



The First Frack is the Deepest

"It would be wrong for us to not use the resources that God left us with. This is a blessing that God gives us, and we need to exploit it for the benefit of the people."

Dipuo Peters, former Minister of Energy

1. Introduction

Many countries today, South Africa included, are looking for more eco-friendly energy sources and, for several, natural gas is the energy source of choice. Shale gas is natural gas found in the shale rock, and is derived from underground shale deposits that are broken up by hydraulic fracturing. Hydraulic fracturing, or fracking, is the procedure of creating fractures in shale, coal-bed and tight-sand formations by injecting fluid (such as water, oil, or propane) into cracks to force them further open. This enlarges crevices which allow more oil and gas (methane) to flow out of the rock and into the well-bore. From there, the gas can be extracted.¹ In September 2013, the South African government lifted a 17 month moratorium on the issuing of licenses to explore the amount of shale gas reserves in the Karoo. With the country entering the exploratory phase of the fracking journey, we see it as a fitting opportunity to examine the developments around fracking in South Africa.

2. Every Nation for Itself

Fracking is by no means unique to South Africa; there are a number of countries across the globe which have considerable amounts of shale gas deposits. These discoveries have catapulted us into a period that has come to be known as the 'Gas Boom'. Nonetheless, shale gas developments around the world have been met with fierce opposition from local residents and environmental groups due to environmental concerns over the fracking process. With the

impact of fracking operations still being studied, the jury is out on the extent to which the process may be harmful to the environment. However, various serious concerns are being raised by environmental groups, media, and scientists; among them are groundwater contamination; gasification; water usage risks; noise pollution; surface water and soil risks; spills and blowouts; and negative infrastructural impact. Fracking on the proposed scale is a huge industrial undertaking, and there is a concern that access roads, heavy transport vehicles, pipelines and other associated infrastructure will have a long-lasting and detrimental impact on some of the country's most pristine and delicate wilderness areas.

Many Western nations thought to have substantial shale gas reserves have decided to forego taking such risks.² Some countries which might embrace the use of this technology are barred from doing so by laws governing the environment or water. Relatively few countries are currently involved in shale gas fracking. These include the United States of America, sections of Canada, as well as China, Poland, New Zealand, Denmark and the United Kingdom. Other countries, such as Germany and the Netherlands, have imposed moratoriums on fracking pending further study of its effects.³

3. Legal Aspects – South Africa

South Africa has a number of laws in place to protect the country's water and environment. The National Environmental Management Act

(NEMA) contains Principles of Sustainable Environmental Management which must be complied with by all organs of state. These principles call for a risk averse and cautious approach to the decision-making process so that the limits of current knowledge about the consequences of decisions and actions, as well the polluter pays principle, are taken into consideration.

In Section 21 of the National Water Act, a water authorisation can be given for consumptive or non-consumptive water uses if the user can provide evidence that the water use will be an 'efficient and beneficial use of water in the public interest'. According to Bosman, fracking in its current form cannot be regarded as a sustainable use of water that will meet this criterion, and authorisation should therefore not be granted. This is particularly true, Bosman adds, where the proposed water use will affect the reserve needed for basic human needs and aquatic ecosystems, and for sole-source ground water resources. She states that if "there is any suspicion that an activity may potentially detrimentally affect the quality or quantity of this water resource, then water uses by this activity cannot be authorised". Taking the significant pollution threats into account, the legality of fracking might be open to serious challenge under the provisions of the National Water Act.⁴

Against this background, there is a growing interest in the relevant law, and in particular the environmental aspects thereof. The starting point is that South Africa does not possess any fracking-specific laws, guidelines or even policies. While we do have a legislative framework that governs the exploitation of hydrocarbon resources, our primary statute, the Mineral and Petroleum Resources Development Act ('the MPRDA'), was not drafted with fracking in mind. Because contemporary fracking is a relatively new extraction technique, South Africa is but one of many jurisdictions where this legislative void exists. A further reason why a simple cut and paste approach cannot be adopted is that detailed consideration would have to be given to the numerous amendments that would need to be made to the many statutes and regulations that would be affected by the introduction of fracking-specific regulations. There is an overabundance of laws that regulate mining operations in South Africa, none of which address fracking. As a result, the interplay between all of these laws and new fracking-specific regulations would have to be carefully

considered before such regulations could be adopted. From a legal perspective, the majority opinion is that current South African law is simply inadequate and that a failure on the legislature's part to meticulously consider the interplay between the substantial body of legislation that currently governs hydrocarbons, and any new fracking regulations, would undoubtedly occasion the advent of fracking-related litigation.⁵ The new Mineral Resources Minister, Ngoako Ramatlhodi, has confirmed that an announcement by President Jacob Zuma regarding the release of the revised MPRDA Bill is imminent. The Minister also revealed that the government was considering drafting legislation to regulate oil and gas exploitation separately from the law that currently regulates mineral extraction.⁶

4. Issues of Concern

There are countless issues of concern related to the introduction of fracking into the South African landscape, ranging from environmental detriment to health and socio-economic factors. We can use the question of water to reveal the interlinked nature of such a huge undertaking and how there could be a monumental mess if hydraulic fracturing in South Africa goes awry.

Of the potential environmental pitfalls the most alarming one is the prospect of toxic water seeping through the soil and contaminating the local drinking water as a result of surface leaks or from improperly designed well-casings. Coupled with our history of toxic water (mis)management,⁷ the situation is not reassuring. The resultant health consequences of poisonous water infiltrating our water system would be appalling.⁸ There are also potentially serious socio-economic repercussions – widespread health issues will strain an already overburdened healthcare system in addition to subjecting communities to increased medical costs. In addition, the state would have to provide clean water to affected areas, and this when various parts of the country are already experiencing water shortages.⁹

Fracking is a very water intensive process, a disquieting factor when considering that the proposed area of the Karoo is one of the driest places in the country. The Karoo region does not receive much rainfall, and mostly relies on water from boreholes. Therefore, the inhabitants cannot afford to have their groundwater tampered with

or wasted in any way. In addition to the hazard of poisonous water, fears that water resources meant for the public will be once again steered towards industry interests¹⁰ have not been allayed. One of the main reasons for the scepticism is that, in reality, fracking companies have failed to identify a definitive water source for the fracking process without tapping into the water resources set aside for domestic and agricultural use.

Fracking in the Karoo is a complex matter. It is quite unlike, for example, the parts of the USA with established fracking, where there are vast amounts of water and expansive land with shallow ground ideal for this extraction process. Spanning nearly 400 000km², the Great Karoo can be described as one of the quietest places on Earth; a place of immense spaces, wide horizons, craggy mountain ranges, sensitive flora, an ancient inland seabed, and a sky so big and cloudless that at night it feels like you can touch the stars.¹¹ These factors render the Karoo a very delicate landscape and it is difficult to predict the degree to which the invasive development tied to fracking will impact the area.

But the flipside of the coin reveals the reality of life for some of the inhabitants of this semi-desert wonderland: people suffering high rates of unemployment and unacceptable poverty levels, with all the social problems that flow from a lack of life opportunities. Fracking in the area could alleviate some of these hardships if it brings jobs and development. Decision-makers are tasked with balancing the needs and rights of the communities with regard to being employed, and therefore bettering their living standards, while taking the relevant environmental concerns into consideration.

Another factor that must be considered carefully is that the return of load-shedding has refocused our attention on the need for a secure energy source. The country's heavy reliance on coal is by no means sustainable, and the possibility of there being a less carbon-intensive solution in our backyard is no light matter. Ultimately, it cannot be denied that the country needs to create employment, and to secure a reliable and cleaner energy source. Equally, it must responsibly utilise and protect its environmental resources.

5. Roundtable Discussion

On Monday, 10 March 2014, the Catholic Parliamentary Liaison Office hosted a roundtable discussion entitled *The First Frack is the Deepest: A Deeper Look at Hydraulic Fracturing in South Africa*. The speakers for the event were Mr Jonathan Deal from the Treasure the Karoo Action Group, Mr Niall Kramer from Shell, and Dr Julia Schünemann from the Institute of Security Studies. The discussion that followed the comprehensive presentations was hearty and dealt with a range of concerns including the chemicals that will be used during the fracking process; the various misgivings about the amounts of water that will be used, as well as the effects the practice of fracking will have on the available groundwater; and the overlooked social, health and cultural impacts fracking could bring about.

Among the insights gleaned from the discussion was that it is vital for the public to be more informed about fracking, as the technology has wide implications. The diverse attendants found the discussion to be relevant as it related to future energy supply in SA, and there were requests for the focus to be turned to solutions such as energy efficiency and renewable energy options. It was suggested that the issue should be carried to communities and parishes where people can be informed more deeply about energy issues. A more scientific approach was encouraged, as opposed to emotional sentiment and the present obsession with economic growth.

6. Conclusion

The government's quest for a solution to our pressing energy and unemployment issues is understandable. NEMA provides that during decision making processes, the 'best practicable environmental option', that is, the option that will provide the most benefit or cause the least damage to the environment as a whole, at a cost acceptable to society in the long term as well as the short term, be considered. The jury is out regarding whether fracking can be implemented in a way that makes it comply with NEMA and other environment related legislation.

God has blessed this country with innumerable resources and shale gas could very well be one of them. God has also blessed us with abundant sunshine which can harness plenty of energy in an undoubtedly less invasive manner than

fracking for shale gas. Accordingly, many would caution Ms Peters and other stakeholders against providing for the nation's energy needs by any means at all, regardless of risk. It is in the country's best interest that we err on the side of caution by waiting to find out more about the procedure and its effects, lest we find ourselves

with an environmental catastrophe generations after the fracking multinational corporations have made their money and left our shores.

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¹P Siphuma. *Licence to Frack* - Catholic Parliamentary Liaison Office Briefing Paper, October 2012.

² List of Bans Worldwide - <http://keptapwatersafe.org/global-bans-on-fracking/> (accessed in October 2014).

³ See http://en.wikipedia.org/wiki/Hydraulic_fracturing_by_country

⁴ L Greeff. *You can't have your gas and drink your water* – EMG Water and Climate Change Research Series, September 2012.

⁵ L Havemann. *Fracking: The Challenge facing our Lawmakers* - <http://caveatlegal.com/fracking-the-challenge-facing-our-lawmakers> (Accessed in November 2014).

⁶ C Kotze. *MPRDA Amendment Bill announcement imminent* – Ramatlhodi. *Engineering Weekly*, 19th September 2014. <http://www.miningweekly.com/article/mprda-amendment-bill-announcement-imminent---ramatlhodi-2014-09-19>

⁷A Vicente and S Wild. *Nuclear waste is going nowhere slowly* – *Mail & Guardian*, 3 October 2014. <http://mg.co.za/article/2014-10-02-nuclear-waste-is-going-nowhere-slowly>

⁸ These chemicals could affect the skin, eyes, and other sensory organs, and the respiratory and gastrointestinal systems. Approximately 40–50% could affect the brain/nervous system, immune and cardiovascular systems, and the kidneys; the endocrine system; and 25% could cause cancer and mutations.)

⁹ E Thelwell. *South Africa's looming water disaster*, 3 November 2014.

<http://www.news24.com/SouthAfrica/News/South-Africas-looming-water-disaster-20141103>

¹⁰ P Siphuma. *Acid Mine Drainage: A Legacy of Mining in South Africa* - Catholic Parliamentary Liaison Office Briefing Paper, December 2012

¹¹ An unforgettable road trip: The Great Karoo

<http://www.southafrica.net/za/en/articles/entry/article-southafrica.net-the-magical-great-karoo> (accessed October 2014)

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