 on 15 August
7.	Final draft Scientific Assessment by 22 August
8.	PCG #4 on 26 Sept 2016
9.	Phase 2: Scientific Assessment (final output), mid-October 2016
10.	Phase 3: Decision-Making Framework (draft outputs), end-2016
11.	Phase 3: Decision-Making Framework (final outputs), Feb 2017

Questions:

- Greg Schreiner (CSIR) asked if Dee Fischer (DEA) has received the municipal letters that need to be signed by the minister for their participation.
    - Dee Fischer (DEA) said she has received them and has submitted them to the relevant channels, she is not sure when they will be signed.
- Somila Xosa (DST) appealed that government should attend the public meetings to convey the same message to the public. It is also useful to reflect on the issues raised by community members which may not be directed at SEA process but may occur as a result of SGD. He suggested that perhaps other members or officials i.e. provincial officials should also be part of the public meetings to address these concerns.

4 Key actions and way forward

- PEC approved release of SOD to public on June 14 2016.

Key Actions	Responsible party	Timeframe
Share presentations, meeting notes, attendance register with the PEC.	Project Team	End-June
Distribute notices of the public outreach session to Local and District Municipalities.	Project Team	End-June
Distribute final public outreach itinerary to the PEC	Project Team	End-June
Public Outreach, Round 2 (GFR, BW, VW & CT)	Project Team	18- 22 July
Multi-Author Team Workshop #3	Project Team	25-27 July
Final draft of Scientific Assessment due	Project Team	22 August
PEC Meeting #4 to discuss decision-making framework		15 Aug
Phase 2: Scientific assessment (final outputs)	Project Team	Mid-Oct
Phase 3: Decision-making framework (draft outputs)	Project Team	Dec 2016
Phase 3: Decision-making framework (final outputs)	Project Team	Feb 2017

1.6 Project Executive Committee Meeting 5 Notes (26 September 2016)

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Strategic Environmental Assessment for Shale Gas Development in South Africa:

Project Executive Committee Meeting #5

Date:

26 September, 2016.

Location:

CSIR Executive Boardroom, Building 3, CSIR Pretoria

List of attendees:

Name	Organisation
Bob Scholes	Wits/CSIR
Dee Fischer (Chair)	DEA
Gerry Pienaar	DEDEA (EC)
Greg Schreiner	CSIR
Henk Coetzee	CGS
Henri Fortuin	DEADP (WC)
Jeffrey Manuel	SANBI
Kristal Maze	SANBI
Luanita Snyman-Van der Walt	CSIR
Megan de Jager	CSIR
Mpume Ntlokwana	DAFF
Paul Hardcastle	DEADP (WC)
Simon Mogabetsi	DEA
Somila Xosa	DST

Apologies received:
Paul Lochner
Gerry Pienaar (excused himself early for flights)

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List of acronyms

AAA	Astronomy Advantage Area
ARC	Agricultural Research Council
ASSAf	Academy of Science of South Africa
BW	Beaufort West
CGS	Council for Geoscience
CSIR	Council for Scientific and Industrial Research
CT	Cape Town
CTL	Coal-to-Liquid
DAFF	Department of Agriculture, Forestry and Fisheries
DEADP WC	Department of Environmental Affairs and Development Planning Western Cape
DENC NC	Department of Environment and Nature Conservation Northern Cape
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoE	Department of Energy
DPME	Department of Mineral and Energy
DST	Department of Science and Technology
DWS	Department of Water and Sanitation
EDD	Economic Development Department
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
EMPr	Environmental Management Programme
FOD	First Order Draft
GFR	Graaff-Reinet
GTL	Gas-to-Liquid
GUMP	Gas Utilisation Master Plan
IEP	Integrated Energy Plan
IMC	Interministerial Committee
MIRs	Minimum Information Requirements
NMMU AEON	Nelson Mandela Metropolitan University Africa Earth Observatory Network
NORM	Naturally Occurring Radioactive Material
PCG	Process Custodians Group
PEC	Project Executive Committee
SAEON	South African Environmental Observation Network
SAHRA	South African Heritage Resource Agency
SAIAB	South African Institute for Aquatic Biodiversity
SALGA	South African Local Government Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SKA	Square Kilometre Array
USA	United States of America
VW	Victoria West
ZOD	Zero Order Draft

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1. *Introduction and adoption of PEC Meeting #4 notes*

Dee Fischer (Chair from DEA) opened the meeting by going through the Agenda and indicating that the purpose of the PEC meeting was to provide an update on the progress of the Strategic Environmental Assessment (SEA) with specific reference to the scientific assessment process, the outreach programme and key findings; and to discuss Phase 3 (Decision Support Framework) of the SEA.

Actions from PEC Meeting #4 (13 June, 2016)

	Key Actions	Status
1	Share presentations, meeting notes, attendance register with the PEC.	Completed, 04 July 2016
2	Distribute notices of the public outreach session to Local and District Municipalities.	Completed, emails notifying the municipalities of the outreach sessions was sent in June 2016
3	Distribute final public outreach itinerary to the PEC	Completed, 04 July 2016
4	Public Outreach, Round 2 (GFR, BW, VW & CT)	Completed, 18- 22 July 2016
5	Multi-Author Team Workshop #3	Completed, 25-27 July 2016
6	Final draft of Scientific Assessment due	Completed, September 2016
7	Phase 2: Scientific assessment (final outputs)	Completed, final drafts have been received from author teams. To be electronically published end October 2016.

Following the identification of some spelling errors, the PEC members approved the meeting notes from PEC Meeting #4.

2. *Preliminary feedback from Process Custodians Group Meeting #4*

- Greg Schreiner (CSIR): The key issue raised during the PCG meeting #4 was that there is a level of discomfort around their mandate concluding at the end of Phase 2 and that their participation/ input is not required in Phase 3. It was clearly stated during the meeting that their mandate was process related; however, there is opportunity to discuss potential workshops and meetings as part of Phase 3, which PCG members could attend as representatives of their respective organisations rather than as PCG members.
    - Paul Hardcastle (DEADP WC): The role of the scientific assessment doesn't come to an end at the conclusion of the scientific assessment phase, and there is also a process as to how the scientific information is used in policy formulation. This is where the unease is experienced by the PCG. Perhaps we need to find a way of how a "process" is driven around formulating evidence-based policy.
    - Bob Scholes (Wits): From discussions it was clear that the minimum; the information flow needs to continue, and that the people are kept adequately informed, thereby ensuring that the process is transparent. This may satisfy the PCG to an extent.
    - Greg Schreiner (CSIR): The outputs of Phase 3 will most probably be gazetted which would follow the required public participation process, where stakeholders can interact with the Phase 3 outputs.
- Henk Coetzee (CGS): There may be an issue if the PCG members "sign off" on the scientific assessment but then the information being gazetted differs from that of the scientific assessment. Government needs

to ensure that gap doesn't occur and the information coming out of the scientific assessment is linked to the outputs of Phase 3.

3. *Update on project status and progress*

Presentation by Greg Schreiner (CSIR)

Where are we in the Strategic Environmental Assessment?

With reference to the presented timeline for the entire SEA, it was indicated that the project is now almost at the conclusion of the **Scientific Assessment Phase**. This conclusion will see the final Scientific Assessment Report, which will include all 18 strategic issues chapters, being electronically released by the end of October 2016, and hardcopies of the report are expected to be released early 2017.

Scientific assessment timing

The scientific assessment process was conducted over a period of roughly one year, and involved multiple author meetings and review processes by the PCG, PEC, expert reviewers and stakeholders of the Zero Order Draft (ZOD, First Order Drafts (FODs) and Second Order Drafts (SODs). The scientific assessment process reaches completion at the end of October 2016, with the release of the final scientific assessment report.

Outreach process

A total of three rounds of public meetings were held during the scientific assessment phase, which took place in November 2015, and May and July 2016. Lessons learnt from the first public outreach included improving the distribution of the notice of the public meetings. Therefore, ministerial letters were sent to affected local municipalities requesting the local municipalities to distribute notice of the public briefings (dates and times) through the local government structures, namely through Ward Councillors to encourage and promote attendance at the briefings. Pre-meetings with municipalities also occurred, and in the last outreach of the scientific assessment phase, meetings were also held with the Laingsburg Farmers Association. A workshop was held in Cape Town for registered stakeholders as part of the first and last outreach session in May 2015 and July 2016, respectively.

Scientific assessment approach

The scientific assessment has 18 chapters, with the development scenarios being applied across each of the strategic issues. Each chapter has a similar structure, including an Executive Summary; Introduction and Scope; Key potential impacts and their mitigation; Risk assessment; Best practice guidelines and monitoring requirements; Topics on which information is inadequate for decision-making; and References. Consistent methodology is applied for the risk assessment, which is based on explicit locations in relation to existing surface features, as determined by the teams of experts. An example of a risk assessment is provided for *Biodiversity and ecological impacts* in the presentation, which includes the risk profile with and without mitigation.

Questions:

- Paul Hardcastle (DEADP WC): The spatial reflection of risk is supposed to inform the final risk maps, however only some chapters had spatial reflection. Limits of acceptable change (LACs) doesn't come

through in all the chapters. To what extent is best practice implemented to result in the final risk (with mitigation)? This is an important factor and should be made clearer in the chapters.

  - Greg Schreiner (CSIR): Spatial mapping is only possible for certain chapters; and so sensitivity was spatially mapped where possible (i.e. the Energy, GHG, social fabric, economics etc. chapters do not have a spatial components). We pushed as much as possible to make things as spatially explicit as possible. Risk is shown as a manifestation of impacts in the sensitive areas. Each chapter, where possible, will have the sensitivity maps translated into risk maps in the final report. LAC is a difficult concept and it works well for some chapters where there are best practice manuals etc., and so for some chapters it is easier to define LACs, and this is highlighted in the report. LACs were provided where possible. Best practice guidelines and monitoring are described and provided in the report. As part of Phase 3, we need to condense this to those that should be taken forward. The risk assessment considered the risks with and without mitigation which is the worst and best case scenarios. With mitigation assumes the best practice guidelines described in the chapters.

- Paul Hardcastle (DEADP WC): We need to understand the extent of the exclusion areas and where they are on a map and how they relate to one another.
  - Bob Scholes (Wits): Essentially 35% of the area is an exclusion set, excluding Protected Areas. An additional 20% may very well be avoided due to the restrictive conditions under which development would be required to occur.
- Henk Coetzee (CGS): It needs to be explicitly stated as to how mitigation reduces consequences and, more importantly, the assumptions these mitigated risks are based on.
  - Greg Schreiner (CSIR): A screening tool being developed by DEA can be used by the public. We committed to using sensitivity maps which are used to generate risk maps and make them available for the DEA screening tool (due for March 2017). These layers will be fed into this tool so that it can be publically accessible.
  - Dee Fischer (DEA): This will make the information "live". It is a different way of screening for developments in sensitive areas going forward. It would be possible to consider making exclusion zones in areas of high sensitivity/ high risk, as this part of the Terms of Reference for the SEA.
- Henk Coetzee (CGS): Is there any way of managing map scales? Such as finer scales to identify smaller scale features, to avoid the danger that mapping at a regional scale may be too broad a scale for certain sensitivities such as groundwater.
  - Bob Scholes (Wits): Each strategic issue was mapped at the finest scale available/ possible. Different databases will have variable resolution, but it is advisable to utilise the finest resolution possible.
  - Dee Fischer (DEA): The screening tool is merely a flag and a site assessment and site visit must still be done for verification purposes. Each sensitivity class is tied to a protocol which will provide information as to what is required, for example, what kind of assessment is required, what kind of fieldwork is necessary? Such protocols are an ideal output of Phase 3. It would be ideal to include data that is being regularly obtained, for example in the Western Cape data is obtained at a fine scale and this can be implemented

into the screening tool. Information needs to be able to be regularly updated (e.g. every 5 years).

- Greg Schreiner (CSIR): A recommendation received for the Biodiversity and ecological impacts chapter is to not permit development in very high sensitivity areas. At this scale, would such a recommendation be appropriate, keeping in mind that incorrect information must not be gazetted?
    - Jeffrey Manuel (SANBI): Yes, especially given landscape level planning. This approach was followed more so for Biodiversity than for other chapters, since the Karoo is mostly homogeneous. It will depend on what the area recommended for exclusion entails in terms of the other strategic issues as well.
    - Paul Hardcastle (DEADP WC): At the landscape level, we can already determine no-go areas but we must be prepared that this can change and it should be ground-truthed.
    - Dee Fischer (DEA): Caution should be given against broad no-go area recommendations, since these will remain as only recommendations, i.e. actions need to be tied to outcomes. We need to emphasise that finer scale work must be done as a second phase to the recommendations, with the intended purpose to gazette those recommendations.
- Bob Scholes (Wits): Care should be taken to avoid unintended consequences. There are circumstances in which one may prohibit development but we need to be very thoughtful about exclusion areas. For example, prohibiting the development of a short road due to high sensitivity and constructing a much longer road somewhere else could cause far more damage than the shorter road would have.
- Paul Hardcastle (DEADP WC): It is important to look at cumulative sensitivities. We need to be careful of the policy decisions that will stem from the risk assessments and the identification of no-go areas with and without mitigation.
- Henk Coetzee (CGS): The delineation of no-go areas must be surveyable and the method/ reasoning behind the decision must be explicitly well defined.
- Greg Schreiner (CSIR): An action to be taken involving the creation of a composite risk map across the scenarios, with and without mitigation.

Scientific assessment findings- comments and questions

<u>Chapter 2- Energy Planning</u>

- Henk Coetzee (CGS): The chapter does show that energy planning for gas is being undertaken regardless of whether shale gas materialises, but SGD is an input in that energy planning.
    - Bob Scholes (Wits): There is no major planning change or policy with regards to SGD.
    - Greg Schreiner (CSIR): The Department of Energy (DoE) need to publish the Gas Utilisation Master Plan (GUMP) so it can guide gas infrastructure development in South Africa which currently operates in a paucity of policy.

<u>Chapter 3- Air Quality</u>

- Paul Hardcastle (DEADP WC): Air quality may not be suitable for spatial mapping, but there may be setbacks for this strategic issue.
    - Greg Schreiner (CSIR): Mapping is possible for Air Quality, particularly where there are 10 km buffers around towns, but Greenhouse Gas Emissions cannot be mapped since it is a global risk.

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Chapter 5- Surface – and Groundwater

- Paul Hardcastle (DEADP WC): Surface spills are more noticeable in the short term/ immediately, while groundwater contamination is not immediately identifiable.
    - Greg Schreiner (CSIR): The majority of groundwater contamination is by surface spills, based on currently available data.
    - Henk Coetzee (CGS): Surface spills can be identified immediately and they are relatively easy to mitigate.

Chapter 6- Waster Planning

- Paul Hardcastle (DEADP WC): Waste management is a cumulative concern.
- Bob Scholes (Wits): A specific recommendation revolves around the type of waste produced by SGD, and we need to determine the type of waste since it may be possible to dispose of non-hazardous waste at existing municipal works. Currently there are no hazardous waste facilities in the Central Karoo.
    - Dee Fischer (DEA): If this is the only recommendation then this is a very weak chapter. It shouldn't have been about disposal but rather about treatment. Liquid waste is not supposed to go to disposal sites. There needs to be more depth to this chapter. With minimum requirements this could have been a pertinent input. In needs to move further from these recommendations; there could have been powerful policy statements.
- Paul Hardcastle (DEADP WC): How does one reduce the risk of transport pollution and on site treatment? It should be indicated how different risk profiles change based on different potential scenarios.
    - Greg Schreiner (CSIR): The report has indicated five ways to treat waste from SGD based on best practise. The decision support framework can be crafted based on their (the authors) recommendations.

Chapter 8- Impacts on Agriculture

- Mpume Ntlokwana (DAFF): SGD is a competitive land use and involves the movement of vehicles which could impact agriculture.
    - Somila Xosa (DST): It should be indicated (in presentations) that SGD and agriculture are not mutually exclusive. The report should be explicit about how land use will be changed and people may be displaced.
    - Greg Schreiner (CSIR): It isn't a competitive land use as it will have a small footprint. Also, if the water is not contaminated, SGD can co-occur with agriculture. SGD may provide infrastructure which is much needed for agriculture, in this area specifically. It speaks to the coexistence of the land uses, if water contamination is mitigated along with other mitigation requirements.
- Paul Hardcastle (DEADP WC): Provided comment on the socio-economic impacts of shale gas on agriculture. There is a fine balance of farmers and workers in the Karoo. Farm workers with specialised knowledge may be lost by those leaving the agriculture sector for "easier" money by SGD. This displacement is concerning.
    - Bob Scholes (Wits): This issue is described in other chapters as well. Even though this may be the case, there is little that can be done to avoid this. The actual number of jobs for unskilled workers is from the agricultural sector is low.

Chapter 10- Impacts on the Economy

- Bob Scholes (Wits): The policy importance of this chapter is the fact that different economies are similar, which means we need to explore trade-off policies.
- Paul Hardcastle (DEADP WC): Was there much criticism about the job numbers provided, as these differ from previous estimates? How does one deal with revenue streams which have policy implications?
    - Greg Schreiner (CSIR): There was not much criticism on this issue to his knowledge, there very constructive and insightful comments and debate with stakeholders and peer reviewers. Remember, only direct employment is estimated in the assessment. Other assessments, such as those undertaken by Econometrix assume a number of downstream multipliers
    - Bob Scholes (Wits): The Economics chapter does indicate how the benefits from SGD would be realised/ spread.

Chapter 12- Human Health

- Dee Fischer (DEA): For baseline monitoring- do people give permission to be tested? This is a very large requirement for an applicant. What would need to be tested for and is it a reasonable suggestion?
    - Greg Schreiner (CSIR): This needs to be dealt with through the vectors which impact human health e.g. water and air.
    - Bob Scholes (Wits): This is not an insurmountable recommendation, but this chapter suggests establishing a better method for monitoring than what the current health statistics provide, such as a sub-sampling approach which would require prior consent. It would not make sense to implement this on a 1-to-1 application basis. But, unless there is a baseline in place, there would be no way to determine any potential future issues. We need to find an ethical way to establish a baseline.
    - Henk Coetzee (CGS): There are protocols for testing, and it is difficult especially with notifiable diseases, but with more obscure or non-contagious public health problems it becomes more difficult. Monitoring should be done on a primary health care level and not on an individual basis. It should be made clear that monitoring is not mitigation.
- Somila Xosa (DST): There is unintentional messaging in the statement "people in the Karoo are less healthy because they are poor". Are people of the same economic profile elsewhere also less healthy? Does it necessarily mean that if someone is poor, they are less healthy?
    - Greg Schreiner (CSIR): One of the major reasons that people in the Central Karoo are less healthy than the national average is because they are poor and have limited access to adequate medical facilities.
    - Bob Scholes (Wits): The bold fact that people in this environment are below the national health status is true. Malnutrition, (lack of) access to healthcare, poorer water quality etc. contribute to this status in this area.

Chapter 13- Sense of Place Values

- Bob Scholes (Wits): This chapter essentially recommends that sense of place specialist studies be done as part of EIAs, but it is important to determine a standard by which these should be done. Sense of place research must be conducted to establish proper methodologies, and only then might it be considered a

"specialist study" during an EIA. Theoretical guides need to be provided as to how to conduct such a sense of place study for an EIA. Often, globally, senses of place issues are the major resistance to development.

- Paul Hardcastle (DEADP WC): It would be even more beneficial to find a way to deal with sense of place in a strategic manner.
- Greg Schreiner (CSIR): Sense of place issues are generally included in visual and heritage specialist studies, so there is some tangible sense of place outputs at a broader level, considering all senses of place, but it is not as descriptive as an independent sense of place study.

Chapter 17- Interference with SKA: Electromagnetic Interference (EMI) "noise"

- Dee Fischer (DEA): Are there any requirements for the sensitivity classes since they will be needed for the protocols.
  - Greg Schreiner (CSIR): Classes will be required. Should the SKA area be regarded as a no-go area?
  - Dee Fischer (DEA): If development is proposed in the area indicated in red; then the applicant must approach SKA and they will determine the level of study that is required and the likelihood of receiving authorisation in this area is very low. But these classes are viewed as flags rather than no-go areas.
  - Bob Scholes (Wits): The red zone does not imply that all development is prohibited here, but the SKA has to determine if and where in this zone the development would be possible, and the level of detail of the studies required. The overall structure is essentially an experiment which has not been done before, so there is a level of uncertainty as to what the restrictions would be.
  - Somila Xosa (DST): Emphasises that no development should impact or compromise the SKA. Optical astronomy (SALT) is also a very important consideration for SGD, not only in terms of visual impacts but also in relation to seismicity.
  - Greg Schreiner (CSIR): The visual chapter has accommodated for this and provided a buffer around SALT of around 15km showing high sensitivity.

Decision Making Framework

The scientific assessment feeds into the decision support framework with the intended outputs being 1) sensitivity mapping for the DEA screening tool; 2) an exploration Environmental Management Programme (EMPr) framework, which is translated from the 17 strategic issues, outlining the key objectives for each of the strategic issues. It will also identify the primary risks and key management actions to mitigate those risks; what the key monitoring requirements are prior to exploration; what the LAC are related to those risks. 3) The Minimum Information Requirements (MIRs) which describes a process for Environmental Authorisation will be gazetted. A MIR draft is available and a workshop is planned for December 2016. 4) Recommendations to Cabinet, with a meeting planned with Cabinet in mid- 2017; and 5) Feasibility of using freight rail to offset traffic impacts (discussions to be had with Transnet).

A draft outline for the Decision Support Framework includes 1) Background to the SEA in terms of the process, governance, scenarios, participation etc.; 2) Shale gas exploration in South Africa which describes prospectivity, applications for Exploration Rights and timelines; 3) Activities and impacts associated with

exploration; 4) Sensitivity of the receiving environment; 5) Composite exploration risk map including higher- and lower risk regions; 6) EMPr framework for exploration; 7) Best practice principles such as polluter pays, precautionary, financial provisioning and local beneficiation; 8) Institutional capacity considerations; 9) Augmentation of existing legal framework; and 10) The MIRs: A Process for Environmental Authorisation.

Questions and comments:

- Dee Fischer (DEA): Potential exclusion areas must be added to the decision support framework. Also, all recommendations need to be implementable with a responsible party indicated.
- Paul Hardcastle (DEADP WC): Need to be clear about the lessons learnt through the SEA, and how it can apply beyond SGD, to other types of development.
- Paul Hardcastle (DEADP WC): With regards to the draft outline of the Decision Support Framework; best practice principles should be moved to point 3) and should feed into/inform the activities and impacts associated with exploration.
- Bob Scholes (Wits): Many Departments will need to be involved in the workshop. What is the procedure to engage with them and how do we ensure it gets onto their agendas?
    - Dee Fischer (DEA): It must be very clearly stated as to what is expected from the Departments. These decision support aspects cannot be done independently, but has to be very specific points/actions that they (Departments) can actually perform. All the recommendations from the report need to be brought forward and packaged, and a discussion must be had as to the way forward ("park the recommendations").
    - Bob Scholes (Wits): Key actions need to be pulled out, and we need to identify who the lead departments are, what other players are needed, policy interaction points that exist or need to exist, and what Department it relates to. What process needs to be followed for something to reach fruition?
    - Dee Fischer (DEA): The PEC can indicate some of the recommendations they feel strongly about.
- Paul Hardcastle (DEADP WC): Will the workshop include only the PEC or will all the relevant stakeholders be notified?
    - Dee Fischer (DEA): The PEC can convene for a morning session and the broader stakeholder parties can meet in the afternoon.
    - Greg Schreiner (CSIR): The workshop in December should go broader than MIRs. The PEC will be invited and other broader players. Material will be circulated to the PEC prior to the workshop. The next PEC meeting is planned for mid-February, but the Project Team will interact with the PEC in December 2016 and January 2017.

4. Key actions and way forward

Key Actions	Responsible party	Timeframe
Share presentations, meeting notes, attendance register with the PEC.	Project Team	End Oct 2016
Create a composite risk map with and without mitigation	Project Team	End Oct 2016
Final Scientific Assessment Report publication (electronic)	Project Team	End Oct 2016
Final Scientific Assessment Report publication (hardcopy)	Project Team	Early 2017

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Minimum Information Requirements Workshop	Project Team & PEC	06 Dec 2016
Draft decision support framework	Project Team	End Feb 2017
Final PEC Meeting #6	Project Team	End Feb 2017
Final decision support framework	Project Team	End March 2017

Other action items, as captured in the email from Simon Moganetsi on 04/11/2016 09:24 AM:

- CSIR to check if municipal rezoning is required for pilot wells (setting up of infrastructure)
- CSIR to have another workshop with DEA, DMR, DWS and PASA reps (authority that would give authorisation to the process)
- CSIR need to check with DWS if Water Catchment Management Agencies are mandated to issue water use licences
- DEA need to check with SANRAL who does the railway line planning (I will do this from my side [Simon])

2. ANNEX 2 PROCESS CUSTODIANS GROUP MEETING NOTES (INCL. ATTENDANCE)

2.1 Process Custodians Group Meeting 1 Notes (22 July 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Process Custodians Group Meeting 1

Date:

22 July, 2015.

Location:

CSIR Pretoria.

List of attendees:

Name	Organisation
Bob Scholes	Wits/CSIR
Chantal Kisoon	SAHRC
Dee Fischer	DEA
Greg Schreiner	CSIR
Henk Coetzee	CGS
Jeanie le Roux	TKAG
Jeff Manuel	SANBI
Jessica Courtoreille	PetroSA
Lusnita van der Walt	CSIR
Maarten De Wit	SEAON
Marius Diemont	BUSA
Morné du Plessis	WWF-SA
Mukandi Masithi	DPME
Nkhensani Golele	DPME
Patience Sehlapo	DEA
Paul Lochner	CSIR
Peter Price	ONPASA
Salaelo Matlhane	SKA
Sean O'Beirne (Chair)	IAIA-SA
Shafick Adams	WRC
Stefan Cramer	SAFCEI
Surprise Zwane	DEA

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Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Waymann Kritzinger	AgriSA	Sharlene.matthews@agrisa.co.za	042 235 1531

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List of acronyms

CER	Centre for Environmental Rights
CGS	Council for Geoscience
COGTA	Department of Cooperative Governance and Traditional Affairs
CRL	Culture, Religion, Language (Constitutional Body)
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoE	Department of Energy
DWS	Department of Water and Sanitation
EC	Eastern Cape
EIA	Environmental Impact Assessment
EWT	Endangered Wildlife Trust
IMC	Inter-Ministerial Committee
NC	Northern Cape
PASA	Petroleum Agency South Africa
PCG	Process Custodians Group
PEC	Project Executive Committee
SANBI	South African National Biodiversity Institute
SANEDI	South African National Energy Development Institute
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
TORs	Terms of Reference
WC	Western Cape

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1. *SEA overview and points of clarification*

- Presentation by Prof. Bob Scholes (Wits/CSIR)
- South African Cabinet has made decision to lift moratorium on the processing of shale gas Exploration Rights application, and exploration for shale gas will continue. Given this, DEA wants to determine a phased approach to shale gas development (SGD). DEA and the SEA process cannot deliver a 'yes – no' answer to SGD, but can only assess existing information towards creating an evidence-based regulatory framework, thereby informing the conditions under which SGD could occur, if the resource is proven to be a viable one. DEA envisages that the SGD process should occur in a step-wise (phased) manner where an action (i.e. exploration) is followed by a phase of consideration and analysis to determine if and how next SGD steps are taken, and monitoring is continually carried out before and during all development phases.

Hydrocarbon resource considered in the SEA

- Even though Coalbed Methane is also an unconventional gas, the SEA will only consider shale gas. That is the scope of the SEA which has been determined by the government issued Terms of Reference for the project.

Target audience and users of the SEA

- The main user of the SEA is the Government consortium who commissioned the study and who will use it for decision-making purposes. Other important audiences and users include the SEA governance groups, industry, NGOs, scientists as well as general stakeholders looking to engage with information on shale gas.

SEA Process

- The SEA aims to i) describe the activities associated with SGD and where it is likely to occur; ii) identify and assess the key risks and opportunities of SGD within those areas; and iii) based on the evidence available, make recommendations for monitoring, decision-making, best practice etc.
- It is crucial that the Project Team has a clear understanding of what SGD entails and how it might unfold in South Africa. Technical information on the activities associated with SGD should be delivered by industry representatives and other experts in the form of a Scenarios and Activities Document (which would form as an introductory Chapter in the SEA report).
- There were some uncertainties on the detailed SEA process from the PCG members, to assist in generating a higher level of clarity, a detailed '*Process Document*' has been included in the information distributed to the PCG.

2. *Project governance and PCG TORs*

- Presentation by Prof. Bob Scholes (Wits/CSIR).
- The broad mandate of the PCG is to verify that the SEA process is credible, legitimate, and salient – i.e. the PCG has the role of 'refereeing' or officiating an established, recognised process put before them.

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- The attendees agreed to their broad functional role/TORs as members of the PCG. These are provided in final revised format in the attached *Process Document*.
- Participating as a member of the does not disqualify you from other forms of participation and recourse as required.
- The approach to PCG conventions aims to be broadly consensual (as opposed to consensus dependant) and minority views will be captured where there is an 'agree to disagree' situation.
- Recommendations, concerns and points of impasse within the PCG that cannot be acted upon by the Project Team at the PCG meetings are relayed to the PEC who will act accordingly within their mandate to instruct the Project Team as needed.
- The PEC was asked to nominate additional representatives to the group if required in order to achieve a broad interest base and balance in the group. The following recommendations were made.

Additional nominations to the PCG

Nomination	Made by	Response
Department of Agriculture (especially with regards to protection of high potential agricultural land)	Waymann Kritzinger (AgriSA)	Department of Agriculture Forestry and Fisheries (DAFF) has been nominated to the PEC.
Centre for Environmental Rights (CER)	Marius Diemont (BUSA)	CER declined informal invitation to act as a representative on the PCG, selecting to act as a 'third party' oversight role.
Emerging farmers, farm workers, farm dwellers. Representative body to be identified.	Stefan Cramer (SAFCEI)	Many of the other organisations and individuals on the PCG represent the interest of these people; however, if a specific community representative from a legitimate organisation can be identified this should be communicated to the Project Team.
Council for Traditional Leaders via National or Provincial Department of Cooperative Governance and Traditional Affairs (COGTA)	Mukandi Masithi (Presidency – DPME)	District and Local communities are represented through the South African Local Government Agency who sit on the PEC. The addition of another government department to the PCG would sway the balance of the group.
Other Constitutional Bodies (SAHRC only constitutional body) such as the Gender Commission and Culture, Religion, Language (CRL)	Chantal Kisoon (SAHRC)	It is the Project Teams position that Constitutional Bodies are adequately represented on the PCG by the SAHRC. It is not the intention to invite all of the South African Constitutional Bodies to the PCG, but to maintain a balance in the group.
Endangered Wildlife Trust (EWT) (PCG or other collaborative role like Specialist Team)	Jeanie Le Roux (TKAG)	Experts affiliated with EWT have already been identified to serve as Corresponding Authors on the actual SEA report.
CANSA-SA	Morné du Plessis (WFF-SA)	The Project Team have proposed that experts from this organisation will be better suited providing inputs to the report in the human health sections of the Water,

Strategic Environmental Assessment for Shale Gas Development in South Africa
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		Air Emissions, Social Fabric etc. Chapters
Engineer with technical knowledge	Maarten de Wit (SAEON)	*Peter Price, already on the PCG, is an Engineer with direct experience in gas development*
South African National Energy Development Institute (SANEDI)	Shafick Adams (WRC)	DoE are represented on the PEC. SANEDI are undertaking a study on the feasibility of shale gas in South Africa. DEA part of the steering Committee for this study. There is therefore interaction between DEA and SANEDI on the shale gas development topic already, having them on the PCG could constitute a conflict of interest.

3. *Study area, Strategic Issues and Specialist Teams*

- Presentation by Greg Schreiner (CSIR)

Study area

- The extent of the study area was informed by the areas currently under applications for Explorations Rights (by the operators Shell, Bundu, Falcon). The official shapefiles from the Petroleum Agency of South Africa (PASA) delineating the existing Exploration Rights applications were used to define the study area (with a 20 km buffer around existing Exploration Rights application areas). The study area includes 27 local municipalities and encompasses 171 811 km².
- Additional stressors (such as proposed Uranium mining in the study area) will be acknowledged and considered in the SEA by the Specialist Teams if there are imminent development proposals on the table (the development proposals need to be more than a theoretical possibility, and must have received some kind of policy/government 'green light' e.g. the SKA or a development proposal which has received Environmental Authorisation. However, impacts associated with stressors other than SGD will not be assessed. These other stressors form part of the dynamic baseline of the Karoo where stressors such as climate change and land-use change are constantly driving changes, even in the absence of SGD.
- A materiality rule will be applied with regards to the potential of impacts originating within the study area, but having an effect beyond the boundary of the study area. If an impact of significance extends beyond the study area, it will have to be considered. An example is in the instance in the river-borne pollutants which may have downstream impacts beyond the delineation of the study area or the effects of GHGs on climate change (which has an international impact).

Specialist Teams

- The Project Team proposes having expert authors to serve on the Specialist Teams. The role of the PCG is to approve the author teams based on expertise and balance, and suggest other authors if necessary.

4. *Discussion points*

Stakeholder engagement

- The mechanisms which exist for broad stakeholder engagement during the SEA process are outlined in the Process Document under the "Briefings and outreach rounds" section. These include (amongst others included in the Process Document):
  - Regional outreach (information sharing) meetings in the affected provinces (EC, WC, NC) to inform stakeholders of the SEA process (Round 1) and then findings (Round 2);
  - Stakeholder consultation and communication during the SEA process in through the website (http://seasgd.csir.co.za/). Registered stakeholders are also able to comment and provide input on SEA 'report chapters' through the website. Any person who has access to the website may ask questions about the process in an interactive blog. Queries are responded to by the Project Team;
  - Mechanisms will also be put in place to assist stakeholders who do not have internet access to be able to comment on the SEA 'report chapters';
  - Part of the sharing of information and receiving feedback will also be achieved through structures such as Provincial Government (to reach District and Local Municipalities), SALGA and the SEA governance structures.
- The SEA is not an EIA, and stakeholder engagement will not be approached in a traditional EIA sense where stakeholders are asked to raise their concerns and key issues. The SEA itself has gone through a process of identifying the key issues through mechanisms such as extensive literature studies.
- There are concerns from the PCG that the stakeholder consultation proposed for the SEA process is not sufficient and that some of the challenges will include:
  - Tensions in the Karoo around land, especially in smaller communities;
  - Access to information;
  - Opportunity to provide input into the SEA.

PCG Information sharing

- Information and discussions from PCG meetings is not confidential. As such, PCG members are free to report back to their constituencies, and share information with other stakeholders. However, there are exceptions where information might not be shared with the PCG – for example in the event that information such as the last known locality of a critically endangered species.

Human rights

- Human rights issues are anticipated to be an issue which cross-cuts many of the strategic issues assessed during the SEA. There were concerns from the PCG that human rights and a "human rights based approach" would not be sufficiently incorporated and addressed as the SEA has not isolated human rights as a "Strategic Issue", ie as a topic chapter by itself, with a dedicated team. The Project Team reiterated that human rights are a cross-cutting Strategic Issue which needs to be addresses in many of the issue topics such as economics, social

fabric, rights to resources such as water, rights to a safe environment, access rights to ecosystem services etc, and they consider this to be a more appropriate approach. The Vision of the SEA was formulated by considering two key information sources, one of which was the National Development Plan 2012, the other was the South African Constitution, both of which have a strong rights basis.

SEA outputs and decision-making by Government

- Concerns were raised around SGD unfolding under auspices of Government, and that Government will make decisions without due consideration of evidence presented by the SEA. A decision was taken by Cabinet to undertake the SEA, which implies that many Ministries are involved and responsible for using the scientific evidence presented in a responsible manner. The Inter-Ministerial Committee (IMC) consists of many Departments (DEA, DWS, DMR, DoE, DST) which each have their own mandate; however there would not be a steamrolling of one Department's mandate over another.

5. *Key actions and way forward*

Action	Responsible party	Timeframe
1. Consider and evaluate nominees to the PCG to determine whether they are appropriate, will contribute to a balanced group, and available. Contained herein.	Project Team	04 Aug, 2015
2. Provide the PCG with a "Process Document" describing the detailed SEA Process, public consultation, the structure and purpose of the PCG and a timeline of meeting dates for PCG engagement.	Project Team	04 Aug, 2015
3. Provide Integrating and Contributing Specialist Authors' composition, information and *curriculum vitaes* to PCG members for review.	Project Team	End Aug/early Sep, 2015

2.2 Process Custodians Group Meeting 2 Notes (22 October 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Process Custodians Group Meeting 2

Date:

22 October, 2015.

Location:

Knowledge Commons, CSIR Pretoria.

List of attendees:

Name	Organisation
Andrew Matjeke	Dept. Econ. Dev.
Angela Kariuki	SAHRC
Barry Morkel	AEON/NMMU
Bob Scholes	Wits/CSIR
Dee Fischer	DEA
Greg Schreiner	CSIR
Henri Fortuin (as observer)	Western Cape DEA&DP
Janet Love	SAHRC
Jeanie le Roux	TKAG
Thato Kgari	CGS
Kristal Maze	SANBI
Lusnita van der Walt	CSIR
Muvhuso Musetsho	CGS
Marius Diemont	BUSA
Marlanie Moodley	DEA
Paul Hardcastle (as observer)	Western Cape DEA&DP
Paul Lochner (as facilitator)	CSIR
Peter Price	ONPASA
Portia Manuel	PetroSA
Selselo Matlhane	SKA-SA
Wayman Kritzinger	AgriSA

Apologies received:

- Morne du Plessis (WWF)
- Sean O 'Beirne (PCG Chair)
- Shafick Adams (WRC)
- Stefan Cramer (SAFCEI)
- Jeff Manuel (SANBI)

Absent:

- Rudi Dicks (DPME)
- Intelligent Chauke (SALGA)

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List of acronyms

ASSAf	Academy of Science of South Africa
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoE	Department of Energy
DWS	Department of Water and Sanitation
GHG	Greenhouse gas
PCG	Process Custodians Group
PEC	Project Executive Committee
SALGA	South African Local Government Agency
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
ZOD	Zero Order Draft

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

1. *Introduction and adoption of PCG Meeting #1 notes*

Actions from PCG Meeting #1 (22 July, 2015)

- Consider and evaluate additional PCG nominations: Project Team provided responses to the nominations in the meeting notes from 22 July. The PCG approved composition and balance of the group based on these responses from the project team.
- Process Document to explain the SEA process: A SEA Process Document was compiled and released to the PCG on 17 August
- List and *Curriculum Vitaes* and biosketches of Expert Authors: List released to PCG on 07 September for a 10-day comment period. The comments and response on the author team composition and balance is a discussion point of PCG Meeting #2 (see Section 3).

The PCG members approved the meeting notes from PCG Meeting #1.

2. *Update on project status and progress*

- Presentation by Greg Schreiner (CSIR) and Bob Scholes (Wits/CSIR)

Scenarios and Activities

- The SEA scenarios assume a SGD lifespan up to the year 2050. However, the expert authors will comment on mitigation required if a material risk is expected beyond that timeframe. This will account for potential latency of impacts (like in the example of acid mine drainage associated with gold mining). There aren't different scenarios for each potential future in relation to risks, as they will translate into too many risk assessments. The SEA is therefore considering three plausible main SGD scenarios, namely 1] exploration only, 2] small-scale production, and 3] large-scale production, which incorporates a broad range of impacts that could occur and at what scale they may occur. Each scenario also includes the decommissioning of wells. Existing information on local economic development planning and municipal development plans are being considered by, amongst others, the Economics-, Social Fabric-, and Land, Infrastructure and Settlement Development Author Teams.

3. *Author team balance and composition*

- Experts in the context of this SEA are not only highly qualified academics, but knowledgeable persons who are regarded by the community (social credibility) to have specialised expertise in a certain field (e.g. artists and farmers).

Discussion on comments and response report for author team balance

- A list of Authors, biographical sketches and CVs was presented to the PCG on 07 September. Comments were received from 07-17 September and the Project Team responded to the comments on 24 September in a document comments and responses report.
- The PCG agreed that 10 days was a sufficient amount of time for the members to provide responses.
- The author nominations and recommendations received from the PCG were put to the author teams to consider.

- Based on the consensual view in the PCG, Human Health has been added as a separate Strategic Issue to be considered by an expert Author Team.
- The PCG formally approved of the author teams based on composition and balance; and that the comments made by the PCG had been responded to by the project team in an adequate manner.

4. *Zero Order Draft (scope of study)*

- Presentation by Bob Scholes (Wits/CSIR)
- The Zero Order Draft (ZOD) is an expanded table of content that broadly delineates the SEA scope of study.
- The PCG, along with general stakeholders, have an opportunity to consider and comment on the ZOD until 20 November 2015. Comments will not be responded to individually but will be collated together with comments from the broader public and presented to the author teams.

Scope of work

- The SEA is considering the exploration (including exploration hydraulic fracturing), production and decommissioning (including potential legacy/post-decommissioning risks) of SGD. The spatial and temporal extent of the issues considered is determined extent to which a risk can still be considered material.

Agriculture

- High potential agricultural land must be considered.

Air Quality and Greenhouse Gasses

- Dust pollution will be considered by the Air Quality and Greenhouse Gas (GHG) Emissions Team.

Waste

- Radioactivity is mainly considered by the Waste Team looking at potential radioactive material in the produced water after drilling and hydraulic fracturing, and how this waste should be managed.

Land restitution

- Land restitution and tenure security effects on the various communities within the study area should be considered by the Agriculture- and Social Fabric Teams.

Land use

- The effect of shale gas development on the country's renewable energy programme needs to be considered.

Uranium mining

- The scope of the SEA focuses on SGD specifically, recognising a dynamic baseline scenario which includes competing land uses and change drivers (although uranium mining in the Karoo is only at this stage a theoretical possibility and not an actual activity contributing to a baseline risk scenario).

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Institutional capacity requirements

- Institutional considerations relating to coordination and competent authority capacity within Local, Provincial and National Government needs to be considered. A study on the institutional readiness of South Africa for shale gas development has been completed by The Academy of Science of South Africa (ASSAf) for DST. The ASSAf study has not been released into the public domain by DST.

Financial provisioning

- Many of the impacts and risks associated with SGD lie after decommissioning of wells - not just in relation to environmental impacts, but also around financial provisions funds for retired wells and the accountable and responsible parties for financial provisions of retired wells. This needs to be considered as part of the SEA. Comment from DEA: Under the 'One Environmental System' DEA is the policy writer for all environmental damage caused by mining activities, and has finalised financial provisioning which speaks to the requirements of i) annual rehabilitation and funds for rehabilitation, which motivates continuous rehabilitation where possible, and ii) consideration of latent negative environmental effects.

5. *Risk assessment process*

- Presentation by Bob Scholes (Wits/CSIR).
- The risk is considered as probability times consequence, and the risk assessment considers:
    - Low probability, high consequence events;
    - High probability, low consequence events;
    - In the presence and absence of best-practice mitigation and management;
    - Considers risk both spatially and across the different development scenarios.
- A request was made for the approach to the risk assessment and how risks are being measured. This is contained within the SEA Process Document which is available within the PCG information repository and the project website for all to view.

6. *Public outreach: round 1*

- Presentation by Greg Schreiner (CSIR)
- Three public briefings in Graaff-Reinet, Beaufort West and Victoria West and once stakeholder workshop in Cape Town are scheduled in the week of 09-13 November 2015.
- These public outreach session have been advertised in provincial newspapers in the three provinces in the study area (Eastern Cape, Western Cape and Northern Cape) as well as in one national newspaper according to DEA. The three provinces and the South African Local Government Agency (SALGA) have also been asked to assist with distributing the public outreach schedule and the SEA Background Information Document (BID). The three provinces are also tasked with distributing information to the Local- and District Municipalities in the study area.
- Stakeholder registration and comment will be facilitated at the public briefings for people who do not have computers or internet access. Communications with these stakeholders will most likely occur via SMSs or post, to ensure as far as possible that no-one is excluded based on internet accessibility.

Strategic Environmental Assessment for Shale Gas Development in South Africa
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7. Feedback to PEC from the PCG

- Proposal for provincial governments to facilitate the provision of transport for stakeholders from neighbouring communities to the public briefings.
- How to include the poor communities in the outreach programme?
- Communication of public outreach to municipalities?

8. Key actions and way forward

	Key Actions	Responsible party	Timeframe
1	Share presentations, meeting notes, attendance register with the PCG, updated spreadsheet of author teams for each strategic issue.	Project Team	04 November
2	Share draft "Chapter 1" (Scenarios and Activities Document) with the PCG.	Project Team	04 November
3	Distribute notices of the public outreach session to Local and District Municipalities.	Project Team	30 October
4	Distribute final public outreach itinerary to the PCG	Project Team	04 November
5	Provide feedback to the author teams on the importance of issues relating to: - High potential agricultural land - Air quality and dust emissions - Land restitution - Land use and the effect on renewable energy - Radioactive waste - Institution capacity considerations	Project Team will consolidate these comments into the comments on the ZOD which are presented to the author teams	Ongoing
6	Provide comments on the ZOD sent to the PCG on 13 October. Project team to collate comments and forward to author teams (including the comments made by the general public, via website). Comments will not be responded to individually	PCG and Project Team	13 October - 20 November 2015
7	PCG Meeting #3 following peer-review of the First Order Draft.		April/May 2016 (TBC)

2.3 Process Custodians Group Meeting 3 Notes (03 May 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Process Custodians Group Meeting 3

Date:

03 May, 2016.

Location:

Demo Room, Building 22, CSIR Pretoria.

List of attendees:

Name	Organisation
Andrew Matjeke	Econ. Dev. Dept.
Bob Scholes	Wits/CSIR
Bongani Sayidini	PetroSA
David Fig	Project 90x2030 & others
Dee Fischer	DEA
Greg Schreiner	CSIR
Julius Kleynhans	TKAG
Kristal Maze	SANBI
Megan de Jager	CSIR
Nada Kakaza	SAHRC
Paul Lochner	CSIR
Peter Price	ONPASA
Rudi Dicks	DPME
Sean O'Beirne	IAIA-SA
Selaelo Matlhane	SKA-SA
Stefan Cramer	SAFCEI
Thato Kgari	CGS
Viswanath Vadapalli	CGS
Wayman Kritzinger	AgriSA

Apologies received:

- Shafick Adams (WRC)
- Barry Morkel (AEON)
- Morne du Plessis (WWF)

Absent:

- Intelligent Chauke (SALGA)
- Jeff Manuel (SANBI)
- Demetre Labadarios (HSRC)
- Marius Diemont (BUSA)

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Contents

List of acronyms

ASSAf	Academy of Science of South Africa
BW	Beaufort West
CSIR	Council for Scientific and Industrial Research
CT	Cape Town
DEA	Department of Environmental Affairs
DPME	Department of Mineral and Energy
EDD	Economic Development Department
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
FOD	First Order Draft
GFR	Graaff-Reinet
GTL	Gas-to-Liquid
IAIAsa	International Association for Impact Assessment South Africa
NORM	Naturally Occurring Radioactive Material
PCG	Process Custodians Group
PEC	Project Executive Committee
SALGA	South African Local Government Agency
SANS	South African National Standards
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SKA	Square Kilometre Array
USA	United States of America
VW	Victoria West
Wits	University of the Witwatersrand
ZOD	Zero Order Draft

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

1. *Introduction and adoption of PCG Meeting #2 notes*

Actions from PCG Meeting #2 (22 October, 2015)

Action	Status
1. Share presentations, meeting notes, attendance register with the PCG, update spreadsheet of author teams for each strategic issue.	This action was completed via Dropbox on 04 November 2015.
2. Share draft "Chapter 1" (Scenarios and Activities Document) with the PCG.	This action was completed via Dropbox on 04 November 2015.
3. Distribute notices of the public outreach session to Local and District Municipalities.	Notices were distributed on 30 November 2015.
4. Distribute final public outreach itinerary to the PCG	This action was completed on 04 November 2015.
5. Provide feedback to the author teams on the importance of issues relating to high potential agricultural land, air quality and dust emissions, land restitution, land use and the effect on renewable energy, radioactive waste and institution capacity considerations.	Comments on the importance of these issues were consolidated into the comments on the ZOD and presented to the author teams on 30 November 2015.
6. Provide comments on the ZOD sent to the PCG on 13 October. Project team to collate comments and forward to author teams (including the comments made by the general public, via website). Comments will not be responded to individually.	Comments on the ZOD by the PCG and general public were presented to the author teams on 30 November 2015.
7. PCG Meeting #3 following peer-review of the First Order Drafts.	Peer Review of the FOD's began on 22 February, and the comments were shared with the author teams prior to the 2nd Multi-Author Workshop on 18-20 April 2016. PCG meeting #3 was held on 03 May

The PCG members approved the meeting notes from PCG Meeting #2.

2. *Update on project status and progress*

- Presentation by Greg Schreiner (CSIR)
- With reference to the presented timeline for the entire SEA, it was indicated that the project is now in Phase 2 which is the Scientific Assessment Phase. The FOD's of the strategic issues chapters have been peer reviewed, and these comments have been addressed by the author teams who are in the process of drafting the Second Order Drafts (SOD's). The SOD's are to be submitted by the author teams by 31 May 2016, after which they will be released for public comment. Thereafter a Final Assessment Report will be finalised, which marks the end of Phase 2 of the project. This Final Assessment Report will provide the information basis for Phase 3.

Outreach feedback and programme

- Three public briefings took place in Graaff- Reinet, Beaufort West and Victoria West on 10-12 November, and one full day stakeholder workshop was held in Cape Town at the Iziko Museum on 13 November.

These locations were chosen to represent the three provinces of the study area based on accessibility and relatively large population sizes.

- People were able to register as stakeholders by filling in a form at the public briefings, which were incorporated into the SEA registered stakeholder database, which currently comprises ~450 registered stakeholders.
- Common concerns which arose at the public briefings included 1] a need for greater municipal and ward involvement in the public briefings, 2] governance/ policing (of regulations) issues, should shale gas development (SGD) be permitted to take place, and 3] the 17 strategic issues of the SEA and ensuring that all sensitive topics have been considered.
- Key learnings from the first round of public briefings, with particular reference to the first concern noted previously, resulted in the distribution of letters from the Minister of Environmental Affairs to the offices of the affected local municipalities, notifying them of the next round of public briefings to take place in May. In the letters the Minister requested the local municipalities to distribute notice of the public briefings (dates and times) through the Local Government structures, namely through Ward Councillors to encourage and promote attendance at the briefings.
- Additional key learning: pre-meetings with municipalities.
- The project team communicated to the PCG that the SOD's of the strategic issues chapters will be released for public comment mid-June, with 4 weeks provided for commenting.

Questions:

- David Fig (Project 90 x 2030) queried whether the registered stakeholder database was openly available from the Shale Gas SEA website.
    - Greg Schreiner (CSIR) and Bob Scholes (Wits/CSIR) responded by stating that due to the Protection of Personal Information Act (2013), the CSIR is unable to share the information on the database as this would require permission from the stakeholders, but the CSIR would be able to provide metadata.
    - Greg Schreiner (CSIR) suggested a one page synopsis of metadata be provided to the PCG, which will include such information as the number of people from which provinces; and number and types of organisations.
    - The PCG members agreed to this suggestion.
- Wayman Kritzinger (AgriSA) asked whether the Ministerial letters were addressed to all the municipal managers in the SEA study area.
    - Greg Schreiner (CSIR) responded by noting that letters were addressed only to municipalities in which the meetings will/ or have taken place. In addition, SALGA have been given the responsibility of notifying the Local Municipalities of the public briefing details.
    - Wayman Kritzinger (AgriSA) raised concern that only a small portion of the provinces affected by the SEA will be represented at the meetings. He suggests contacting the District Municipalities in the affected provinces and requesting them to communicate the information to the Local Municipalities in their districts.
    - Sean O'Beirne (Chair/ IAIAsa) reiterated that the SEA public briefings are not to be likened to an Environmental Impact Assessment (EIA) public participation process, but the shale

gas SEA public briefings are intended to reach a representative sample of people who are then able to transfer the information to other affected parties.

- Sean O'Beirne (Chair/IAIAsa) thereby suggested contacting the District Municipalities for this purpose for next round of public outreach in July.

- Bongani Sayidini (PetroSA) asked what the expectation of the PCG is to attend the public briefings.
  - Greg Schreiner (CSIR) responded by stating that there is no expectation for PCG members to attend the briefings, and feedback will be provided to the PCG at the next PCG meeting as to the outcome of the public briefings. Greg requested PCG members to distribute notice of the briefings through the relevant channels.

Scenarios and Activities SOD

- The Scenarios and Activities SOD has been made available to the author teams for their assessments. The data on which the resource probability map is based provides the specialist teams with an area where SGD is most probable, but this is not definitive and further work still needs to be done. The Shale Gas Resource Probability map should not be published in isolation (without the 17 strategic issue chapters) to ensure the information conveyed therein is not misleading. The four scenarios are unpacked in great detail in the Scenarios and Activities Chapter, which provides a spatial indication of the footprint SGD, would potentially have. Peer Reviewers have assisted significantly with these calculations. The Chapter will be made available for public comment in June. The graphic representation of the potential footprint of the well pads is merely conceptual and the representations have not considered sensitive features or associated buffers.

Questions:

- Wayman Kritzinger (AgriSA) queried whether the economic trade-off between farming, with low profit margin over a longer time period, and SGD, with high profit margins over a relatively shorter time period, was considered in the Scenarios and Activities Chapter.
  - Bob Scholes (Wits/CSIR) responded by noting that the Scenarios and Activities Chapter does not constitute an assessment, but instead provides an input which the other chapters can use as a departure point for their assessments. The assessment is a separate step which is included in the specialist studies/ strategic issues chapters.

Peer Review Process for FODs

- Based on the accepted strategic issues presented in the ZOD, peer review experts were identified for each strategic issue from the extensive literature collection of the shared library, as well as through recommendations from stakeholders, the PEC, PCG and authors.
- Peer reviewers are independent from the assessment writing process, and represent universities, consultancies, government agencies and others. A minimum of 2 peer reviewers was required for each chapter, with more complex and double chapters (i.e. surface and groundwater resources) having up to 6 peer reviewers. The chapters were reviewed by 45 international and 26 South African experts, predominantly from the USA and Australia, and also from Canada, France, the Netherlands, UK and Japan.
- Peer reviewers were provided with the ZOD and FOD of the Scenarios and Activities chapter for context, and an allocated time, which was suitable to the SEA timeframe for the peer review process, was provided to the experts within which to submit their comments. Comments were provided in a

standardised template form, and additional reference materials were provided by some expert reviewers to the author teams. Author teams have responded to every comment and are in the process of incorporating the relevant comments into the SOD's.

- As a mandated item for PCG, the manner of author responses to the peer review and registered stakeholder comments must be checked by the PCG.

3. *Preliminary feedback on Chapter First Order Drafts (FODs)*

- Presentation by Bob Scholes (Wits/CSIR)
- Each chapter follows a particular structure which includes an Executive Summary; Introduction and Scope; Key potential impacts and their Mitigation; Risk Assessment; Best Practice Guidelines and Monitoring Requirements; Topic on which information is inadequate for decision- making; and References.
- The Risk Assessment follows a well- structured risk evaluation process, which involves defining the nature of the impact, mapping the receiving environments, defining mitigation technologies and consequence levels for each type of impact for each scenario. Each chapter provides spatially explicit risk maps which identify key issues that need to be addressed in terms of guidelines and regulations. The project team will use the risk assessment information to produce a risk surface for each type of impact, and subsequently a composite risk map will be created with reference to mitigation and another risk map without mitigation.
- Author teams are asked to consider what the implications are with respect to monitoring to end of activity, and in some cases beyond end of activity.

Questions:

- Rudi Dicks (DPME) questioned the inclusion of the "recent" report by the Academy of Science of South Africa (ASSAf) in the Scientific Assessment, and noted that the availability of the report for the Scientific Assessment is important.
    - Bob Scholes (Wits/CSIR) responded by reiterating that this Scientific Assessment did not conduct new research, and as such the ASSAf report is a key piece of information that the authors have not been able to access. Since all the strategic issues chapters raise concerns of legislative readiness for SGD, the ASSAf report would prove useful in the Assessment; should it become available prior to the due date for submission of the SODs. It may be problematic if the ASSAf report is presented as new material to stakeholders subsequent to the release of the SODs.
    - Greg Schreiner (CSIR) noted that the Project Team have been trying since mid-2015 to obtain the ASSAf report, and does not see it being resolved in next weeks.
    - Rudi Dicks (DPME) informed the PCG that it was agreed in cluster to make the ASSAf report available to the Project Team so that it may form part of the Scientific Assessment. Rudi suggested arranging the partial release of the report (limited sections) to the Project Team, as sections of the report are confidential.
- David Fig (Project 90x2030) queried whether Governance could be added as an independent strategic issue.
    - Bob Scholes (Wits/CSIR) responded by emphasising that each chapter is required to address the issue of governance, and therefore a standalone chapter focusing on

governance would be a duplication of what is already laid out in the other strategic issues chapters.

- Stefan Cramer (SAFCEI) questioned how new science and information can be incorporated into the process.
    - Bob Scholes (Wits/CSIR) responded by highlighting that this is a common concern among assessments of this nature. Similarly to the Intergovernmental Panel on Climate Change, an agreed date is decided upon (deadline) which is the limit to which new information can be incorporated into the assessment. If a sufficient set of new information is found to be significant and which brings the initial assessment into question, the Project Team will consider it incorporation into the assessment if it is presented within the Scientific Assessment timeframes.
- Sean O'Beirne (Chair/IAIAsa) posed the question as to how the DEA will address new findings once the SEA has been completed.
    - Dee Fischer (DEA) responded by stating that Government will utilise the Scientific Assessment, the 3rd phase of SEA and the ASSAf report. The findings of the ASSAf reports will not have a significant impact on the SEA up to this point, as the critical outcomes of the SEA e.g. baseline studies, guidelines for subsequent assessments etc., are what are important. The SEA will take on different forms in the future, but it is intended as a pre-fracking/ pre-shale gas assessment to determine how best to ask questions of policy and management. Using the SEA as a point of departure, different assessments can be done in future on a needs basis which will incorporate new science, evidence, technologies etc.
- Andrew Matjeke (EDD) stated concern as to the practical implementation of governance and policy, and the prolonged time it takes to inform municipalities when new policies are ready for implementation. Andrew noted that it would be beneficial for departments to actively participate in the process as to allow new information to be used/ synthesised as it is received, in an effort to reduce the time it takes to determine and implement new policies etc.
- Sean O'Beirne (Chair/IAIAsa) queried whether the PCG will advocate guide the Phase 3 process?
    - Bob Scholes (Wits/CSIR) confirmed that Phase 3 of the SEA will involve close relations with the project team (CSIR, SANBI and CGS) and Government to discuss/ suggest best practice, monitoring guidelines, etc. based on the phase 2 Scientific Assessment findings.
    - Greg Schreiner (CSIR) further noted that the PEC includes an interministerial group, and as such Government is built into the process to allow for this.
- Selaelo Matlhane (SKA) questioned the ability to quantify information exchange between the different strategic issues chapters.
    - Bob Scholes (Wits/ CSIR) responded by noting that this ability varies between chapters, for example the Electromagnetic Interference (EMI) chapter involves physics based quantifications while the Sense of Place chapter is subjective. The authors have quantified as much information as possible i.e. location and lengths of roads etc., but cognisance must be given to the fact that the SEA does not replace an EIA which will provide greater details.
- Selaelo Matlhane (SKA) queried whether an EIA will be required for every site under application.

- Bob Scholes (Wits/CSIR) confirmed that legislation remains unchanged, and if there is a triggered activity, an EIA will have to be conducted.
- Sean O'Beirne (Chair/IAIAsa) reaffirmed that the SEA will provide the grounding for future EIAs which would be required for the various applicants.

- Sean O'Beirne (Chair/IAIAsa) questioned whether the PCG will only have access to the Phase 3 Decision Making Framework along with general stakeholders e.g. through government gazette processes.
  - Greg Schreiner (CSIR) confirmed this and stated that the PCG provide input through to end of Phase 2 of the Scientific Assessment.

4. *Feedback to PEC from the PCG*

- Proposal for district municipalities to facilitate the dissemination of public briefing notices.
- Obtain partial access to the ASSAf report for inclusion in SODs.

5. *Key actions and way forward*

	Key Actions	Responsible party	Timeframe
1	Share presentations, meeting notes, attendance register with the PCG.	Project Team	End-May
2	Share a one page synopsis of registered stakeholder database to PCG	Project Team	End-May APPENDIX A
3	Receive SODs and responses to peer reviews from author teams	Project Team	End-May
4	Distribute notices of the public outreach session to Local and District Municipalities.	Project Team	End-June
5	Distribute final public outreach itinerary to the PCG	Project Team	Mid-June
7	Release SODs to stakeholders for comment (and Share consolidated comments spreadsheet for each strategic issue).	Project Team	14 June
8	Provide comments to the author teams on the SOD's (Project team will collate all public/ stakeholder comments (including the comments made by the general public, via website). Comments will not be responded to individually)	PCG and Project Team	15 July
9	Public Outreach, Round 2 (GFR, BW, VW & CT)	Project Team	18-22 July
10	Multi-Author Team Workshop #3	Project Team	25-27 July
11	Final draft of Scientific Assessment due	Project Team	22 Aug
13	PCG Meeting #4 following peer-review of the Second Order Drafts.		26 Sept
14	Phase 2: Final Scientific Assessment	Project Team	Mid-Oct

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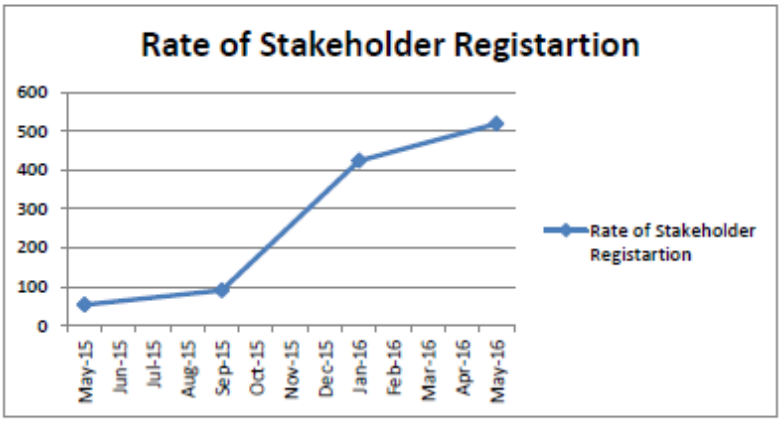
APPENDIX A: Demographics of registered stakeholders

Registered Stakeholders in numbers

The website of the Strategic Environmental Assessment was launched on 13 May 2015 after the parliamentary launch; from the date of the launch until end of June 2015 we received 53 online registrations. The period between 1 July and end 30 September a further 37 online registrations were received. During the period between 1 October -31 Jan 2016 there was a substantial increase in online registration, we received 333 registrations, this was mostly due to the first roadshows occurring during this time and a meeting registered stakeholders taking place in Cape Town. A total of 73 stakeholders have registered during the Public Briefings and they get notified via sms. The total number of the registered stakeholders on the database as of 27 May 2016 is 518.



Registered Stakeholders locality

The registered stakeholders are based in various provinces around the country, namely Free State, Kwa-Zulu Natal, Gauteng, Eastern Cape, North West and Western Cape, most of them being based in the Western Cape. A number of online registrations have not indicated their province and cities therefore they have not been accounted for in the diagram below. In the Eastern Cape most of the stakeholders are based in Graff-Reinett and Port Elizabeth, in the Free State the majority is in Bloemfontein, in Gauteng there is an equal share between Pretoria and Johannesburg, KwaZulu Natal has the majority of stakeholders based in Durban and a few in Pietermaritzburg. Victoria West has most of the stakeholders in Northern Cape, and Western Cape is shared between Beaufort West and Cape Town.

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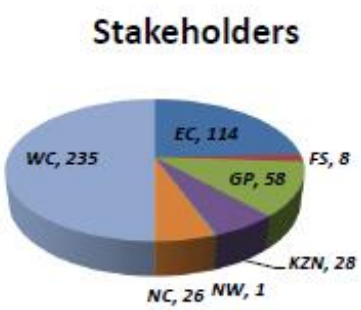
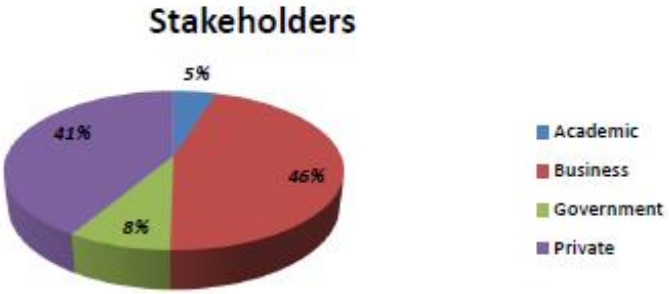


Interest Category of Stakeholders

The interest of stakeholders is divided into four categories; Business, Private/ Personal, Academic and Government. The percentage is of the stakeholders per category are shown in the graphic below.



2.4 Process Custodians Group Meeting 4 Notes (26 September 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Strategic Environmental Assessment for Shale Gas Development in South Africa:

Process Custodians Group Meeting 4

Date:

26 September 2016.

Location:

CSIR Executive Boardroom, Building 3, CSIR Pretoria.

List of attendees:

Name	Organisation
Andrew Matjeke	Econ. Dev. Dept.
Bongani Sayidini	PetroSA
David Fig	Project 90x2030 & others
Dee Fischer	DEA
Demetre Labadarios	HSRC
Greg Schreiner	CSIR
Hendrik Kotze	Kerlpax
Henk Coetzee	CGS
Henri Fortuin	DEADP
Jeffrey Manuel	SANBI
Kristal Maze	SANBI
Luanita Snyman-Van der Walt	CSIR
Marius Diemont	BUSA
Megan de Jager	CSIR
Morné du Plessis	WWF-SA
Sean O'Beirne	IAIA-SA
Selselo Matlhane	SKA-SA
Shafick Adams	WRC
Wayman Kritzinger	AgriSA

Apologies received:

- Bob Scholes (Wits)
- Jessica Courtoreille (PetroSA)
- Paul Lochner (CSIR)
- Peter Price (ONPASA)
- Rudi Dicks (DPME)
- Stefan Cramer (SAFCEI)
- Thato Kgari (CGS)
- Viswanath Vadapalli (CGS)

Absent:

- Angela Kariuki (SAHRC)
- Barry Morkel (AEON)
- Chantal Kissoon (SAHRC)
- Intelligent Chauke (SALGA)
- Janet Love (LRC)
- Julius Kleynhans (TKAG)
- Marianie Moodley (DEA)
- Mukondi Masithi (CGS)
- Nada Kakaza (SAHRC)
- Nic Opperman (AgriSA)
- Selma Karuaihe (HSRC)

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Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Contents

List of acronyms

ASSAf	Academy of Science of South Africa
BW	Beaufort West
CSIR	Council for Scientific and Industrial Research
CT	Cape Town
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DPME	Department of Mineral and Energy
EDD	Economic Development Department
EIA	Environmental Impact Assessment
EMI	Electromagnetic Interference
FOD	First Order Draft
GFR	Graaff-Reinet
GTL	Gas-to-Liquid
IAIA-SA	International Association for Impact Assessment South Africa
NORM	Naturally Occurring Radioactive Material
PASA	Petroleum Agency of South Africa
PCG	Process Custodians Group
PEC	Project Executive Committee
SALGA	South African Local Government Agency
SANS	South African National Standards
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
SOD	Second Order Draft
SKA	Square Kilometre Array
USA	United States of America

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

VW	Victoria West
Wits	University of the Witwatersrand
ZOD	Zero Order Draft

1. *Introduction and adoption of PCG Meeting #3 notes*

Actions from PCG Meeting #3 (27 May 2016)

Action	Status
1. Share presentations, meeting notes, attendance register with the PCG.	Completed.
2. Share a one page synopsis of registered stakeholder database to PCG.	Completed- Appendix A of PCG Meeting #3 notes.
3. Receive SODs and responses to peer reviews from author teams.	Completed.
4. Distribute notices of the public outreach session to Local and District Municipalities.	Completed.
5. Distribute final public outreach itinerary to the PCG.	Completed.
6. Release SODs to stakeholders for comment (and share consolidated comments spreadsheet for each strategic issue).	Completed 14 June – 22 July 2016.
7. Provide comments to the author teams on the SOD's (Project team will collate all public/ stakeholder comments (including the comments made by the general public, via website). Comments will be responded to individually*).	Completed 15 July 2016.
8. Public Outreach, Round 2 (GFR, BW, VW & CT)	Completed 18- 22 July 2016.
9. Multi-Author Team Workshop #3	Completed 25-27 July 2016.
10. Final draft of Scientific Assessment due	Completed.
11. PCG Meeting #4 following peer-review of the Second Order Drafts.	Peer review comments of SODs were shared with author teams prior to 3rd Multi-Author Workshop.
12. Phase 2: Final Scientific Assessment	Final scientific assessment report due to be electronically released by end October 2016 and hardcopies by end December 2016.

Corrections to PCG Meeting #3 notes:
*Corrected statement.
Apology for Jeffrey Manuel is noted.

Following corrections, the PCG members approved the meeting notes from PCG Meeting #3.

2. *Update on project status and progress*

Presentation by Greg Schreiner (CSIR)

Where are we now?

- With reference to the presented timeline for the entire SEA, it was indicated that the project is now almost at the conclusion of the Scientific Assessment Phase.

- This conclusion will see the final Scientific Assessment Report, which will include all 18 strategic issues chapters, being electronically released November 2016, and hardcopies of the report are expected to be released by early 2017.

PCG Mandate

Throughout the scientific assessment process the PCG verified that the process was credible, legitimate and salient in that the process followed the prescribed guidelines; the author teams had the necessary expertise; the assessment covers the material issues; and the identified peer reviewers are independent, qualified and balanced. The final task of the PCG is to ensure that the review comments received from expert and stakeholder reviewers have been adequately addressed and documented.

Questions:

- David Fig (Project 90 x 2030): In what form is the PCG to check the comments and responses?
    - Greg Schreiner (CSIR): The comments and responses are available on the SEA website. PCG should consider comments and responses reports and cross check with chapters to see if the authors appropriately considered and responded to the peer reviewer and stakeholder comments. If the PCG feel the comments were not responded to adequately, they can indicate this directly to the project team.
- Morné du Plessis (WWF-SA): Is this final scientific assessment report not open for further comment?
    - Greg Schreiner (CSIR): The last round of peer reviewer and stakeholder comment was conducted in June- July and these were incorporated into the final report.

Scientific assessment timing

The scientific assessment process was conducted over a period of roughly one year, and involved multiple author meetings and review processes by the PCG, PEC, expert reviewers and stakeholders of the Zero Order Draft (ZOD, First Order Drafts (FODs) and Second Order Drafts (SODs). The scientific assessment process reaches completion at the end of October 2016, with the release of the final scientific assessment report.

Questions:

- Shafick Adams (WRC): Is there an opportunity for another outreach session to return to the study area to provide feedback on the final report? This will show buy-in by the Departments that commissioned the SEA and lessen the community's distrust. Inputs were received, and now an output is available- it's not about content; it's about goodwill. We need to let the public/ communities know that the process was achieved together, and so they can see how their inputs were incorporated.
    - Greg Schreiner (CSIR): This is a valid comment and good suggestion. It was encouraging to see how stakeholders reacted at outreach session 2 in response to the outreach sessions 1a and 1b. At outreach 2 there was a large degree of consensus which indicates the team has done will in reaching communities, receiving inputs and building trust. Essentially, outreach 2 achieved the purposes of a potential third outreach session.
    - Hendrik Kotze (Kerlipax): From a facilitator's perspective; outreach session 1a was to gather inputs, concerns and issues to be addressed. Additional issues/ concerns were received at outreach session 1b and confirmed the issues and concerns to be addressed

in the scientific assessment, which was then individually responded to. Outreach session 2 presented the SOD findings and showed how the authors addressed the concerns and comments. People are concerned about how the scientific assessment report links to the decision- making framework, and there may be value in reporting back to the community about the third phase of the assessment.

- Sean O'Beirne (IAIA-SA): Is it feasible, in terms of planning, budget, logistics etc. to conduct an additional/ final outreach session, with opportunity as the third phase of the SEA?
    - Greg Schreiner (CSIR): The suggestion will be taken on board and given significant consideration from a project management perspective and discussion will be undertaken with the PEC about this suggestion.
- Wayman Kritzinger (AgriSA): When will feedback be given to individual responses?
    - Greg Schreiner (CSIR): This will be released along with the final report.
- Sean O'Beirne (IAIA-SA): Are there additional public participation opportunities planned for phase 3, and who are the role players?
    - Greg Schreiner (CSIR): Public participation was planned largely around the scientific assessment process, and engagements from the scientific assessment phase feed into phase 3. The findings are taken to the (many) role players (DEA, DMR, PASA [Government] and PEC) in order to inform a decision-making framework.
- Morné du Plessis (WWF-SA): There may be a need for further public engagement in the decision-making process.
    - Greg Schreiner (CSIR): An opportunity may exist for another round of public participation, which would be focused around phase 3 (decision-making framework). This would be subject to agreement with the PEC.
- David Fig (Project 90 x 2030): Is there budget for launching the document? Can the Karoo be included in this planned release?
    - Greg Schreiner (CSIR): This is a good suggestion and there is a possibility to include the Karoo in the release and would allow the communities to see where their inputs have been implemented.
    - Shafick Adams (WRC): The document needs to be launched at a high profile level and it should create a sense of ownership.
- Kristal Maze (SANBI): What is the logic behind having the final PCG meeting prior to the launch of the final scientific assessment report?
    - Greg Schreiner (CSIR): 26 September was the date we had agreed to meet at the previous PCG meeting – there was no good reason not to honour this. There is no reason why the PCG mandate cannot be fulfilled remotely i.e. via email.
- Sean O'Beirne (IAIA-SA): With regards to the suggested additional outreach; it is unlikely that an additional outreach will occur as part of phase 2, but this may be considered as part of phase 3, as well as launching the report to create recognition around the community comments and as a means to acknowledge the role of stakeholders in the scientific assessment process.
- Hendrik Kotze (Kerlipax): As a facilitator of various processes, it is important to understand the change in atmosphere as this process progressed; from stress, anger and distrust during outreach 1a to outreach 1b

and 2, where people were thankful that the team had returned for further engagement and for the process, which they thought was effective and properly conducted, and that the outcome was useful.

- Bongani Sayidini (PetroSA): Is there any expectation for the PCG to endorse the final scientific assessment report?
    - Sean O'Beirne (IAIA-SA): There is no requirement to endorse the final technical content of the final report. The mandate was to oversee the process to ensure its legitimacy, as set-out within the process document.
    - Greg Schreiner (CSIR): The names or organisations of PCG members do not have to be affiliated with the content of the scientific assessment report. The mandate of the PCG is clearly defined in the Preface to the report. It is clear that it is a process, not content concerned group.

Public Outreach

A total of three rounds of public meetings were held during the scientific assessment phase, which took place in November 2015, and May and July 2016. Lessons learnt from the first public outreach included improving the distribution of the notice of the public meetings. Therefore, ministerial letters were sent to affected local municipalities requesting the local municipalities to distribute notice of the public briefings (dates and times) through the local government structures, namely through Ward Councillors to encourage and promote attendance at the briefings. Pre-meetings with municipalities also occurred, and in the last outreach of the scientific assessment phase, meetings were also held with the Laingsburg Farmers Association. A workshop was held in Cape Town for registered stakeholders as part of the first and last outreach session in May 2015 and July 2016, respectively.

The SODs were released for public comment on 14 June for a period of 38 days. Stakeholder registration increased progressively throughout the scientific assessment phase (May 2015- May 2016). The majority of stakeholders are from the Western Cape, with the Eastern Cape and Gauteng having the second and third largest stakeholder representation, respectively. Furthermore, the business sector represents the majority of registered stakeholders (46%), followed by the private sector (41%), while government represents 8% of registered stakeholders, and academia only 5%.

Questions:

- David Fig (Project 90 x 2030): Are notes on the public outreach sessions available?
    - Greg Schreiner (CSIR): The minutes are available for the first round, and will ensure the notes from the second round are made available from the project website.

Key dates going forward

The PCG mandate concludes at the end of Phase 2 (scientific assessment), with the final report due for electronic publication November 2016.

Phase 3 (decision-making framework) moves into the policy domain where the PEC operates (mandate), including a host of other institutions that need to make decisions in relation to shale gas development – this may or may not include further public engagement. Draft outputs for Phase 3 are expected end December 2016, and final outputs at the end of February 2017.

Comments and Questions

- Morné du Plessis (WWF-SA): There was discomfort from the first PCG meeting that Phase 3 is disconnected from the PCG as it becomes a political process. It would be comforting if decisions in Phase 3 were made with the scientific assessment findings in mind, and some guidance (feedback) was given as to how the decisions are made and the outcomes of Phase 3.
    - Greg Schreiner (CSIR): The project team will inform the PEC of the PCG concerns and will discuss ways to ensure a transparent and credible process of decision-making at this phase.
    - Sean O'Beirne (IAIA-SA): Phase 3 is where the outcome of the SEA manifests, therefore it is essential to be able to determine whether due respect is given to the outcomes of the assessment.
- Shafick Adams (WRC): Concurs with Morné du Plessis' comment and questions as to how to convert science into policy, and the process to be followed to achieve this. The PCG should at least be kept in the loop, highlighting potential issues which may arise from Phase 3, especially since many PCG members risk brand image (e.g. WWF, WRC). Information should keep flowing between phase 2 and 3.
    - Greg Schreiner (CSIR): The PCG is not asked to endorse or tie their name to the scientific content of the final report have rather been custodians for the process used to derive information. Scientists function in the science domain which is then translated by policy makers to create policy.
- Sean O'Beirne (IAIA-SA): Poses a question to the PCG, given that this is the last meeting, as to how the PCG feel about their role in the process, how the process has been undertaken, and what can be taken forward and learnt to make it a constructive and positive process.
- Morné du Plessis (WWF-SA): Appreciates the outcome thus far and feels the process has fulfilled its role, but something that can be improved for future process is to provide more lead time for meetings. Advanced planning is required.
- Bongani Sayidini (PetroSA): A positive about the process is it created an environment whereby the PCG could contribute in terms of reviewing the content, but a shortcoming was that as a PCG member, he did not feel compelled to interact/ review the material, as there was no formal obligation/ expectation to review the material despite this being one of the governance groups responsibilities.
    - Sean O'Beirne (IAIA-SA): This was almost done by design to allow those persons sitting on the PCG to review the process and thus fulfil the role of the PCG, but not restrict them to interacting in another role as a stakeholder, where review of all material was a right as a stakeholder.
    - Greg Schreiner (CSIR): This provided the PCG members the opportunity to make content related comments, which is outside the ambit of the PCG.
- Wayman Kritzinger (AgriSA): The understanding from the beginning was that the PCG were to review the information provided during the process and provide recommendations to the PEC. How can the PCG accept a process that has not be concluded? How is this the final PCG meeting if the final report has not yet been released? It feels like there is no conclusion and no more time for inputs. In light of this, the PCG should have a summarised version of what the decision, since the PCG provided pertinent recommendations.
    - Greg Schreiner (CSIR): The PCG is not mandated to sign off or endorse the findings or content of the scientific assessment report, but to ensure the process was conducted effectively, as

laid out in the process document; feedback of which is provided to the PEC. The scientific assessment report is a content report and does not need endorsement by the PCG. Should you have a content related issue with the way a comment has been addressed, or an issue has been captured, you have a right to take that up with the project team, authors of the chapters etc., but that is not a process related issue.

- Sean O'Beirne (IAIA-SA): The understanding was that the PCG only review the process and provide recommendations for author teams and peer reviewers; and check that the running of that process was undertaken in a legitimate fashion.

- David Fig (Project 90 x 2030): Feels that there is a gap and he is uncomfortable about the content, but he is aware that the content concerns stray from the PCG mandate. Have the PCG missed the opportunity to ensure the content is sufficient? Where in the process has there been room for discussion on the governance issues? What would be expected to be good recommendations to government in terms of how SGD should be governed?
  - Greg Schreiner (CSIR): Governance as a topic has been addressed in each chapter where it was raised as an issue, and recommendations have been made in the report for effective monitoring for example. Recommendations have also been around the capacity of the decision-making and enforcing bodies/ institutions. These recommendations may be taken forward in Phase 3 if this is something Government requires. Whatever emerges from the political domain (Phase 3) will have to be in line with what has been recommended in the scientific assessment report (Phase 2), as it is available in the public domain. Having the report in the public domain is powerful in itself since government will have to prove how it considered the evidence base.
  - Sean O'Beirne (IAIA-SA): Confirms that the overarching concern is how the information will be implemented into policy-making recommendations.
- Shafick Adams (WRC): To protect the PCG constituencies a disclaimer must be added to protect brands and reputation, which stipulates for example that the PCG were only mandated to consider the process.
  - Sean O'Beirne (IAIA-SA): A particular concern and action to be taken is to review the process description and ensure it is very explicit regarding the role the PCG has played and what their mandate has been, including the five tasks (as described in the Preface of the scientific assessment report).
- Dee Fischer (DEA): Where would the PCG mandate best fit? It does not fit in the scientific assessment report, but rather in other SEA documentation. More discussion is needed around this issue.
  - Shafick Adams (WRC): The disclaimer needs to be in the report, and is of no use in the minutes for example.
- Henk Coetzee (CGS): The PCG forms part of the scientific assessment process and what happens after this phase is out of their control.
- Sean O'Beirne (IAIA-SA): Questions whether the authors/ scientists consented to packaging the science as it is and not be involved in Phase 3 of the SEA? Have they raised concern as to how Phase 2 will be considered in Phase 3?

  - Greg Schreiner (CSIR): Overall the scientific community felt comfortable handing over the report, and approximately four of more than 70 authors indicated they would like to be kept close the Phase 3 process.
- Wayman Kritzinger (AgriSA): There is confusion regarding the function of the PCG. PCG are expected to look at the process and provide an opinion/ recommendation as to whether the process was conducted effectively, but they also considered the technical content. When the agricultural chapter was released, AgriSA felt that the chapter was badly written, despite the recommendations made to authors and reviewers. The flaws of not getting the right people to write the chapter were evident. Now this chapter must be signed off without knowing if the chapter has implemented the comments and has been improved.
  - Sean O'Beirne (IAIA-SA): This is outside the PCG mandate, and is something that needs to be taken up as a stakeholder (as AgriSA) with the project management.
  - Hendrik Kotze (Kerlipax): This falls under Task 5 (check review comments received have been adequately addressed and documented) of the PCG mandate and if it is unclear how chapters have been improved/ incorporated comments, then it will be difficult to make a statement on task 5 as the final report with comments and responses report.
  - Jeffrey Manuel (SANBI): Assumed that the PCG role is to check that the comments received have been addressed adequately, and not to check the content or validity. Also to check that the author teams have responded and/ or implemented the comments. Need to clarify separation between content and project oversight.
- Sean O'Beirne (IAIA-SA): What is the final expectation from the PCG?
  - Greg Schreiner (CSIR): The expectation is that once the draft final chapters are available, these will be circulated with the responses to stakeholder comments. The PCG will be notified to consider the final documents and provide a "no objection to process followed', but not a technical inquisition into the minutia of each comment/ response.
- Sean O'Beirne (IAIA-SA): Confirms that an expected action of the PCG is to consider the draft final report and comment and provide an opinion on whether comments were adequately addressed. Wayman Kritzinger's particular content related concern should be brought forward as a stakeholder (AgriSA), and not a PCG member.
- Morné du Plessis (WWF-SA): Does the PCG consider a draft and upon indicating no objection this becomes the final report?
  - Greg Schreiner (CSIR): The PCG will receive a draft final report and the comments and responses about a week prior to electronic publication. The final input from the PCG would not determine content, but only determines the validity of the process. Which would be decided by the group in consultation with the chair.
- Andrew Matjeke (EDD): Questions the use of the word "custodian" for this group and argues that it should have been Project Facilitator Group, because ownership is given to the process but not the outcome. To fulfil the role of checking comments, the PCG will need both the comments and the final document.
- Shafick Adams (WRC): What if issues are found after the final report has been published? What is the worst case scenario? For example, what if the PCG picks up a bias in responses to comments? The PCG

must have some responsibility, but it feels like simply ticking a box. The PCG should have sight of the document before it enters the public domain.

- Sean O'Beirne (IAIA-SA): The PCG needs to look at the comments and response report to see if it has been conducted in a credible, legitimate and transparent manner. If they find it has not, then the PCG need to decide how to take things further. What is the current availability of the spreadsheets?
    - Greg Schreiner (CSIR): An action will be taken to distribute the comments and responses to the PCG to consider as soon as possible. Approximately 95% of the spreadsheets are currently available.
- Henk Coetzee (CGS): The PCG need the relevant chapters to check whether comments have been addressed.
    - Greg Schreiner (CSIR): The project team still need to edit and consolidate the final chapters, so they are not available immediately; perhaps end-October.
- Sean O'Beirne (IAIA-SA): An action will be taken by the PCG Chair to run a process to capture whether the PCG members are satisfied that they have met each of the five PCG mandated tasks. The idea of a disclaimer is met with some discomfort, and it would be preferable to have a detailed description of the mandate.
- Dee Fischer (DEA): Thanked the PCG for their time. There will be opportunity to be involved in the next phase, perhaps not as a PCG member, but as individual organisations etc., to ensure the report is properly utilised.

3. *Feedback to PEC from the PCG*

- The Project Team will discuss PCG concerns regarding the manner in which the scientific assessment findings will be used during the decision-making process (Phase 3).

4. *Key actions and way forward*

	Key Actions	Responsible party	Timeframe
1	Share presentations, meeting notes, attendance register with the PCG.	Project Team	End Oct
2	Review the process description regarding the role the PCG and the PCG mandate, including the five tasks (as described in the Preface of the scientific assessment report).	PCG Chair and Project Team	Early-Nov
3	Distribute the comments and responses report to the PCG	Project Team	End Oct
4	Finalise Public Outreach meeting notes and make them available on the project website.	Project Team	End Oct
5	PCG to consider the draft final chapters and comments and provide an opinion on whether comments were adequately addressed	PCG	End Oct
6	Capture whether the PCG members are satisfied that they have met each of the five PCG mandated tasks	PCG Chair	End Oct
7	Final Scientific Assessment Report publication (electronic)	Project Team	Early-Nov
8	Final Scientific Assessment Report publication (hardcopy)	Project Team	End-Dec
9	Phase 3: Decision-Making Framework	Project Team	Nov 2016 - Feb 2017

3. ANNEX 3 STAKEHOLDER OUTREACH MEETING NOTES (INCL. ATTENDANCE)

3.1 Shale Gas SEA Public Outreach Round 1a Notes (09-13 November 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Shale Gas Strategic Environmental Assessment Public Outreach: Key Issues Raised by Stakeholders

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List of acronyms

ACED	African Clean Energy Developments
AEON	Africa Earth Observatory Network
ANC	African National Congress
ANCWL	African National Congress Women's League
CER	Centre for Environmental Rights
CGS	Council for Geoscience
Cllr	Councillor
CSIR	Council for Scientific and Industrial Research
DA	Democratic Alliance
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
AQM	Air Quality Management
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DTK	Daan Toerien Konsultante
EIA	Environmental Impact Assessment
EMG	Environmental Monitoring Group
EMPr	Environmental Management Programme
I&AP	Interested & Affected Parties
IDP	Integrated Development Plan
IEC	Independent Electoral Commission
NEMA	National Environmental Management Act
NMMU	Nelson Mandela Metropolitan University
NORMS	Naturally Occurring Radioactive Materials
PASA	Petroleum Agency South Africa
PCG	Process Custodians Group
PEC	Project Executive Committee
PPP	Public Participation Process
SA	South Africa
SAAE	South African Academy of Engineering
SABC	South African Broadcasting Corporation
SAFCEI	Southern African Faith Communities' Environment Institute
SAHRC	South African Human Rights Commission
SAMWU	South African Municipal Workers' Union
SANBI	South African National Biodiversity Institute
SAOGA	South African Oil & Gas Alliance
SCLC	Southern Cape Land Committee
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
Tcf	Trillion cubic feet
TKAG	Treasure Karoo Action Group
UCT	University of Cape Town
UFH	University of Fort Hare
WESSA	Wildlife and Environment Society of South Africa

3.1.1 Graaff-Reinet Public Meeting Notes (09 November 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
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WITS University of the Witwatersrand

Graaff Reinet Public Meeting

Location	Venue	Date	Time	Attendance number
Graaff Reinet	Masizakhe Community Hall	09 November 2015	16:00- 19:00	~73

Attendance register

Name	Organisation
Andile Cetyiwe	-
Andile Dludla	CSIR
Angela Kariuki	SAHRC
B. van der Merwe	Ward 5 member
B.D. Kleinbooi	Ward 5 member
Barry Morkel	NMMU/ AEON
Bert Schade	Kriegershoek Nature Reserve
Bob Scholes	Wits/CSIR
Buhle Elie	-
C. Scheun	Die Burger Newspaper
Chris Julius	DEDEAT
Chris Marais	Karoo Space
Cynthia Kalipa-Mini	UFH Research
Dee Fischer	DEA
Denise Rews	Klipdrift
Derek Light	Attorney
Dorothy	Ward 5 member
Doug Stern	Agri East Cape
E. Buisman	Graaff Reinet Ratepayers
E. Rens	SCLC
Edmond Williams	Camdeboo Municipality
Elsie Williams	-
Ernest Mmonoa	SANBI
Fransie Fourie	Jansenville Agricultural Association
Gerry Pienaar	DEDEAT
Greg Schreiner	CSIR
Hauff-Cramer	SAFCEI
Hendrik Kotze	Peace Systems

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Henk Coetzee	CGS	
Ian Alleman	Nieu-Bethesda LTO	
Isaya Gxekwa	Coega Development Corporation	
Joley Jafitia	Ward 5/ Ward Committee	
Julienne du Toit	Karoo Space	
K. Rens	Southern Cape	
Khuthala Somdaka	Coega Development Corporation	
Krisjan Nomela	ANC	
L. Gqwetha	-	
L.M. Kuboni	-	
Leonie Fouche	Camdeboo Local Municipality	
Linda	Ward 3 member	
Luanita van der Walt	CSIR	
M. Bell	Ward 6 member	
M. Bell	ANC	
M. Loewe	Daily Dispatch	
M. Meishik	Camdeboo Municipality	
M. Ndoni	ANC	
Marika Rothenberger	Bread for the World (Germany)	
Martin	Ward 3 member	
Mavis Nqumashe	Ward Committee	
Mbuyi Nombembe	Shell SA Refining	
Megan de Jager	CSIR	
Morgan Griffiths	WESSA	
Mrs Laudheer	Kriegershoek Nature Reserve	
N. Grobler	Graaff Reinet Chamber of Commerce/ Graaff Reinet Tourism	
N.N. Ndudula	ANCWL Secretary	
P.T. Makhakhe	ANC	
P.W. Koeberg	ZR Trust	
Phakama Magadla	Coega Development Corporation	
Sandisiwe Ncemane	Coega Development Corporation	
Sivuyisile Solala	Coega Development Corporation	
Stefan Cramer	SAFCEI/ SEA PCG	
Stuart Giyose	-	
Sydney Tini	GRUSTA	
T. Eksteen	Cllr	

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T. Nkohla	SAMWU Chair	
Thema Jacobs	-	
Tom Mzivukile	ANC	
Vuyisile Booysen	Karoo Shale Gas Community Forum	
Xolani Jantjies	Communications	
Xolile Calado	ANC (Chairperson Ward 2)	
Yonela Kuboni	-	
Z.N. Hanabe	Eyethu Farmers Association	
Zenande Nombakuse	DEDEAT	
Ziphozakhe Williams	Coega Development Corporation	

Concerns Raised

Attendees raised the following concerns:

- Insufficient representation of the (potentially) affected communities at the meetings.
- Meetings were not properly or effectively advertised through the proper structures.
- Informing a few to communicate to the majority is not the correct path to follow.
- The voices of those employed elsewhere/ unable to attend the meeting for logistical reasons will be unheard.
- Suggestions/Recommendations for future meetings
- Increase the number of meetings to include other potentially affected areas.
- Follow proper communication routes and protocol prior to having the meetings, namely through local municipalities.
- Reconsider the time of meeting, with 16:00 iking it later, ~17:30.
- Obtain assistance for future meetings if large a
- Include Afrikaans and Xhosa for the informatio
- Representatives should be present at future m an be shared with those unable to attend the meeting.

3.1.2 Victoria West Public Meeting Notes (10 November 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Victoria West Public Meeting

Location	Venue	Date	Time	Attendance number
Victoria West	Town Hall	10 November 2015	16:00- 19:00	~25

Attendance Register

Name	Organisation	Email	Telephone
Andile Dludla	CSIR		
Bob Scholes	Wits/CSIR		
Claude Vanqa	Shell SA		
Clive Kingwill	Farmer		
Contessa Kruger	USEOA		
Dee Fischer	DEA		
Ernest Mmonoa	SANBI		
Greg Schreiner	CSIR		
Hendrik Kotze	Peace Systems		
Henk Coetzee	CGS		
Herman Hugo	Farmer/ SKLU DLRC		
Ingrid Schofmann	Ubuntu socio-economic Forum		
J. Hamman	Farmer		
J. Olivier	Swalefontein Boerevereniging		
J.A. Bezuidenhoudt	Shell		
Jacques Scholtz	KVB Makelaars		
Lazarus Makwena	Socio Econ		
Lithan Biegst	-		
Louis Kruger	Socio Econ/ USEDA		
Luanita van der Walt	CSIR		
Megan de Jager	CSIR		
Mildred Mngeni	DMR		
Mpho Lepedi	Media		
Neliswa Chiloane	DMR		
Roger Conroy	DA Victoria West		
Schalk Nel	Moonlight Manor		
Sellwane Khakhau	SABC		
Spetho Eloff	Ubuntu Municipality		
Sven Anderson	Moonlight Manor		

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Meeting Notes

T. Olivier	Farmer	
Troumpie van Rensburg	Farmer	
Wilma Schutz	DA	
Xolani Malgas	Ubuntu Municipality	

Concerns Raised

Attendees raised the following concerns:

- Informing people of the meetings well in advance (>2 weeks).
- Queries on whether stakeholders would be able to aid in writing the chapters to improve relevance and whether municipalities could contact them in this regard.

Discussion on strategic issues

Governance

- Major concerns around the policing of regulations, and who will be responsible e.g. the government, science councils, exploration/production companies, interested stakeholders etc.
- Suggests a trust fund be established for policing and for rectification (where possible) of any problems that may arise in future (example given of Soekor well near Aberdeen where toxic substances created problems at some distance from the well only years later).
    - Dee Fischer responded in that independent environmental audits will be built into the Environmental Management Programmes (EMPrs), which will be available to the public, in addition to the government policing that will take place. Monitoring committees and stakeholders may therefore access the EMPrs though new Environmental Impact Assessment (EIA) regulations and can take legal action where they see necessary.
- Concerns were raised about the policing in the event of the company being liquidated during the process.
    - Dee Fischer responded in that new regulations provide for annual, life-cycle and latent effects, including matters of liquidation. There is an incentive for companies to do annual rehabilitation in order to lower their long term risk and to reduce insurance costs.
- Questions raised as to how farmers would be compensated if something transpires that renders the land unusable (e.g. water contamination), and whether this this will be included in the SEA.
    - Bob Scholes responded by assuring attendees that each chapter must look at the entirety of the issues through all phases of development, including post closure, as part of the risk assessment process.
- Attendees query the point at which the risk is too great for shale gas development to continue.

- Bob Scholes responded by referring to the scenarios and activities from which all chapters work from as a baseline, and states that this point may be determined using experience gained elsewhere in the world. Limits of acceptable change may also be used, which are set by national and international thresholds and expert opinion. The shale gas reserves are not concentrated over extensive distances, but occur in pockets, and if a pocket exists within close proximity to an important aquifer (for example), then recommendations would be made to avoid that portion of the gas reserve.

- Query as to whether the SEA will influence political decisions.
  - The project team is not responsible for political decisions by responded by saying that the SEA will influence how authorisations decisions are made on site specific EIA applications going forward for exploration and/or (in the future) production permits.

Water

- Attendees raised concern that no insurance company would insure borehole water against contamination from shale gas development.
- Attendees stressed the fact that the town of Victoria West is entirely dependent on borehole water.
- Issues concerning the migration of groundwater and linkages of surface and groundwater were raised.
  - Greg Schreiner responded by agreeing that surface and groundwater are linked, and therefore a single author team, consisting of experts in both ground- and surface water has been assembled and indicated that the best mechanisms for baseline and on-going water monitoring is an expected output from this assessment.
- Attendees suggest water analysis be undertaken before and after shale gas development, and urge that someone (company) should be responsible if contamination has occurred.

Spatial Planning and Infrastructure

- Concerns as to what extent people retain control over what happens underneath their property (underground resources). For example if a well pad is constructed on a neighbouring farm but is drilled horizontally under their own farm; who has jurisdiction?
- Further issues of land zoning and spatial planning and infrastructure were raised.
- Suggests that project team take cognizance of the fact that Integrated Development Plans (IDPs) are created by consultants who produce theoretical documents which are not representative of the community.
- Concerns regarding validity and credibility of available IDPs, since they are firstly not up to date and secondly, are not effectively implemented.
- Suggestion that authors of spatial planning chapter contact people in the respective towns to get IDPs.

- Greg Schreiner responded by informing attendees that the project involves the assessment of existing IDPs and Spatial Development Frameworks (SDFs) for existing information only, and for the spatial planning policy issues. New IDPs and SDFs will be not created during the assessment, but the assessment may be used to guide future IDP's and SDFs.

Human Health

- Concerns about chemicals used for fracking, and their carcinogenic properties.

Suggestions/Recommendations for future meetings

- Use of appropriate media should be considered to communicate meetings (e.g. local newspapers instead of regional/ provincial).

3.1.3 Beaufort West Public Meeting Notes (11 November 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Beaufort West Public Meeting

Location	Venue	Date	Time	Attendance number
Beaufort West	Rustdene Community Hall	11 November 2015	16:00- 19:00	~56

Attendance Register

Name	Organisation	Email	Telephone
A.M. Hendrickse	-		
Abongile Kata	-		
Andile Dludla	CSIR		
Andries le Roux	Laingsburg Landbouvereniging		
B.J. Tom	-		
Bathabile Dondolo	Beaufort West Provincial Traffic Department		
Bob Scholes	Wits/CSIR		
Bongiwe Ntebe	-		
Boy Hannies	-		
Buyani	-		
Charl Pienaar	Farmer		
Chorne Hermans	-		
Claude Vanqa	Shell SA		
Daan Toerien	DTK		
David Maans	Central Karoo District Municipality		
Debbie Anstey	Farmer		
Dee Fischer	DEA		
Dieter Van Der Merwe	Beaufort West Taxpayers Association		
Eluico Liniks	-		
Ernest Mmonoa	SANBI		
Francois van Niekerk	Die Courier (community newspaper)		
G. De Vos	Beaufort West Raad		
G.P Adolph	Beaufort West Municipality		
Gerrit Baily	-		
Greg Schreiner	CSIR		
Hendrik	SAMWU		
Hendrik Kotze	Peace Systems		
Henk Coetzee	CGS		
Henri Fortuin	DEADP		
J.A. Bezuidenhoudt	Shell		

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Strategic Environmental Assessment for Shale Gas Development in South Africa
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Jacob Lottering	-	
Kaylee	-	
Kenneth Ngqiqi	Cultural Forum	
Kenneth Pandle	-	
Khayalethu Madikizela	CGS	
L. Paulse	CLUEDA	
L. Tom	ANC	
Luanita van der Walt	CSIR	
Luncile Tom	ANC	
Luzuko Bana	-	
Luzuko Phillip	-	
M. Hangana	ANC	
M. Meyer	Radio Gamkaland	
Megan de Jager	CSIR	
Michael Anstey	Farmer	
Mike Verveen	-	
Mildred Mngeni	DMR	
Mongezi F. Pike	Central Karoo Development Forum	
Mzimandile Memziwe	-	
N. Mgubasi	-	
Ncebo Bango	-	
Neliswa Chiloane	DMR	
Oyama Mgesi	-	
Piet Van Wyk	Trakaskuilen (Pty) Ltd / Green Karoo	
Q. Louw	ANC	
Rozane Spogter	BADISA	
S. Kotela	ANC	
S.B. Jacobs	IEC/ Gateway	
Sias Reynolds	Agri Nelspoort	
Sivuyile	-	
T. Mangcoto	ANC	
Taronne Damon	BADISA	
Thato Kgari	CGS	
V.R.K. Vanapalli	CGS	
Wynand Vivier	Beaufort West District Landbou	

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Concerns Raised

Attendees raised the following concerns:

- Unsuitable meeting date due to prior commitments (meetings).
- Question on whether it is better for an association to register as a single entity or for each member of the association to register.
- Councillors responsible for engaging with community were absent and there was insufficient representation of the (potentially) affected communities at the meetings.
- Institutions comprising the project team should be responsible for communicating the meeting details, not the municipality.
- Representatives from local papers and radio, sport clubs/ associations and the education and health sector are not present at the meetings.

Suggestions/Recommendations for future meetings

- Liaise with farmers associations prior to setting meetings so it does not clash with other planned meetings.
- Use of appropriate media should be considered to communicate meetings, and advise not to rely heavily on social media and radio etc.
- Use district municipality as point of entry into the community.
- Wards should distribute flyers for future meetings.
- Meet with sectors first in order to identify the correct people to communicate with for distribution of meeting information.

3.1.4 Shale Gas SEA Workshop for Registered Stakeholders (13 November 2015)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Shale Gas SEA Workshop for Registered Stakeholders

Location	Venue	Date	Time	Attendance number
Cape Town	Iziko Museum	13 November 2015	10:30- 15:30	~57

Attendance Register

Amanda Hotata	DEADP	
Ambrose Carelse	DEADP: AQM	
Andile Dludla	CSIR	
Ann-Gail Watson	Friends of Iziko	
Aubrey Matsila	CSIR	
Bob Govender	Zwino Consulting	
Bob Scholes	Wits/CSIR	
Cheslin Elliott	DEADP	
Chris Dalgliesh	SRK Consulting	
Christine Reddell	CER	
Claude Vanqa	Shell SA	
Claudia Frazenburg	DEADP	
Cyril O'Connor	UCT	
Dee Fischer	DEA	
Derek Light	Attorney	
Eliya Madikane	CSIR Parliamentary Office	
Ernest Mmonoa	SANBI	
Ernst Baard	CapeNature	
Faseeg Salie	DEADP	
Gheneez Munian	Zwino Consulting	
Gladys Witle	-	
Goosain Isaacs	DEADP	
Greg Schreiner	CSIR	
Hassan Parker	DEADP	
Hendrik Kotze	Peace Systems	
Henk Coetzee	CGS	
Henri Fortuin	DEADP	
Janah Miller	Cullinan & Associates	
Jeanie le Roux	TKAG	
Jeff Jefferson	DEADP: Intelligence	
Jeff Manual	SANBI	

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John Wilson	DEADP	
Jolynn Minnaar	Unearthed	
Karam Singh	South African Human Rights Commission	
Karel Lewy-Phillips	Eco Environmental Services	
Karen de Bruyn	G7 Renewable Energies	
Karin Badenhorst	Footsteps Foundation	
Liza Petersen	DEADP	
Lize Jennings-Boom	Western Cape Government	
Luanita van der Walt	CSIR	
Marilyn Lilley	TKAG member	
Mary Waller	ACED	
Megan de Jager	CSIR	
Melanie Gosling	Cape Times	
Mike Davies	Kigoda Consulting	
Mike Shand	SAAE	
Nic Opperman	Agri SA	
Niell Fhrams	-	
Nigel Rossouw	Shell	
Paul de Ruyte	-	
Paul Hardcastle	DEADP	
Paul Lochner	CSIR	
Phillip Ravenscroft	Maluti GSM	
Richard Gordon	ACED	
Ronald Mukanya	DEADP	
S. Hrabak	SAOGA	
Saul Roux	CER	
Sibusiso Hlela	DEA	
Simon Botha	DEADP	
Stephen Law	EMG	
Vuyisile Zenani	Shell SA	
Waymann Kritzinger	Agri SA	
Wilbert L. Mathews	Mateus Petroleum LLC	
Zoë Palmer	Aurecon SA (Pty) Ltd	
Zolile Nqayi	DEA	

Strategic Environmental Assessment for Shale Gas Development in South Africa
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Concerns Raised

Attendees raised the following concerns:

- Government decisions are being made regardless of the SEA process and potential outcome thereof.
- Confusion about the mandate of the CSIR in implementing the SEA process.
- What will be achieved at the end of the SEA?
- Communications with Petroleum Agency of South Africa (PASA) on the process and whether PASA is warranting licenses.
- Feedback on the public participation undertaken in study area.
- How does this SEA relate to other similar processes?
- Why was the meeting held in Cape Town and not Johannesburg since the study area map implies a national concern?
    - Greg Schreiner responded by noting that by far the majority of registered stakeholders at the time of organising the workshop were based in and around the Cape Town region.
    - Hendrik Kotze responded by noting that round two of the public participation process (PPP) will likely include a meeting in Johannesburg or Pretoria.
    - Bob Scholes responded by noting that the web based reviews implemented within the process allows for comment from everywhere. Furthermore, the web based registration of stakeholders and the first round of the PPP allows the project team to ascertain the regional extent of stakeholders.
- Query about whether the DEA published Terms of Reference and contract between DEA and CSIR were publically available documents.
    - Bob Scholes responded by informing the attendees that the SEA Process Document which outlines the nuts and bolts of the SEA process is available to all on the project website. This document best captures the SEA process which has been significantly refined and enhanced since the publication of the DEA Terms of Reference. .
- How are gaps in research dealt with during the SEA process?
    - Bob Scholes responded by stating that each chapter highlights where information is missing and whether is it considered imperative to the study. A key outcome of the process is to identify and recommend future research to close that information gap.
- Concerns as to how any overlaps in strategic issues are assessed.

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Discussion on strategic issues

Scenarios and Activities

- Concerns as to the fate of the coal industry and coal miners if, as indicated in the fourth scenario, 20tcf is discovered and shale gas development (and clean energy) replaces coal fired energy. Coal miners don't retro fit into shale gas development.
    - Bob Scholes responded by stating that coal resources are estimated to reach end of life between 2020-2030, and so shale gas development is not replacing new coal stations
- Attendees queried whether the cost of infrastructure is considered in the scenarios, for example the Gauteng Province have not invested properly for contaminated water.
    - Bob Scholes responded by indicating that it would be considered to an extent and perhaps it is best placed in each individual chapter, with particular reference to mitigation measures. Issue must be communicated to authors.

Terrestrial Biodiversity

- Will the risk assessment process consider population densities, particularly of people and (breeding) animals, as well as the relationship that exists between them?
    - Bob Scholes responded by stating that this consideration is subjective since such information does not currently exist in the literature. The assumptions made by the authors in their Chapters will be stated.
- Concerns as to the extent, in terms of time and space, to which the potential impacts will be investigated in the SEA.
    - Bob Scholes responded by assuring attendees that the impacts will be investigated as far as required from their point of origin e.g. greenhouse gas emissions is an international concern, energy pricing is a national concern, biodiversity for example might be more regional in its impacts .
- Best practices for restoration practices must be considered in the SEA?

Governance

- How will the SEA inform technical regulations of petroleum development?
    - Dee Fischer responds by emphasising that the development of regulations is an ongoing process which is under constant improvement. This process will augment those regulations if required.
- Concerns rose about extent of study area, and that marginalised areas are going unnoticed, particularly for those application areas in KwaZulu Natal.
    - Bob Scholes responded by explaining that the study area cannot be expanded at this point, but there is potential for this process to become the new norm and elude to the need for similar processes in such areas. The SEA findings will be able to inform other areas. The scope and the extent of the SEA is for dry gas from deep shale

layers using hydraulic fracturing, this does not correspond with applications for exploration in the KZN Midlands which are for other minerals and exclude the proposal to undertake hydraulic fracturing.

- Why are certain areas excluded from the SEA?
    - Greg Schreiner responded by noting that the study area was delineated according to current exploration rights applications that have been submitted to PASA. Other technical cooperation areas were further back in the regulatory process and are not for dry gas from deep shale layers using hydraulic fracturing.
- Concern as to the identification of impacts specific to an area under consideration for fracking and how government will make decisions regarding such areas.
- Can a process be implemented through the SEA in which decisions are not made solely on political agendas?
    - Bob Scholes responded by noting that much work has been done to ensure the outcome of the SEA is not buried and cannot be embargoed by political agendas and that the outcomes are translated into gazetted regulations and best practise guidelines.
- Concerns about the effectiveness or credibility of current and future regulations, in terms of implementation and monitoring thereof.
- Concerns that the SEA does not include capacity analysis of the Departments of State, PASA and NEMA agencies.
- Would someone applying for an exploration permit be allowed to proceed?
    - Dee Fischer responded by informing the attendees that it would depend on where you are applying to do exploration, as the moratorium has been replaced in certain areas.
- Concerns as to the subjectivity of best practice according to different applicants.
    - Bob Scholes responded by assuring attendees that the benchmark of best practice will be set by the independent assessment, which would therefore prescribe best practices.
- Implementation of the SEA findings within decision making and whether new regulations would be devised to circumvent the potential findings and associated risks.
    - Bob Scholes responded by stating that the facts will be highlighted in the SEA and even if the assessment is disregarded in the decision making process, it should still be considered in order to understand the risks involved.

<u>Water</u>

- Potential negative impacts of fracking on water in particular and who will be responsible must be considered an important consideration.

<u>Waste</u>

- Does industry have an idea of what to do with the wastewater?
    - Bob Scholes responded by stating that the fracking fluid will most likely be sourced from outside the region, and South African regulations provide for disclosure of

fracking additives. 70% of water used is returned to the surface and is re-used (depending on geological permeability). The water that returns to the surface may contains NORMS.

- Storage of radioactive waste, source pathways and parties responsible for its management is a key issue of concern.

Sense of Place

- Concerns as to the subjective nature of the sense of place issue.
- Would exclusion areas be determined by the SEA?
    - Bob Scholes responded by indicating that the strategic issues will list exclusion zones accordingly e.g. National parks, around towns etc. Further explains that this is why the risk assessment is spatially applied.

Economics

- Will a proper cost-benefit analysis be undertaken?
    - The project team responded by stating that the economic risks and opportunities associated with the 4 scenarios described in the SEA would be assessed. The SEA is set within a structured risk assessment approach so that all chapters and issues are consistent and comparable.
- Query as to whether fossil fuels would be subsidised.
- Attendees asked whether local people would benefit from job opportunities or if many of the jobs would be specialised?
    - Professor Cyril O'Connor (UCT) responded by noting that artisans would be required, but there are opportunities to develop these skills. However, it would be a challenge to get all government departments to work together to achieve this.

Social Fabric

- Human rights concerns in terms of lack of representation in SEA process.
- Queries pertaining to forced access to property without the landowner's permission, and whether land owners are informed enough in this regard.
    - Bob Scholes responded by ensuring the presence of a Human rights Commission representative on the PCG. Emphasises that landowners must be informed and that the SEA needs to be completed and distributed to landowners as soon as possible prior to development.
- Concerns regarding the consultation of stakeholders in rural communities who do not have internet access. How are they engaged in order to contribute to the credibility of the process?
    - Bob Scholes responded by indicating this to be a challenge, but many streams of media are used to improve the database.

- Hendrik Kotze responded by stating that civil society plays a great role in information distribution, and civil society organisations should collaborate to ensure participation by all.

National Energy Planning

- Concerns about the replacement of potential for renewable energy by fracking outfits in South Africa.

Suggestions/Recommendations for future meetings

- Specialist communicators should be used to convey information to rural Karoo population and Interested and Affected Parties (I&APs).
- Every type of waste involved in shale gas development should be itemised and the amount stated in the SEA document.
- Include the type of facilities that are required for waste management in the relevant chapter.
- Include renewable energy as a standalone chapter in the SEA due to its importance in the Karoo.
- Consider the weight of renewable energy in South Africa and whether it should be subsidised.

3.2 Shale Gas SEA Public Outreach Round 1b Notes (16-17 May 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa Meeting Notes

Shale Gas Strategic Environmental Assessment Public Outreach, Round 1b:

Key Issues Raised by Stakeholders

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Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

List of acronyms

AEON	Africa Earth Observatory Network
ANC	African National Congress
ANCYL	African National Congress Youth League
ASSAf	Academy of Science of South Africa
CGS	Council for Geoscience
Cllr	Councillor
CSIR	Council for Scientific and Industrial Research
DA	Democratic Alliance
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DOE	Department of Energy
DWS	Department of Water and Sanitation
EC COGTA	Eastern Cape Department of Cooperative Governance and Traditional Affairs
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GCIS	Government Communication and Information System
GKDF	Great Karoo Development Forum
IDP	Integrated Development Plan
IPACED SA	Indigenous People's Association for Community Economic Development of South Africa
KEJM	Karoo Environmental Justice Movement
NEHAWU	National Education, Health and Allied Workers' Union
NMMU	Nelson Mandela Metropolitan University
NORMS	Naturally Occurring Radioactive Materials
PCG	Process Custodians Group
PEC	Project Executive Committee
PPP	Public Participation Process
SA	South Africa
SAFCEI	Southern African Faith Communities' Environment Institute
SAMWU	South African Municipal Workers' Union
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SEA	Strategic Environmental Assessment
SKDM	Central Karoo District Municipality
Tcf	Trillion cubic feet
WITS	University of the Witwatersrand

3.2.1 Graaff-Reinet Municipality Meeting Notes (16 May 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
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Graaff-Reinet Municipality Meeting

Location	Venue	Date	Time	Attendance number
Graaff-Reinet	Camdeboo Municipality, Robert Sobukwe Office	16 May 2016	12:00- 13:30	10

Attendance Register

Name	Organisation
De Jager, M.	CSIR
Hendriks, H.	Camdeboo Local Municipality
Kotze, H.	University of Stellenbosch
Mbete, M.G	DEDEAT (Chris Hani)
Mkhize, M.W.	DOE/DEA
Moganetsi, M.S	DEA
Bob Scholes	Wits/CSIR
Greg Schreiner	CSIR
V.R.K. Vanapalli	CGS
Lusnita van der Walt	CSIR

Agenda for Public Briefing

- It was proposed that an agenda be drafted for the public briefing, which took the following structure:

Action	Responsible Party
1. Opening and welcome by Camdeboo Municipality	Member of Camdeboo Municipality
2. Introduction by National Government	Muzi Mkhize (DoE/ DEA)
3. Introduction by the Independent Facilitator	Hendrik Kotze
4. Overview of the Scientific Assessment Process	Bob Scholes
5. Questions from the Community on the Scientific Assessment	Project Team
6. Closure and way forward	Hendrik Kotze and Greg Schreiner
7. Vote of thanks	Member of Camdeboo Municipality

Facilitation of the public briefing

- It was suggested that a Municipal member should act as facilitator at the public briefing; however concern was raised as to the community's perception of the municipal member and whether they perceive him/ her positively or not. Furthermore, it was noted that the Municipality is regarded as a stakeholder and is therefore not entirely independent of the process. As such, the Municipality should refrain from facilitating the meeting. It was agreed

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that Hendrik Kotze remain independent facilitator and be introduced as such and not as a member of the Project Team.

Stakeholder engagement

- It was noted that the Municipality had engaged with stakeholders about the public briefing, and it would be announced over loudhailer in the area on the day of the meeting. Concern was raised as to the radio station(s) used to distribute notice of the meeting, and it was requested that the Mdantsane FM radio station be used for the next round of public briefings in July.

3.2.2 Graaff-Reinet Public Meeting Notes (16 May 2016)

environmental affairs | water & sanitation | science & technology | mineral resources | energy

Strategic Environmental Assessment for Shale Gas Development in South Africa
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CSIR | SANBI | Council for Geoscience

Graaff-Reinet Public Meeting

Location	Venue	Date	Time	Attendance number
Graaff-Reinet	Masizakhe Community Hall	16 May 2016	17:00- 20:00	~86

Attendance Register

Name	Organisation	Email	Telephone
B. Arends	Camdeboo Municipality		
B. Nomponiso	Resident		
B.T. Charles	Graaff-Reinet Ratepayers Association		
Barry Morkel	NMMU/ AEON		
Ben Nondlazi	Ward councillor		
Bob Scholes	Wits/CSIR		
Bomakele Speelman	Municipality		
Buhle Elie	Private		
Cara-Lee Dorfling	Die Burger Newspaper		
Charl Pienaar	-		
Claud Arnott	Graaff-Reinet Ratepayers Association		
Cobus Theron	EWT		
Derek Light	Derek Light Attorney		
Dr. Tony Williams	Spatial Planning EC COGTA		
Elizabeth Vorster	-		
Erika Hauff-Cramer	SAFCEI		
F.E. Sigonyela	Camdeboo Municipality Cllr		
G. Hitge	Private Resident		
G.J. Buisman	Graaff-Reinet Ratepayers Association		
Gerry Pienaar	DEDEAT		
Greg Schreiner	CSIR		
H. Hendriks	Camdeboo Local Municipality		
Hasani Chauke	DWS		
Hendrik Kotze	University of Stellenbosch		
Homsanqa	-		
Ilse Viljoen	DWS		
Jackson Madolo	-		
Jimmy	JBABC Trading Projects		
Kate Rowntree	Earth Bound Africa		
Khanyiso Desha	Private		
Khuthaza Lisa	-		
Khwize Xalisa	Mcikido 420 (Pty) Ltd		
Leolynn Smith	Camdeboo Local Municipality		
Leonie Fouché	Camdeboo Municipality		
Liz Buisman	Graaff-Reinet Ratepayers Association		
Luanita van der Walt	CSIR		
Lubabalo Xangati	-		
Luvuyo Malosi	Zikhali business solutions		
M. Mrwebi	DEDEAT		
M. Ndima	DWS		
M.K. Mati	Blue Crane Route Municipality		
Maria Meishik	Camdeboo Municipality		
Mbuyi Nombembe	Shell SA		
Megan de Jager	CSIR		
Michelle Duncan	-		
Mkhize, M.W	DOE/DEA		
Mkululeko	Private		
Moganetsi, M.S	DEA		
Mxolisi Booi	ANC		
Mziwandile	Sibabale Trading Enterprise (PTY) LTD		

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3.2.3 Beaufort West Municipality Meeting Notes (17 May 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Beaufort West Municipality Meeting

Location	Venue	Date	Time
Beaufort West	Beaufort West Local Municipality Offices, Donkin Street	17 May 2016	11:00- 13:00

- The Municipality informed the Ward Councillors of the meeting, which was placed on their agendas. Ward Councillors would be reminded of the meeting via sms that day. Notice of the meeting would be announced over loudhailer in the area on the day of the meeting in English and Afrikaans, and a slot was arranged with Gamka radio station in which to communicate the meeting details.
- Concerns were raised about the community's disappointment about shale gas opportunities that were presented to them previously, which may cause difficulty in attracting an audience for the meeting.

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3.2.4 Beaufort West Public Meeting Notes (17 May 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Beaufort West Public Meeting

Location	Venue	Date	Time	Attendance number
Beaufort West	Rustdene Community Hall	17 May 2016	17:00- 20:00	~93

Attendance Register

Name	Organisation
A.Pienaar	Juriesfontein Farm
Allan Januarie	Beaufort West Municipality
Annelie Rabie	SKDM
Ayanda Yekani	Community
B. Snyman	-
Bernard Dampies	Community
Billy Steenkamp	IPACEDSA
Bob Scholes	Wits/CSIR
Bonnie Schuwein	EWT
Brian Booyse	-
C. De Vos	Councillor
C.D. Pienaar	Juriesfontein Farm
Christo Booyst	-
Curtis Philland	ANCYL
Danie Swanepoel	DEADP
Delene Slabbert	Councillor
Djorge Maloy	DA
E. Biesios	-
E. Marlow	SKDM
Edward Appies	Community
Eril Lande	-
Esté Matthew	EWT
Freddie Lottering	Community
Frikkie Vaalyn	Community
Fundiswa Renene	GKDF
G. Disten	Private
G. Lottering	Prince Albert Municipality
Garth Aphte	Community
Gideon Genties	Community
Godfrey Adolph	RDL
Greg Schreiner	CSIR
Gwendoline Lousw	-
H. Maans	SAMWU
Hendrik Kotze	University of Stellenbosch
Ingrid Schofman	Ubuntu Forum
Isak Windvogel	Prince Albert Municipality
J. Booysen	Beaufort West Municipality
J.A. Jefferson	DEADP
J.N. Jadu	-
Jacobus De Wet	-
Jamiel Sias	DA
Joe Kalo	Afrimat
Johan Ceasar	Community/ Rustdene
Johan Strauss	-
Joseph Hartzenberg	Community
Josephine Brown	Private
K. Siwa	Farmer
Kenneth Ngqiqi	GKDF
Kim	Community
L. Lakay	Beaufort West Municipality
L. Lukas	-
Lazola Ngqandela	Tasman Pacific Mines

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Lee-André Peters	-	
Leon Koolman	Community	
Liahda Dunke	Community	
Linki Lambert	-	
Lizzy Swartz	Community	
Luanita van der Walt	CSIR	
Lunga Mnqwazi	Afri Guard	
M. Baardman	Private	
M. Verveen	GKDF	
Madelein Sias	DA	
Megan de Jager	CSIR	
Michelle Duncan	-	
Mkhize, M.W	DOE/DEA	
N. Zalisile Oliphant	ANC	
Nkosinati Xuayimp	-	
Nqwabani Eric	Afri Guard	
P. Van Wyk	Agri Beaufort West	
P.J. Matthee	Riebeek Valley	
Pole Bruyn	-	
R.P. Baloyi	Security	
Rainy Hugo	Councillor	
Riaan van der Walt	Shell	
S. Moses	Private	
S.A. Monga	Farmer	
Sias Reynolds	Agri Nelspoort	
Simonette Strauss	South African Sp	
Siphiwe Piti	GKDF	
Siyabulela Syb	Car Wash	
Somila Xhosa	DST	
Stephanie Borchordt	-	
T. Lewies	SIMLAB	
T. Maritz	Private	
T. Mjoli	Farmer Tulpiecute	
T.G. Mngubisa	Worker	
Thunzi Kalo	Afrimat	
Ulrich Steenkamp	KEJM	
V.R.K. Vanapalli	CGS	
Vuyisile Zenani	Shell	
W. Matunzi	Worker	
W. Moyeso	Private	
Zamaxolo	-	

Concerns Raised

Attendees raised the following concerns:

- Representation of the (potentially) affected communities at the meetings.
- Questions about the purpose of a dispute resolution specialist as a facilitator.
- Misconstrued link between DMR process and SEA.
- Questions around training of labour force for SGD.
- Concerns regarding the (lack of) inclusion of valuable shale gas information in Integrated Development Plans (IDPs).
- Misunderstanding of expected timeframes of SGD.
- The amount of time allocated to stakeholders to interact with the Scientific Assessment.

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Questions and Answers on Scientific Assessment Process

- Considering approximately 200 people are a part of this process as experts, who is representing the community's which will be directly affected?

A soccer referee analogy can be used to explain the structure that guides the process, whereby a set of rules and procedures are in place to do so. The structure to referee this process is by means of the Process Custodians Group (PCG) which is comprised various stakeholder groups. The PCG do not determine content, but they ensure that the questions being asked are addressed fairly and in a balanced way. Broader stakeholders can be involved by providing comments on the assessment.

- Is dust pollution being addressed in the Scientific Assessment?

Issues relating to dust and air quality are covered in the Air Quality and Greenhouse Gas Emissions chapter, as well as the Human Health Chapter.

- Is employment addressed, given that Beaufort West has a high unemployment rate?

Jobs are addressed in the Economics Chapter and include the types of jobs that would be available and who would be able to fill them.

- Last year DMR indicated that licenses were going to be issued while the SEA was still underway. What will happen in the event that a license is issued by DMR and the information is still being gathered, as this will be to the detriment of the community?

In the media there has been a commitment to issue exploration permits, however even if they are issued, the applicants would still have to go through a site specific EIA process. This process is likely be completed by the time any applications for Environmental Authorisation is lodged by gas companies.

- What body is involved by regulating boreholes being sunk? And does South Africa have the institutions and ability to enforce regulations to tidy up after processes (post decommissioning)?

Authors are investigating what measures need to be in place to ensure efficient regulation and enforcement thereof. A separate investigation of institutional capacity has been conducted by the ASSAf.

- Government must enforce renewable energies, considering South Africa has high wind potential; so there are alternatives. Why is shale gas still being considered?

The Energy Chapter considers the energy alternatives that are feasible in the Karoo and looks at how shale gas would change South Africa's energy mix, along with the potential risks and opportunities.

- These industries require high qualification jobs which would increase influx of people into the nearby towns, not to mention the farm workers on the farms that are bought, who would be forced into towns to wait for housing.

An influx of people from outside the region is typical in investment areas. This issue is extensively addressed in the Social Fabric Chapter, which looks at the potential strain that would be placed on local infrastructure, services etc.

- There are concerns regarding the balance of power in the decision making process and questions as to whether the big corporates/ industrial organisations would benefit the most from SGD?

By participating in this process stakeholders can hold the decision makers and organisations accountable for all the issues that were addressed, as this is a transparent process. This question is also thoroughly addressed in the Social Fabric chapter under new power dynamics.

- Young people should be taken into universities and trained with the skills that would be useful to the gas companies. What are the timelines for SGD?

The Scientific Assessment is described for three scenarios, of which the first is an exploration process which draws out over ~5 years. The next scenario assumes a discovery of ~5tcf, which would draw out over many more years and the reserve would last ~25 years. If a relatively large resource is discovered (~20 tcf) the development process would be ~20-30 years and the resource would last ~40-50 years. Therefore there are opportunities to educate the younger generation(s) on shale gas according to three potential futures that might play out; however there is lots of uncertainty. SGD will not happen overnight; there will be warning for government and communities to educate and capacitate, to take advantage and be responsible.

- IDPs do not speak clearly to the issue of shale gas and how it should be governed. Valuable information should get into the IDP and the 'referee' (the PCG) should play this role.

This is considered in the Impacts on Land, Infrastructure and Settlement Development Chapter (i.e. Planning), and it is recognized that currently IDPs are not equipped to address shale gas and the potential changes it might bring. SGD will bring about services and responsibilities that the municipalities and Government have never performed. This chapter takes this into account and assesses how they would have to adjust to these responsibilities etc.

- What measures are in place if the groundwater is contaminated with radioactive compounds from the uranium in the Karoo? Also, it is assumed many of the sites would be restored- how do we ensure our heritage is restored/ areas (e.g. Nelspoort, Fraserburg, Carnarvon, Baviaans) kept pristine for future generations?

Large parts of Karoo do have uranium deposits, which is a concern addressed in the Surface Water and Groundwater resources Chapter. Must keep in mind that deep water retrieved by flowback may

be naturally saline and radioactive, and once it comes out it may be toxic, and this is being addressed in the chapter. South African legislation states that any of that kind of waste could not be disposed of in the Karoo, and would have to be exported from the Karoo to a registered disposal facility. The Heritage Resources Chapter looks extensively at palaeontological heritage, pre-colonial heritage, colonial heritage etc. and emphasises that the heritage council, SAHRA, must be involved in the regulation of these issues and where the council falls short (e.g. data gaps), there must be measures in place to "remediate" this. Also during an EIA all heritage resources must be identified and classified on site.

- Regarding timeframes, within the Municipalities shale gas is sold as happening tomorrow and this builds community expectations with regards to training opportunities and scholarships. Councillors are being inundated for requests to attend EIA meetings for all the integrated mining and development initiatives in the Karoo, but there is no integrated platform where all these developments are presented. It is important that truthful, realistic timeframes are communicated to the communities.

Timelines have been pushed back because currently, South Africa doesn't have the required infrastructure for this development and due to the current oil market etc. Government is there to make political decisions, and the government can make that decision, however this is not entirely a political decision; unless economics and environmental factors are favourable for applicants to actually develop, investment may not be realised and SGD may not be viable.

- How is the process being communicated to people in the area? If 2 hours before the meeting, a loudhailer was used to announce the meeting, how serious can we be? How many people did we expect at the meeting, and what type of audience is expected (e.g. level of education)?

It was realised the importance of stakeholders at the outset of the project (commissioned in 2015). There are dedicated persons in the Project Team who work with stakeholders on a daily basis. Every effort was made to engage with the communities throughout the process, including i.e. phone calls, sms's, emails, post. It is a constant ongoing process. Suggestions on how to improve stakeholder engagement are welcome. Letters were sent from the Minister of Environmental Affairs to the municipalities to mobilise structures and inform the community, emails were sent to registered stakeholders, newspaper advertisements were placed at local and provincial level, there were meetings with all provinces which distributed notices through their provincial structures, SALGA and district municipalities were notified and asked to distribute notice of the meetings.

- In a meeting by Shell in Victoria West, it was indicated that 20 million litres of water would be required per day per well, which was based on the Van Tonder 2010 report. Since then, the Karoo has experienced severe drought, hence we do not have the water. Should there not be a rule that states the reports they use must be updated regularly to ensure the most up to date data/ information is used?

This Scientific Assessment estimates ~15 million litres of water per well, but remember that some of that water (~ 30-50%) is reused. Regardless, this is a lot of water and freshwater resources in Karoo cannot sustain this development. One option is to bring water in from outside the Karoo, or to intercept aquifers that are too saline for freshwater purposes. Water sources are designed against worst case scenarios.

- How far is the report from being finalised? Is it still subject to commentary, or is the content set? They are still busy with bioblitzes and there are many unknowns with regards to biodiversity. Do we have enough biodiversity information to inform a decision?

The report is about two-thirds complete and commentary may still change the content. Biodiversity experts are never satisfied, but relative to other parts of the world, we know a lot about biodiversity. There are data gaps but we have the helicopter view necessary for this SEA. The bioblitz will feed into the SEA due.

- Will the area not clash with areas proposed for uranium? What happens if we don't frack?

The Karoo is not a static environment, and shale gas is not the only activity proposed in the Karoo. Therefore, whether SGD occurs or not, the Karoo will change for various reasons e.g. uranium mining, renewable energies, changing agriculture etc. The baseline scenario in the Scientific Assessment takes into account the changing Karoo without shale gas development.

- How many job opportunities are expected from SGD?

Jobs covered in the report, but the numbers are not what might be expected. It might help address the employment problems, but will not solve it.

- Is the shale gas a distraction from uranium? No EIAs have been done for uranium? How will you reach people on the ground, more specifically; how can the Scientific Assessment be conveyed to people in a way that they can understand e.g. not in academic language?

The best way to do so is for people who understand the question and answer to convey this to other people and explain it to them in a way they will understand. A SEA is done when there are uncertainties around the proposed activity and where it will be done (has a "big picture" outlook), while an EIA is a decision making process for an activity that you are certain about what you want to do and where you want to do it. It is uncertain as to why an SEA was not conducted for uranium, but the process is catching on, with SEA's being done for renewable energy and electricity grid planning.

- How will communities and normal people benefit from shale gas (other than jobs)?

The Economics Chapter examines the issues of who will benefit and how to maximise benefits and recommends measures on how to reduce the effects of possible inequitable distribution of benefits.

- Would the matters of non-disclosure which are associated with negative (health) impacts in Canada, USA etc. happen in South Africa?

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In South Africa, the law leans toward disclosure (i.e. fracking fluid composition), but alternatively one does not have to go through the courts to obtain information- there are alternative means to do so e.g. studies etc. People in the study area generally do not have good health because they are poor. SGD might cause health impacts, but it may also raise the economic status and therefore raise overall health status of people living in the area. Both sides are considered in the Scientific Assessment report.

Suggestions/Recommendations for future meetings

- It was suggested that a PowerPoint presentation be used as well as people speaking.
  - It was noted that a PowerPoint presentation was not used in a deliberate attempt to engage with the audience.
- Deliver the meeting in Afrikaans.

3.3 Shale Gas SEA Public Outreach Round 2 Notes (18- 22 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Shale Gas Strategic Environmental Assessment Public Outreach, Round 2:

Key Questions and Comments raised by Stakeholders

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Strategic Environmental Assessment for Shale Gas Development in South Africa
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List of acronyms

ANC	African National Congress
ANCYL	African National Congress Youth League
ASSAF	Academy of Science of South Africa
CARA	Conservation of Agricultural Resources
CGT	Cycle Gas Turbines
CGS	Council for Geoscience
COGHSTA	Cooperative Governance, Human Settlement & Traditional Affairs
CSIR	Council for Scientific and Industrial Research
DA	Democratic Alliance
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DOE	Department of Energy
DST	Department of Science and Technology
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EWT	Endangered Wildlife Trust
IDP	Integrated Development Plan
LM	Local Municipality
NAMAQA	National Environment Management: Air Quality Act.
PPP	Public Participation Process
SADTU	South African Democratic Teachers Union
SALA	Subdivision of Agricultural Land Act
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SEA	Strategic Environmental Assessment
SGD	Shale Gas Development
UFH	University of Fort Hare
UFSED	Ubuntu Forum for Socio Economic Development
WITS	University of the Witwatersrand

3.3.1 Graaff-Reinet Local Municipality Meeting Notes (18 July 2016)

environmental affairs | water & sanitation | science & technology | mineral resources | energy

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

CSIR | SANBI | Council for Geoscience

Camdeboo Local Municipality Meeting

Location	Venue	Date	Time	Attendance number
Graaff Reinet	Robert Sobukwe Building	18 July 2016	13:00- 14:30	10

Attendance Register

Name	Organisation
Andile Dludla	CSIR
Bob Scholes	Wits/ CSIR
Ernest Mmonoa	SANBI
Greg Schreiner	CSIR
Hans Hendriks	Camdeboo LM
Hendrik Kotze	University of Stellenbosch
Luanita Van der Walt	CSIR
Simon Moganetsi,	DEA
Stella Mamogale	DoE
Vadapalli, V.R.K.	CGS

Agenda for Public Briefing

- The proposed agenda for the stakeholder meeting was presented to the municipality and was accepted.

Stakeholder engagement

- The Municipality indicated that they have assisted in advertising the stakeholder meeting in the following ways:
  - Informed stakeholders from their database.
  - Distributed flyers in the wards.
  - Notified senior members of the municipality.
  - Identified a representative from the municipality will be present to chair the stakeholder meeting.

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3.3.2 Graaff-Reinet Public Meeting Notes (18 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Graaff-Reinet Public Meeting

Location	Venue	Date	Time	Attendance number
Graaff-Reinet	Masizakhe Community Hall	18 July 2016	17:00- 20:00	~43

Agenda for Public Stakeholder Meeting

Welcome	Municipal Official
Introduction	National Government Representative
Draft findings	Scientific Team
Questions and Discussion	Local Community & Scientific Team
Vote of Thanks	Municipal Official
Closing	National Government Representative

Attendance Register

Name	Organisation
Albert Jacobs	Tender Company
Andile Dludla	CSIR
Bernard Weyer	Architecht
Bob Scholes	WITS
Boy Bokwe	-
C. Arnott	Ratepayers Association
Dr. Geoffery Yalolo	Minister Fraternal
Derek Light	Stakeholder Attorney
Dini Sobukwe	Robert Mangaliso Sobukwe Trust
Ellen Jacobs	Homebased Worker
Ernest Mmonoa	SANBI
Esmari Borchardt	Stakeholder
Faith	ANC
G. Hitge	Resident
Greg Schreiner	CSIR
H. Hendricks	Camdeboo LM
H. Makoba	Camdeboo Mun/ Mayor
Hendrik Kotze	University of Stellenbosch
Irene Mentjies	-
Kalipha Mini	UFH Student
Khwezi Xalisa	-
L. Smith	Camdeboo LM
Lindi Fula	Contractor
Luanita Van der Walt	CSIR
M.C	Comm Carwash
M.K. Maneli	DWS
Manelisi Ndima	DWS
Mbuyi Nombembe	Shell SA Energy
Monde Kaptem	ANC
Mziwelile	Community Member
S. Jantjies	Ordinary Citizen
Sizwe Grootboom	-
Simon Moganetsi	DEA
Skhumbuzo Pase	-
Stella Mamogale	DoE
Stephanie Borchardt	Stellenbosch University (Stakeholder)

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Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Terence Jantjies	-	
Thamsanqa Blouw	-	
Themba Bartman	-	
V. Jack	Ordinary Citizen	
V.R.K. Vadapalli	CGS	
Vuyisile Booysen	Karoo Shale Gas Community Forum	
Xolani Jantjies	Local Municipality	

Questions and Answers on Scientific Assessment Process

- 30 days opportunity for comments was not sufficient; however, the SEA has been a very meaningful exercise. Treatment of economic potential in this area hypes the issue and creates unrealistic expectations and polarize the community. Studies like this should be objective, so that decision-makers can make informed decisions and not emotional decisions. The SEA will be very useful if policy makers take the assessment into strong consideration.

Questions /Answers on the Draft Findings

Governance

- The report highlights potential risks to local authorities and therefore the community, not only should capacity be developed, but also the increased capacity needs to be funded, for instance, the municipality needs to employ more people. That national level feels the benefits, but the local communities carry the costs of the development. What about the Academy of Sciences South Africa (Assaf) report on technical readiness? Not available and is disappointing as it could add value to the SEA. Local authorities should be positioning them to be able to attach conditions to authorizations, or national government should think how they could have more positive feedback into local communities.
    - Bob Scholes explained that the Assaf report would not have changed the findings of this assessment; the experts also flagged potential capacity issues.
- Is there a process that allows young people to be equipped with skills to benefit from SGD?
    - Bob Scholes stated that one of the main this is how the country decides to develop shale gas and whether young people will be capacitated to benefit from this, there is a long time before SA has a gas industry and there is an opportunity to upskill people and generate local capacity. This is a decision that will get written into policy.

Tourism

- Are there precedence for cooperation between tourism and industry and departments? Would the tourism industry have enough muscle to stand up to DMR and SGD?
    - The stakeholder must relay this question to the tourism team, or we can do so on their behalf with their permission.
- Tourism industry experienced a phenomenon with the World Cup where opportunists invested in housings and flooded the market, and negatively impacted the local economy, pushing out tourists, especially post SGD.

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

- Bob Scholes indicated that this was discussed more in the economics and social chapters not the above way that inequities may be increased.

Waste

- Can the waste from SGD be used to generate energy such as Biogas?
  - Bob Scholes explained that Biogas is generated from organic waste that decomposes and produces gas, but the waste from shale gas is mostly building material, rock and contaminated water.

Water

- What about cross contamination between deep and shallow aquifers? Mitigation?
  - Bob Scholes explained that cross contamination between deep and shallow is not likely, and the water would have to migrate upwards, which is very unlikely, leaks from the top will pose the main risk to surface water contamination. A big aspect of the mitigation is around capacity, enforcement, institutions. Legacy issues after SGD around who is responsible for problems arising from abandoned wells, SA legislation takes into account funds from developers for legacy issues.
- What about water requirements?
  - Bob mentioned the findings are that exploration doesn't need as much water, but each frack requires huge amounts of water, but the water can be re-used for subsequent fracks. There is not enough water in the Karoo, it cannot come from the same source as drinking and agricultural water.

Meeting Closure

- Greg Schreiner provided feedback on commenting period and way forward.
- Mr Hendricks (Camdeboo Municipal Manager) gave his final words and closure of the meeting.

3.3.3 Victory West Local Municipality Meeting Notes (19 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Victoria West Local Municipality Meeting

- The proposed agenda for the stakeholder meeting was presented to the municipality and was accepted.
- Xolani Malgas (Municipal Manager) indicated that they have assisted in advertising the stakeholder meeting in the following ways:
  - Informed stakeholders from their database.
  - Distributed flyers in the wards.
  - Notified senior members of the municipality.
  - Announced Meeting details in town with a loudhailer

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3.3.4 Victory West Public Meeting Notes (19 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Victoria West Public Meeting

Location	Venue	Date	Time	Attendance number
Victoria West	Victoria West Town Hall	19 July 2016	17:00- 20:00	37

Agenda for Public Stakeholder Meeting

Welcome	Municipal Official
Introduction	National Government Representative
Draft findings	Scientific Team
Questions and Discussion	Local Community & Scientific Team
Vote of Thanks	Municipal Official
Closing	National Government Representative

Attendance Register

Name	Organisation
A. Schoevers	Boer
Andile Dludla	CSIR
Berney Bostander	Coghsta cdm
Bob Scholes	WITS
Clive Kingwill	Sentral Karoo Landbou unit
Contessa Kruger	UFSED
Dumisani Tuis	Dept of Justice
Ernest Mmonoa	SANBI
Esmari Borchardt	-
Greg Schreiner	CSIR
J.P Van Rensburg	Sentral Karoo Landbou Unit
Johan Bostander	UFSED
Johan Viljoen	Sentral Karoo Landbou unit
Hendrik Kotze	University of Stellenbosch
Klaas Meintjies	Ubuntu Municipality
Klaas Agterdam	CWP Ubuntu
Louis Kruger	Development Corporation
Luanita Van der Walt	CSIR
Lusanda Gqagqa	Youth
Martin Cedres	Ubuntu Municipality
Morney Ennes	Youth Movement
Mzukisi Moloi	Young chief/ANCYL
N.F Hamman	Sentraal Karoo Landbou Unit
Ntombi Gqagqa	COGHSTA
Paul Gcuku	Community Youth
Phumza May	Standard Bank
Riaan v.d. Walt	Shell
Simon Moganetsi	DEA
Stella Mamogale	DoE
Stephanie Borchardt	Stellenbosch University (Stakeholder)
Surika v/d Merwe	Sentraal Karoo Landbou Unit
Thobeka Gqagqa	John Rossuw Primary
V.R.K. Vadapalli	CGS
Wilma Schutz	DA
Xolani Malgas	Ubuntu Municipality
Yolisa Tsheke	Ubuntu Municipality

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Questions/Comments and Answers on Scientific Assessment

- Where is the gas present?
  - Bob Scholes stated that the gas is very deep and you can drill approx. 3 km horizontally, if you need to go further it would not be economically viable. Well pads are far apart. Since you can manoeuvre subsurface you have flexibility to miss very sensitive surface areas, areas like national parks will be avoided, and many very high sensitive areas may well be no-go.
- How many hectares will be affected by SGD?
  - Bob Scholes explained that the wellpad is about 2 ha and then the road networks will also contribute to the footprint. Overall less than 0.001 of the study area is anticipated to be occupied by physical infrastructure footprints, even at a large scale scenario of 20 Tcf.
- Is the next step in the SEA is to fine tune the report using the documents?
  - Bob Scholes concurred that is the direct next step, after the report is finalised we take the evidence in the report and help government decide what regulation should be in place.
- Does negative consequence outweigh the positive?
  - Bob Scholes explained that Shale gas isn't a yes-no thing, there is a range of possibilities. Decision that has been made is that it would be good for SA to know if it has shale gas, to actually develop shale gas is not a government decision, it is the decision of the public sector they will decide to explore/produce if the economics and technicalities are in order.
- Where will the money for SGD come from?
  - If you have an economically viable activity you have a tax stream, you have more money that is being consumed, then it is a government fiscus decision about how money is spent and how / who funds aspects of development.
- A comment was made that South Africa suffers from the lack of implementing and policing regulations.
- A comment was made that Informal settlements determine how towns develop, not really spatial planning.

Questions/Answers on the Draft Findings

<u>Agriculture</u>

- What about current legislation like Conservation of Agricultural Resources (CARA)?
  - Bob Scholes stated that the agriculture team has found that the current legislation is sufficient to protect the interests of farmers, but there are questions around the implementation capacity.

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Economics

- Property values in towns are expected to rise, but how does the Karoo compare to counties in America? And what are the differences in using local labour?
    - Property values around towns would in all likelihood rise if there was a functioning gas industry in the region, the international literature supports this. Cases reported from the rural parts of the U.S.A are not entirely different to the Central Karoo, although there is a much higher degree of both existing (and well-functioning infrastructure e.g. WWTW, roads, pipelines) and human skills capacity and local governance efficiency.

Energy

- Nuclear energy is not included? But coal has been considered, why?
    - Bob Scholes explained that it is not in the assessment because it was not part of the mandate of the study. The base load can come from nuclear and from coal, coal would be the main thing to be displaced by gas.

Governance

- How soon should the municipality be expected to plan for these types of developments?
    - Bob Scholes responded by saying that quite a lot of time and it needs to be done very thoroughly, it will take a few years.

Human Health

- American reports say that there are major health effects?
    - Bob Scholes stated that many of those reports are epidemiological, people are sick but a causal relationship showing that it is fracking, is not proven. He added that Health effects are not too well knows now, and it will take time (if SGD occurs) to prove.

Terrestrial Biodiversity

- Land rehabilitation post SGD and Land acquisition? E.g. SKA expanded.
    - Pipelines and new roads, for the pipe they will have the shortest possible routes, therefore it will be large areas that will be cleared, and these are difficult to rehabilitate.

Social Fabric

- A comment was made on increasing inequalities, the people who have will get more, the people who don't have, will have even less.
    - Bob Scholes highlighted that the social fabric chapter recognizes the risk of growing inequalities that may be created by SGD.
- How was spatial planning and social fabric affected by the World Cup?

- Bob Scholes stated that World Cup was boom and bust characteristics.

Tourism

- Victoria West may not be identified as a sensitive tourism town, but they want to invest in tourism for their livelihood.
  - Bob Scholes explained that the assessment looks at available information now, at an EIA stage there should be opportunity to consider emerging trends (that were not evident at the time of the assessment) that will be negatively impacted by SGD.
- A comment was made on the future of tourism in Victoria West may look different that than is captured in the report. Concerned that the levies in Vic west apart from agriculture is tourism. To look at tourism the community and the municipality must work together to develop tourism in line with the IDP.

Waste

- How do you store flow back?
  - Bob Scholes highlighted that SA legislation prescribes that it must be stored in closed containers, no open tanks or lagoons are allowed.
- Flowback get stored, but what if the gas is finished, does the tank stand there forever?
  - Bob indicated that waste disposal at proper facilities, however, hazardous waste needs to go to special facilities outside the Karoo (Cape Town or Port Elizabeth).

Water

- It is best practice and best technology for casing and drilling, but you are working "blind" and accidents happen.
  - Bob Scholes stressed that risk of failure is very small but it does exist, however contamination event are mainly contained. Fluids do not move easily laterally in aquifers.
- Is there radioactivity in flowback?
  - Bob Scholes indicated that there is radioactivity is present but current samples (soekor and hot springs) shows that it is present.

Meeting Closure

- Greg provided feedback on commenting period and way forward on behalf of the project team.
- Final word and closure was done by municipal manager, Mr. Malgas.

3.3.5 Beaufort West Local Municipality Meeting Notes (20 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Beaufort West Local Municipality Meeting

Location	Venue	Date	Time	Attendance number
Beaufort West	Beaufort West Municipality	20 July 2016	13:00- 14:00	10

Attendance register

Name	Organisation
Andile Diudla	CSIR
Bob Scholes	Wits/ CSIR
Ernest Mmonoa	SANBI
Greg Schreiner	CSIR
Hendrik Kotze	University of Stellenbosch
Lewellyn. Lakay	Beaufort West LM
Luanita Van der Walt	CSIR
Simon Moganetsi,	DEA
Stella Mamogale	DoE
Vadapalli, V.R.K.	CGS

Agenda for Public Briefing

The proposed agenda for the stakeholder meeting was presented to the municipality and was accepted.

Llewellyn Lakay (Municipal Representative) indicated that they have assisted in advertising the stakeholder meeting in the following ways:

- Informed stakeholders from their database.
- Distributed flyers to the community.
- Announced Meeting details in town with a loudhailer.

3.3.6 Beaufort West Public Meeting Notes (20 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Beaufort West Public Meeting

Location	Venue	Date	Time	Attendance number
Beaufort West	Rustdene Community Hall	20 July 2016	17:00- 20:00	~ 84

Agenda for Public Stakeholder Meeting

Welcome	Municipal Official
Introduction	National Government Representative
Draft findings	Scientific Team
Questions and Discussion	Local Community & Scientific Team
Vote of Thanks	Municipal Official
Closing	National Government Representative

Attendance Register

Name	Organisation
Andile Dludla	CSIR
Andre Mcleod	WA
Andrew Solomons	-
Ashwill Sawall	Gemenskap
Aubrey v/d Lingen	Ward 2
Bob Scholes	Wits/CSIR
Bonnie Schumann	EWT
Bulelani Bilikwa	Jaw operator
C.W Adolph	ANC
Celby November	-
Carlos Lakay	Community
Cazola	Tasman Pacific Minerals
Charles Lakay	Community
Christo Booysen	Gemenskap
D. Stander	SADTU
Daniel Swanapoel	DEADP
Debbie & Michael Anstey	Farmer
Denny Byilikwa	Great Karoo Gospel
Edwin Samson	
Elfredo Jantjies	Ward 3
Eirione Kanpher	
Estner Booysen	Community
Este Matthew	EWT
Erika van der Linde	Ferret Mining & Environmental Services
Evelyn Lawrence	Community
Frank Fenbers	-
Freddie Martin	Pastors Fraternal
Freddie Lottering	Community
G. Gentles	Great Karoo
George van der Walt	Tasman
Gideon Sebabis	Community
Godfrey Adolph	-
Greg Schreiner	CSIR
Henri Fortuin	DEADP
Hendrik Kotze	University of Stellenbosch
Ingrid S	Ubuntu Forum
J. Booysen	Beaufort West Municipality

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Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

J.D.M. Bosman	ANC	
J. Slabbert	Resident MB	
Jack Edwards	-	
Kaylee Booysen	ANC	
Klaas Telanie	Community	
Llewellyn. Lakay	Beaufort West Municipality	
Lindokuhle Jodwana	ANC	
Lorenzo Johnson	Private	
Luanita van der Walt	CSIR	
Lungile Mendou	Sccd	
M.V Madolo	-	
Madoda Bokwe	Private	
Malesia Gonyana	Community	
Mark Olivier	-	
Matthews Dikana	-	
Melulawn K	-	
Menziwa Mzwandile	Ward Committee	
Moeti Zingxondo	-	
Mongezi Pike	Greater Karoo Dev Forum	
N.Z Oliphant	ANC	
Nathi	ANC	
Ntobeko	Resident	
Peter van wyk	-	
Randal Dumpie		
Riaan v/d Walt	SHELL	
Roger Jacobs	Gemenskap	
Ronald	-	
Skoki	-	
Somila Xhosa	DST	
Stephanie Borchordt	-	
Steve Moseley	Private	
Stuurman	-	
T.N Jadu	ANC	
Tefo Malobae	Penninsula Energy	
Thanduxolo Kokwe	-	
Tim van Stombrole	Ferret	
W.Jonas	-	
W. Moyeso	Private	
V.R.K. Vanapalli	CGS	
Victor Malowizz	-	
Victor Olivier	-	
Violet	ANC	
Vuyisile Bartman	-	
W. Bezadenhoudt	Private	
W. Vivier	BW Landbou	
Xoliswa	Womens League	

Questions/Answers on Scientific Assessment Process

- If new information arises it would be included in the document how will that be regulated?
  - Bob Scholes stated that these assessments are not regularly re-done, smaller issues would not constitute an upgrade, if something substantially changes the assumptions of the assessment it will have to be considered in some way and perhaps at an EIA stage.
- The study is independent and is not to make a decision for or against shale gas, but it has been indicated that a decision will be made. At what point will communities have an

opportunity to make proper inputs into such a decision? The community should be given opportunity to influence decision on how, when and where.

- Bob Scholes pointed out that Knowledge empowers communities, this assessment provides that knowledge. In SA constitution is committed to a participatory style of governance. This is a strategic assessment looking at the big picture, as soon as there are specific details "I want to drill here" and this will require an EIA for which PPP must be done. There aware also opportunities to comment on policy and legislation.
- Henri Fortuin added that even though national department may approve an EIA, there are many other licenses that need to be required. A community must start a zoning committee/ local council to give planning permission (if they do not give planning permission fracking cannot go forward), land use planning, IDP, stakeholders have opportunity to interact on local, provincial and national level as well, a range of authorities must all say yes.

- A comment was made on Public participation at EIA phase can be quite technical and difficult to understand, there is a call for departments / provinces / councils to aid communities to understand issues and be able to sufficiently provide inputs.
- Further there is an understanding that reference scenario is not static and that it changes, have you considered the cumulative impacts of uranium?
  - Bob Scholes stated that this is not a uranium SEA, but we have pointed out that shale gas is not the only thing going on and that it would be in addition to other changes. These issues should attract an EIA, hopefully the SEA provides information to support some of the other things as well and that it sets a standard for assessments.

- How would you mobilize an assessment of cumulative impacts of multiple developments?
  - Bob Scholes stated that Provincial and other authorities should determine when an SEA is necessary and is in addition to and EIA.
  - It was added that decision on uranium is taken by national government, so provincial doesn't have a say even if they didn't want it. A large study like this would be welcomed, the Western Cape SDF does touch in issues like this, but do not have much control over mining.

- SEA Process in relation to the legislative process on to frack or not to frack, how many years?
  - Bob Scholes indicated that the SEA process goes on until March 2017 (the decision making framework), the process of policies will run as usual. Fortunately it seems there is a breathing space, with the low oil prices there is not a great rush for SGD, we may see exploration and will have a warning.

Questions/ Answers on Draft Findings

<u>Governance</u>

- Why was functionality of governance not assessed? The reports assume that mitigation will be applied, and that governance is effective.
    - Bob Scholes highlighted that almost every chapter asks about institutional readiness, many of them raised uncertainties and concerns. In many instances the legislations found to be sufficient.

Sense of Place

- It all boils down to the economy and to money, people who do not know the Karoo have totally different values, to start up a business in the Karoo for a short time and you steal the soul of the Karoo. Make money, pack up and leave and leave the mess behind in the Karoo. Rather go the other gas routes, from Mozambique and offshore, economically it would be a far better advantage for South Africa.
    - Bob Scholes response was that Sense of place is understood to some extent and these points are made in the report, however little evidence to base an assessment on. Many people think that the govt. decides whether to go ahead with fracking, but in the end it is up to the economics and technical viability that will be determined by the fracking companies. It is important to understand the opportunities and understand the risks and then make informed decisions, the pose decisions will be made by the govt. by the fracking companies and by civil society.

Social Fabric

- When it comes to a small town like Beaufort there are two different worlds, the rich, and the people who are struggling for food every day, and many people do not understand economics and oil prices etc.
    - Bob Scholes highlighted that Social fabric touches on growing inequalities, and the economy chapter looks at who could benefit from the income from SGD. Recommendation around mitigating these impacts are suggested in the reports and will be packaged in a way to help govt. make good decisions.

Terrestrial Biodiversity

- Grassland biome covers many ha but doesn't seem to be assessed, and only Karoo threatened species considered.
    - Bob Scholes stated that all biomes within the study area have been assessed.

Tourism

- A comment was made that dysfunctional municipality, in certain areas it is important to recognize that they may not have IDPs and they are definitely not being implemented. A community forum in Loxton has identified tourism as being the best patch way to create jobs and develop communities. Fracking will hinder sustainable tourism opportunities.

- It was added that it would be interesting to see what the investment opportunities will be for fracking vs tourism. Consider economic opportunities against other sectors.
    - Bob Scholes highlighted the fact that at a strategic level there is not enough info to do a full cost benefit analysis, until exploration for gas is done you cannot know what the value of it will be, these studies are surely to arise when better resource estimates are known.

Waste

- Will there be a lot of radioactive material in the waste stream generated from flowback?
    - Bob Scholes stated that this is considered in the water section, water that goes deep down will be contaminated with radioactivity. Current measures of radioactivity are known through soekor holes and hot springs, the levels of radioactivity is not very high, but higher levels may be encountered when drilling. He also added that Fracking companies would have to deal with the waste, they would not be allowed to be burdened with fracking waste. The SEA was commissioned is to gain information of what is happening in the South African context.

Meeting Closure

- Greg Schreiner provided feedback on commenting period and way forward.
- Mr. Booysen (Municipal Manager) shared his Final words and closure.

3.3.7 Shale Gas SEA Workshop for Registered Stakeholders (22 July 2016)

Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Shale Gas SEA Workshop for Registered Stakeholders

Location	Venue	Date	Time	Attendance number
Cape Town	Iziko Museum	22 July 2016	10:30- 15:30	~35

Attendance Register

Andile Dludla	CSIR	
Aubrey Matsila	CSIR	
B. Williams	SAOGA	
Bob Scholes	Wits/CSIR	
Derek Light	Attorney	
Fahiema Daniels	SANBI	
Francine Dieckman	-	
Greg Schreiner	CSIR	
Hendrik Kotze	Peace Systems	
Henri Fortuin	DEADP	
JA Bezuidehoudt	SHELL	
Jeanie le Roux	Parliament	
Jeff Jefferson	DEADP: Intelligence	
Jeff Manual	SANBI	
John Wilson	DEADP	
Kobus Jooste	Parliament	
Karel Lewy-Phillips	Eco Environmental Services	
Lusnita van der Walt	CSIR	
Marilyn Lilley	TKAG member	
Niall Kramer	-	
Nic Opperman	Agri SA	
Ramatholo Sefako	SAAD	
Ruth-Mary Fischer	SanParks	
Simon Botha	DEADP	
Simon Moganetsi	DEA	
Somila Xosa	DST	
Stella Mamogale	DoE	
Stephanie Borchardt	Stellenbosch University	
T Mawonga	Gariep LM	
Vuyisile Zenani	Shell SA	
Waymann Kritzinger	Agri SA	

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Strategic Environmental Assessment for Shale Gas Development in South Africa
Meeting Notes

Wilbert L. Mathews	Mateus Petroleum LLC	
Willem Louw	SanParks	

Questions and Answers on Scientific Assessment Process

- What is the value of the full report?
  - Bob Scholes highlighted that the full report is in the public domain, and the information is available to other studies. The document will be published electronically. The Summary for Policy Makers will almost certainly come out as a hard copy as well. The client is government, but the specific report is a public domain report. Paid for by government, but for use by all. Government gets this entire report, and our support feeding this into a framework for decision making

- Potential alternatives is lacking in the report.
  - Development alternatives are required in an EIA level under law. The SEA deals with alternatives through the risks assessment, which looks at 4 different future alternatives, with and without mitigation. These all represents alternatives. There is also a "stopping" point. This is not an assessment of absolutely everything going on in South Africa.

- A comment was made on the importance of people to understand the fracking regulations and the permitting requirements and timeframes.
- What is the public participation going forward?
  - The public participation fort the scientific assessment section is done now, after this is the policy development process, which consists of the PPP normal to those processes.

- This study focuses on shale gas only, did you look at other activities, such as uranium and gypsum?
  - Bob Scholes stressed that this SEA doesn't replace the EIA but directs it and provides a framework. The dynamic baseline of the Karoo (Ch 1) tries to capture that, we do not have full insight on those issues, such as uranium is also sort of a rumor it has not yet happened and cannot be taken into cumulative account. Our mandate is to look at shale gas. If the assumptions of the assessment changed substantially it would not be valid anymore, it would have to be revisited. See point above.

- What about National parks and protected areas, buffer zones?
  - Bob Scholes stated that those are definitely taken into account, and they are protected by law, which provides for protected are and buffers.

- There seems to be a decision that SGD will occur.

- SGD is not only a government decision, but the decisions also rely on the private sector (developers) and civil society also needs to provide input into the decisions which will happen in the future. Re acknowledging uncertainties - when we wrote the SPM we didn't draw on the preface, perhaps draw preface into the SPM. Question to ask yourself is: if you knew more about this, would it change you decision? Or do you know enough to make a decision?

Questions/Answers on Draft Findings

Scenarios and Activities

- How did you arrive at the impact drivers described in the Scenarios and Activities chapter (Ch1)? For instance 10 wells instead of 32 wells per wellpad, these differences are significant. Precautionary approach call for the worst case figure to be taken into account. The entire report is based on assumptions that may not be correct.
  - Bob Scholes responded by explaining that we worked closely with industry, and this was peer reviewed by international experts, and then chose the most reasonable assumption for a South African context. Strategic assessment taking the big picture in account, for permitting they need to be explicit. Proposed more wells at a well-pad could also be seen as proposing less impact i.e. fewer wellpads, fewer well bores and casing, fewer roads. It depends which way you look at it. But the international evidence is clear, in the region of 10 wellbores per wellpad is a very legitimate assumption.
- Is there a map indicating infrastructure?
  - Bob Scholes responded with No, because no development is proposed as of yet, it is all what-ifs. We have no idea where infrastructure would be placed. There are examples of infrastructure in chapter 1 as well as "imaginary" notional layouts.

Air Quality & GHG Emissions

- What about flaring? Downwind movement of gasses from flaring. And air quality re: compressor stations. Therefore air quality issues not only on wellpad but along all infrastructure. Venting of gas and fugitive leaking.
  - Bob Scholes stated that it is not anticipated that there will be extensive flaring, and will be well within NEMAQA standards. Fugitive leakage is very well understood, industry would want to avoid that.
- Shale gas is potentially cleaner source if fugitive emissions can be mitigated, a US study...assumptions based on conventional gas...abandoned wells and fugitive emissions, based on info like this life cycle of gas would not be as GHG efficient. Shale gas would be lower than coal - this statement is not correct. (Stakeholder has submitted this comment)
  - Bob Scholes emphasised that there is a lot of literature in this, additional literature is welcome but would not change the finding that this is a critical issue.
- A concern was raised on GHG that a number of the chapters correctly record a number of scientific unknowns that renders it difficult or impossible to do a risk assessment. Concerned

that one is not making the point strongly enough that where there is a lack of knowledge they should be cautious about making decisions that could influence aspects that are clouded by uncertainties.

Agriculture

- Foliage damage to crops? Nitrogen deposition?
    - Bob Scholes highlighted that this should be covered in agriculture, related to dust pollution that could affect species within about 30 m of dirt roads. Nitrogen deposition is not really an issue in this area of the world.
- The Conservation of Agricultural Resources Act (CARA) and Subdivision of Agricultural Land Act (SALA) are old pieces of legislation. Agricultural legislation has been neglected and no legislation is available to support agriculture, especially with regards to mining. Mining fraternities have shorter routes in terms of EIA and that is a constraint for agriculture.
    - Bob Scholes stated that CARA is a good piece of legislation, but the implementation and policing capabilities of that is brought under question.
- A concern was raised that the Agricultural chapter is based on a 1994 study, and a lot has changed in the agricultural sector, it is now a much more successful sector. Furthermore, it creates many jobs and provides other services to their workforce. Do not underplay the significance of chapter 8.
- Radioactivity? Radioactivity can be found in the wool of sheep?
    - Bob Scholes indicated that this is dealt with in the groundwater chapter. Available levels from hot springs and soekor holes are low.
- Will farmers who lease or sell their land to developers return to the areas?
    - Bob Scholes stated that experience shows that people would likely not want to return; this will not only be because of SGD but also due to other factors such as climate change. Somila Xosa added that Colorado shows examples of a co-existence between SGD and agriculture; however, it might be possible to do some agriculture but not all agriculture.

Earthquake

- It is fine to say that fracking shouldn't happen close to towns, but would the legislation prevent that. Prevent creeping of SGD into towns and closer to sensitive areas.
    - This is around implementation and institutional capacity and available legislation and the shortcomings have been raised in all chapters.

Economics

- Economic benefits of economics equations, do they account for GHG and full SGD life cycle?
    - Bob Scholes responded by explaining that a cost benefit analysis was not undertaken, as there is not enough information, so have not done that level of analysis. Combine Cycle Gas Turbines (CGTs) are efficient.
- Economic benefits of renewables to shale gas?

- Bob Scholes explained a comparison can be made with the kW/h generations costs, wind is the cheapest, solar a bit more expensive, CCGT at is more expensive, new coal is very expensive, nuclear is most expensive. But you cannot from that say that we should only do wind, you cannot builds tire system just from the cost; you also need to look for reliability. This is analysed extensively in SA energy plans, looking at price, reliability energy independence etc.

Human Health

- CANSA came out very strongly about the link between cancer and fracking.
  - Bob Scholes explained that health impacts from fracking are not dismissed, they are present in the likely vicinity of the well pads, but are not so substantial that it would remove this as a potential activity.

Energy Planning

- Latest information contradicts statement that gas is relatively cheaper and can be used to compliment renewable energy.
  - Stakeholder must provide evidence of this

Governance

- The issue of institutional capacity has come up most times and the report also highlights that as a key issues. Will you recommend that institutional capacity be consistently monitored to see how it berg ores and whether it is successful?
  - Bob Scholes responded by stating that the chapters address what institutions exist, are they fit for purpose, and how should they be augmented. Authors do not make specific recommendations; they provide the facts, in phase three such issues will be dealt with.
- One of the mitigation processes in by monitoring, but the player cannot be the referee
  - Bob Scholes stated that the monitoring should be independent or at least a hybrid arrangement, an obligation on developer to install equipment and do monitoring, with an independent auditing that. Post closure monitoring is also an important aspect.

Social Fabric

- Social and labour plans routed as a good way for SED? National policy can't always be interpreted as being implemented.
  - Bob Scholes stated that the chapter draws extensively on examples from South Africa and around the world. Does draw on policy aspects such as how developers should invest money for local socio-economic development.

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Meeting Notes

Terrestrial Biodiversity

- What about birdwatchers?
  - Bob Scholes responded by stating that Birds should be considered in the biodiversity chapter (IBA map) important bird areas should be considered.
- What about avoiding surface features, and going underneath?
  - There is precedence for a coking coal company wanting to burrow under the national park, but it went to court and lost. Many of the fine-scale siting issues are considered at the EIA level.

Visual

- Optical astronomy Sutherland and light and dust pollution?
  - Bob Scholes highlighted that light pollution and dust pollution is considered. Main source of dust would be from trucks on dirt roads. Potential light pollution effects on Optical astronomy are considered in the Visual chapter

Water

- If water is not available, what are the impacts associated with the other sources available?
  - Bob Scholes pointed out that it is clearly painted out in the chapters.

Waste

- What is hazardous waste generated by SGD?
  - Bob Scholes stated Brine, radioactivity, contaminated water. These cannot be treated in the study area, but must go to licensed area.

Meeting Closure

- Greg Schreiner provided feedback on commenting period and way forward.