

Fracking in the Karoo: A case study in science communication

by

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Declaration

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ABSTRACT

The US Energy Information Administration estimates that South Africa could hold about 390 trillion cubic feet (tcf) (11 043 570 174 000 cubic meter) of shale gas in the Karoo basin. Only 5 tcf (141 584 233 000 cubic meter) thereof would be enough to meet the energy needs of 5 million households for 15 years.

The South African government lifted the moratorium on shale gas exploration in September 2012 after the issuing of exploration licenses were suspended for 18 months. During this time a multidisciplinary team conducted research to gain more knowledge about the practice. After the big announcement, various media houses published the latest developments on their digital news platforms and allowed readers to comment on the issue of exploration and possible future shale gas mining activities (also known as fracturing or fracking) in the country.

This thesis applied both qualitative and quantitative methods science communication methods to analyse five sets of comments from five different online news outlets to explore the perceived benefits and concerns of shale gas mining as posted by readers. The Independent Newspaper's online (IOL) news site (www.iol.co.za) yielded 21 comments; the *Mail & Guardian* Online (www.mg.co.za) had 60 comments; Naspers's News24 (www.news24.co.za) attracted 151 comments; *Sowetan Live* (www.sowetanlive.co.za) had 21 comments and *Times Live* (www.timeslive.co.za) contained 20 comments.

With the normative theory, uses and gratification theory and Habermas's public sphere as theoretical foundation, a thematic content analysis of the 273 comments revealed a correlation between the perceived benefits and concerns held by the online news readers. The main perceived benefits of shale gas mining are: 1) potential work opportunities; 2) shale gas could contribute to lowering CO₂ emissions; 3) shale gas is a more affordable form of energy that South Africa needs; 4) shale gas would help with South Africa's economic growth; and 5) shale gas is an alternative and cheaper source of energy. The main concerns are: 1) pollution of water, the environment and air; 2) bribery and corruption; 3) concerns about the intention of petrochemical companies; 4) only a small group of people will benefit from shale gas; 5) overseas companies will benefit from SA's shale gas; and 6) some comments expressed concerns, but did not give a reason why they are concerned.

The thesis suggests that the media may have in the science communication process created a moral panic about shale gas mining, and that public relations practitioners in the shale gas industry need to address the issues and concerns raised through the comments.

OPSOMMING

Die VSA se Energie Inligtingsadministrasie beraam daar is sowat 390 triljoen kubieke voet (tkv) (11 043 570 174 000 kubieke meter) skaliegas in die die Karoo-kom verberg. Sowat 5 tkv (141 584 233 000 kubieke meter) is genoeg om in die energiebehoefes van 5 miljoen huishoudings oor 'n tydperk van 15 jaar te voorsien.

Die Suid-Afrikaanse regering het die moratorium op skalegasontginning in Suid-Afrika in September 2012 opgehef. Die moratorium wat 18 maande geduur het, is ingestel om die regering tyd te gee om die potensiële omvang van skaliegas ontginning in die land te bestudeer. Gevolglik het talle aanlyn nuuswebwerwe die nuus gepubliseer en lesers toegelaat om hulle opinie oor skaliegas eksplorاسie en ontginning (ook ook bekend as hidrobreking) uit te spreek.

In hierdie tesis word 'n kombinasie van kwalitatiewe en kwantitatiewe wetenskapkommunikasiemetodes gebruik om die positiewe en negatiewe persepsies van hidrobreking, wat in die vorm van kommentare op vyf nuus webwerwe opgeteken is, te analiseer. Die Independent Newspaper se IOL webblad (www.iol.co.za) het 21 kommentare opgelewer, die *Mail & Guardian Online* (www.mg.co.za) het 60 kommentare gehad, Naspers se News24 (www.news24.co.za) het 151 kommentare gehad; *Sowetan Live* (www.sowetanlive.co.za) het 21 kommentare gehad en *Times Live* (www.timeslive.co.za) het 20 kommentare opgelewer. Met die normatiewe teorie, gebruik- en gratifikasieteorie en Habermas se openbare sfeerteorie as grondslag vir hierdie studie, het 'n tematiese inhoudsanalise ooreenstemmings tussen die vyf webwerwe se positiewe en negatiewe persepsies getoon. Die grootste positiewe persepsies is: 1) potensiële werkseleenthede; 2) skaliegas kan bydra tot die verlaging in koolstofgas uitlatings; 3) skaliegas is 'n meer bekostigbare vorm van energie en 4) skaliegas is 'n goedkoeper vorm van energie.

Daar was egter ook groot teenkating teenoor skaliegas. Die grootste negatiewe persepsies is 1) die ontginning van skaliegas kan verskeie vorms van besoedeling, insluitend water-, grond- en lugbesoedeling, meebring; 2) die opheffing van die moratorium is gekoppel aan omkoperie en korrupsie; 3) kommer oor die intensie van petrochemiese maatskappye wat skaliegas wil ontgin; 4) skaliegas gaan net 'n klein groepie mense bevoordeel; 5) oorsese maatskappye gaan voordeel trek uit Suid-Afrikaanse skaliegas; en 6) 'n paar kommentare het hulle teenkating aangedui maar nie redes verskaf hoekom hulle dit teenstaan nie.

Hierdie navorsing toon ook dat die media dalk in die wetenskapkommunikasieproses kon bygedra het tot morele paniek teenoor hidrobreking in die land en dat die verskeie persepsies oor skaliegas aangespreek moet word.

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“Time is at times irrelevant”

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CHAPTER 1

INTRODUCTION AND BACKGROUND

“It is increasingly claimed that the world is entering a ‘golden age of gas’, with the exploitation of unconventional resources expected to transform gas markets around the world. But the future development of these resources is subject to multiple uncertainties, particularly with regard to the size and recoverability of the physical resource.” - McGlade, Speirs & Sorrell (2013: 571)

1.1 Introduction

The South African government lifted the moratorium on shale gas exploration in the country in September 2012. The halt was imposed 18 months earlier to allow government time for further investigations into the potential benefits and risks shale gas mining may hold for the country and the environment (Shabangu, 2012). A few South African online news sites reported on the latest developments and allowed readers to comment on this controversial issue.

Through the application of a mixed-method content analysis, this thesis analysed the comments that were posted on five South Africa news sites in response to latest developments. The five news sites that were included in the study are: 1) the Independent Newspaper’s online (IOL) news site (www.iol.co.za); 2) *Mail & Guardian Online* (www.mg.co.za); Naspers’ News24 (www.news24.co.za); *Sowetan Live* (www.sowetanlive.co.za) and *Times Live* (www.timeslive.co.za).

This thesis aims to achieve three main objectives. Firstly, it examines the media’s involvement and role in the shale gas mining (also known as hydraulic fracturing or fracking) debate. Secondly, it explores the perceived benefits and concerns of shale gas and shale gas mining as posted in the form of comments in response to the moratorium that was lifted. Thirdly, this thesis discusses the importance of public relations to facilitate the concerns that were framed in the mixed-method content analysis. The three theories that form the cornerstone of this thesis are: 1) the normative theory, uses and gratification theory and Habermas’ public sphere.

The first chapter is divided into four parts. The first part discusses the origin of shale gas from a South African perspective, followed by an explanation of how shale gas is mined. The second part highlights the potential benefits and risks associated with activities linked to shale gas mining.

The third part focuses on the media in the fracking debate and particular attention will be given to online news outlets. The last part of the chapter outlines the problem statement and research questions, followed by an outline of the different chapters.

1.2 Background to shale gas

Shale gas is a natural gas, and one of the fossil fuels (along with crude oil and coal) that formed underneath the surface of the earth through natural processes that took place over millions of years. According to Kusky (2005: 64-65) the majority of fossil fuels can be traced back to animal and plant remains that were buried some 359 to 299 million years ago (mya) during the carboniferous phase. A combination of heat, pressure and bacteria throughout different geological eras had led to a process that “cooked” the organic material, the end product being coal, crude oil and natural gas (Mongillo, 2011: 74).

Natural gas can further be categorised as either conventional or unconventional gas. Conventional gas deposits can be reached and extracted through traditional inexpensive methods. This is possible due to the lower density of the rock formations (Speight, 2013: 1). Consequently, natural gas can flow easier through certain rock formations to the gas well where it is being extracted. On the other hand, unconventional gas is found in reservoirs surrounded by rock formations that are more dense and difficult to extract. Different methods, with more expensive techniques, are applied to extract these types of natural gas (*Ibid.*). For the purpose of this thesis, focus will only be placed on shale gas, which is an unconventional natural gas and found in the shale rock formation.

Speight (2013: 2-3) describes shale as a rock formation that is “rich in clay, typically derived from fine sediments, deposited in fairly quiet environments at the bottom of seas or lakes”. Shale rock formations are further classified as either light or dark. Light shale formations do not contain high levels of organic matter as opposed to the dark coloured or black shale formations that are organic-rich deposits (Speight, 2013: 3-4). These black organic shale formations obtained its colour from dead animal and plant remains that were buried within the mud. As this mud had been exposed to different natural processes over millions of years, the captured organic material turned to shale gas and oil (Speight, 2013: 4). Although shale formations are all over the Earth’s crust, shale gas miners are more interested in the darker, gas bearing formations since it yields more natural gas (Speight 2013: 3-4).

Between 70% and 90% of natural gas consists of methane, whilst the rest is a combination of other gases, including helium, propane, butane, pentane, carbon dioxide, hydrogen sulfide and nitrogen. (Twine, Jackson, Potgieter, Anderson & Soobyah, 2012: 15; Mongillo, 2011: 74). Depending on the combination of the different gases mentioned above, natural gas can further be classified as either *dry*, *wet*, *lean*, *sour*, *sweet*, *residue* or *casing* (Speight, 2013: 1-2).

In summary, shale gas can be defined as a:

“...natural gas that is trapped within shale formations. Shales are fine-grained sedimentary rocks that can be rich sources of petroleum and natural gas. Over the past decade, the combination of horizontal drilling and hydraulic fracturing has allowed access to large volumes of shale gas that were previously uneconomical to produce” (US Energy Information Administration, 2012).

1.3 Shale gas in South Africa

This first discovery of shale gas in South Africa can be traced back to the period between 1965 and 1975 when a company called Soekor (Pty Ltd) explored the presence of oil and gas in the Karoo basin (Vermeulen, 2013: 251). Back then the geologists estimated that shale gas deposits in the Karoo region could be as much as 485 trillion cubic feet (tcf). However, due to various limitations shale gas extraction was not considered until 2008 when the first applicant, Bundu Oil and Gas, a subsidiary of Australia's Challenger Energy applied for exploration rights (Cropley, 2013). Although the application was unsuccessful, more companies applied to claim their share of the potential shale gas “pie” that is situated in the Karoo basin.

In 2013, the US Energy Information Administration (2013: 15) suggests that an area of 155 865 km² in the Karoo basin could hold about 390 trillion cubic feet (tcf) of shale gas. The report also ranked South Africa as the country with the eighth largest deposit of shale gas in the world after China (1 115 tcf), Argentina (802 tcf), Algeria (707 tcf), USA (665 tcf), Canada (573 tcf), Mexico (545 tcf) and Australia (437 tcf).¹

In another report by Econometrix (as commissioned by Shell), it is estimated that South Africa could hold some 40 tcf of shale gas resources (Twine *et al.*, 2012: 31) The report also indicated that shale gas deposits might be present in the Eastern Cape, Western Cape, Northern Cape, KwaZulu-Natal and the Free State.

Due to the increased interest in shale gas mining, the Petroleum Agency of South Africa (2013) started issuing Technical Cooperation Permits (TCP) to interested companies in 2009. These permits allowed

“...the applicant to do desktop stud[ies], acquire seismic data from other sources including the Agency, etc; but does not include any prospecting or exploration activities” (Petroleum Agency of South Africa, 2013).

¹ In their 2011 report, the US Energy Information Administration estimated that South Africa had about 485 tcf of shale gas deposits. This estimation was subsequently revised to 390 tcf in the June 2013 report after the size of the potential shale gas catchment area was reduced.

However, due to an uproar by concerned members of the public and concerned groups, the Minister of Mineral Resources at the time, Susan Shabangu, called for a moratorium to be imposed against the issuing of TCPs in 2011, which was lifted 18 months later (Shabangu, 2012).

During the suspension period a team of researchers was tasked to conduct a study on shale gas to determine the potential implications of shale gas mining on the country (Shabangu, 2012). The research team consisted of experts from the Petroleum Agency SA, Department of Mineral Resources, Council of Geoscience, Department of Water Affairs, Department of Environmental Affairs, Department of Science and Technology, Department of Energy, and five advisors from different universities.

The working group made three recommendations to the Department of Mineral Resources. The first recommendation was an “outright ban”, whilst the second recommendation was an “unconditional approval of hydraulic fracturing” under the existing regulatory framework (Department of Mineral Resources, 2012: 7). However, the task team suggested a third option being “conditional approval of hydraulic fracturing”. Under this option the team furthermore suggested many approaches including a strategic environmental assessment (SEA) to obtain more data on the presence of shale gas in the country (Department of Mineral Resources, 2012: 69). The SEA could shed more light on the presence of shale gas, the quality of this fossil fuel and whether it would be viable to mine the gas.

The next part of this chapter tracks the history of shale gas mining followed by the processes associated with the establishment of a shale gas extraction site.

1.4 Fracking in practice

1.4.1 Brief history of shale gas mining

The USA is regarded as the “pioneers” of fracking as the first attempts to extract shale gas can be traced back to the 1800s (Cikanek, 2014). However, the technology to successfully and more safely unlock shale gas was only introduced to the mines in 1949. Shale gas has been playing an important role in the development of America’s oil and natural gasses for almost 60 years (Energy From Shale, 2013). The US Energy Information Administration department reveals that the USA extracted about 5 336 billion cubic feet (bcf) of gas in 2010 and 7 994 bcf in 2011 (US Energy Information Administration, 2013).

1.4.2 The shale gas mining process

As described in 1.2, shale gas is an unconventional gas, consequently more sophisticated processes are used to extract the gas from this porous rock formation. The process is briefly described below.

Firstly, a well is drilled a few thousand meters vertically into the Earth's crust. The well is then stabilised with a steel pipe called a 'surface casing'. This casing is secured with cement that is pumped down the casing and subsequently forced to fill the space between the casing and the well from the bottom until the cement reaches the surface of the well again (Holloway & Rudd, 2013: 15-16). Once the casing is in place and the cement has dried, drilling continues until it reaches the shale formations, also called the 'pay zone'. Another casing is cemented into the surface casing in a similar procedure as explained above (*Ibid.*). Secondly, the well is extended horizontally through the shale formation and secured with another steel casing in cement.

A total of four casings are applied during the development of a shale gas well (Vermeulen, 2013: 252). Once all casings are in place, the casing that covers the horizontal part of the well is perforated with the aid of explosives (*Ibid.*). A mixture of water, sand and a wide range of chemicals are then forced through the perforated casings under high pressure into the shale formations in order to "free" the natural gas that is trapped (McElroy & Lu, 2013: 26). Natural gas then escapes from the fractured shale formations through the isolated casings to the surface of the Earth where the gas is then harvested.

The latter part is one of the controversial stages during the fracking process as some 10 000m³ to 16 000m³ of water might be needed during the life cycle of one well (Vermeulen, 2013: 253). The mixture of chemicals used is also a controversial topic of discussion. These two aspects will be discussed in more detail under the "risk" section of this chapter. One shale gas well takes about one month to complete (Vermeulen, 2013: 251).

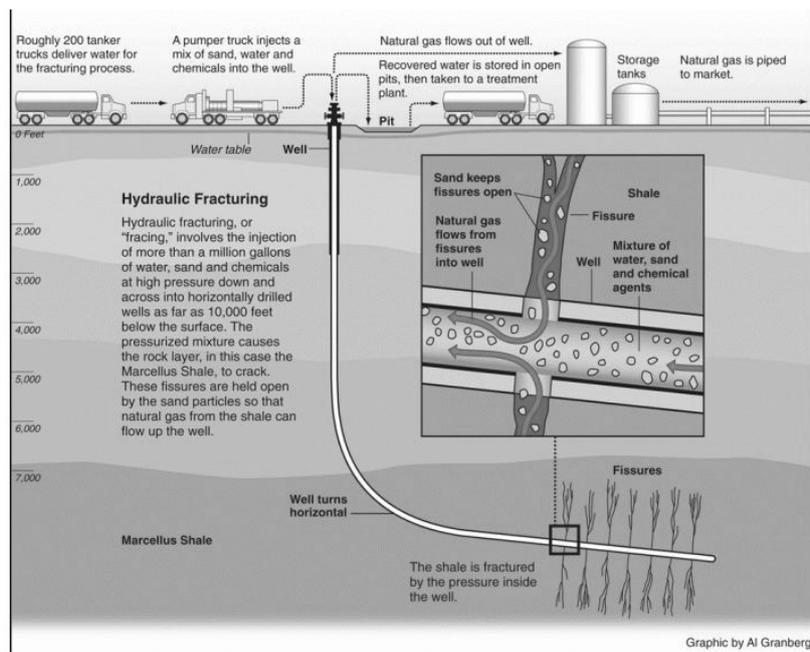


ILLUSTRATION 1: The shale gas extraction process.
[Source: <http://www.earthtimes.org>]

1.4.3 Potential benefits of fracking

An Econometrix report by Twine *et al.* (2012: 31) sketched two scenarios to indicate the potential benefits of shale gas on the South African economy. The first scenario is based on 20 tcf and the second on 50 tcf of recoverable shale gas.

Scenario one calculates that the total extraction of 20 tcf shale gas over a period of 25 years could equate to a financial turnover of R4.031 trillion. About half of the turnover (R2.006 trillion) could potentially contribute to the South African economy and a maximum of 355 817 jobs could be created over the 25 years (Twine *et al.*, 2012: 67).

Scenario two calculates that a total of 50 tcf of shale gas (also extracted over a period of 25 years) could yield a financial turnover of R9.520 trillion with more than half (R5.015 trillion) that could contribute to the country's economy. Additionally, a maximum of 854 757 jobs might be created during the 25 years². It is however important to note that the Econometrix report referred to above was commissioned by Shell and the independence of the results may be questioned. However, at the time of this thesis no other reports were in the public domain to verify or challenge the results given in the report above.

Another way to look at the benefits of shale gas is to calculate the contribution shale gas could add to the shortage of electricity South Africans are currently experiencing. According to the American Gas Association (n.d.) 5 tcf of natural gas is enough to meet the needs of 5 million households in America for 15 years. These needs include central heating, water heating and cooking. The list of the potential benefits of shale gas gets longer when one looks at the products that can be manufactured from the components of natural gas as mentioned in 1.2.1.

Although the benefit of shale gas mining sounds like a lucrative solution to the country's current energy and electricity challenges, fracking may also pose its own unique risks in the South African context. These risks are linked to the actual shale gas mining processes and the potential harm natural gas could cause to the ozone layer.

1.4.4 Risks associated with fracking

An important issue raised by Vermeulen (2013: 251) is that South Africa has a unique geology that causes its own unique challenges. Thus, the challenges and risks faced by other countries might not be the same in the South African conditions. Thus, the issues raised below are general and calculated risks.

As mentioned in 1.4.1 the two main risks linked to fracking are linked to 1) water and 2) the chemical fluids used to perform hydraulic fracturing. A third issue is the potential harm methane

² The values presented in both scenarios are based on 2010 values. A Rand/US Dollar exchange rate of R7.303/\$ was used.

gas could have on the environment when it escapes from the fracking wells. Another issue that deserves attention is reports of earthquakes that are linked to shale gas activities.

1.4.4.1 Water

The biggest risks associated with water in the fracking process is threefold. Firstly, observations conducted by Vermeulen (2013: 253) reveal that fracking sites in USA use between 10 000 m³ and 26 000 m³ of water for one fracking well only. The actual amount of water is dependent on the location of the fracking sites. Vermeulen (*Ibid.*) estimates that South Africa might need some 20 000 m³ (this equates to 20 million litres) of water per one fracking well in the Karoo.

Secondly, concerns linked to the amount of water required, relate to 1) where the water will be sourced from and 2) the impact the water transporting tankers might have on the roads and the infrastructure in the Karoo. Some 650 tanker loads of water might have to be transported to every well (Vermeulen, 2013: 254). The transportation of water could also have a detrimental effect on the roads around the Karoo. This concern is also echoed by the Treasure The Karoo Action Group (2014). This organisation is one of the biggest voices against fracking in South Africa, particularly in the Karoo region.

The third concern is the risk of polluting the natural groundwater during the mining process. This trepidation is linked to the chemical fluids that are used on the fracking sites.

1.4.4.2 Chemical fluids

In their book, *Fracking: The operations and environmental consequences of hydraulic fracturing*, Holloway and Rudd (2013: 51-52) list some 50 chemicals that are linked to shale gas mining. These chemicals form part of different fluids that play unique roles in ensuring that gas is successfully extracted from the shale formations. The book highlights that although many of the chemicals are used in many household products, the composition of the fluids could have a detrimental effect on the health of people if they are exposed to certain fluids.

1.4.4.3 Methane gas

Another concern is the potential harm methane gas has on nature. According to the *Treasure The Karoo Action Group* (2011) fracking could contribute negatively to global warming as some methane gas might escape during the extraction process. Louise Gray from the *UK Telegraph* reported that scientists rated “methane [gas] as the second most damaging greenhouse gas produced” (Gray, 2009). The journalist presented research findings by the NASA Goddard Institute of Space Studies that one ton of methane gas could be 33 times more harmful to the atmosphere than one ton of carbon dioxide. What makes the risks higher is the fact that methane gas interacts

with other airborne elements and subsequently becomes more dangerous to the environment as well (*Ibid.*).

1.4.4.4 Earthquakes

One of the most recent concerns is research that links shale gas mining activities with earthquakes. The US Geological survey (USGS, n.d.) found that earthquakes can be linked to two different shale gas mining activities. Although the organisation determined that earthquakes can be induced through the actual fracturing of shale gas formations, “they are almost always too small to be a safety concern”. However, the second “real” concern of earthquakes is linked to the treatment of water and chemical fluids that are disposed of after frackturing. The researchers argue that when “wastewaters” are injected into wells as a process of disposing of the fluid, this action can cause more severe forms of earthquakes.

1.4.5 Additional potential risks

The editor of *Times Media*, Ray Hartley (2013), added two more concerns to the potential risks listed above. He argued that many mines and eventually mine workers might be negatively affected if shale gas is extracted and marketed. If shale gas is regarded as “cleaner source of energy” coalmines might be replaced. Secondly, he is concerned about the potential “high-tech” foreign workers that might migrate to South Africa.

To summarise the potential benefits and risks linked to shale gas mining, journalist Ivo Vegter, who has been tracking the global fracking debate, argues that the “risks of shale gas [mining] are no worse than the risks associated with any industrial activity...The challenge for regulators is to minimise the risks and protect the rights of citizens”. However, Vegter (2012) does warn against the opportunity for potential corruption in the fracking industry and argues that “[t]his ought to be a far bigger concern than any exaggerated environmental fears.”

The chapter now shifts to the media element in the fracking debate.

1.5 The media and fracking

The prevalence of media reports dealing with fracking could serve as proof that the omnipresence of the media and the media’s role to decipher fracking to the wider community cannot be underestimated (Fourie, 2007: xxi). In the same breath, Nel (2005: 55 – 56) warns against the power of the media and argues that the media can influence the topics people talk and think about.

The media in South Africa have been reporting on fracking in South Africa since Shell revealed in the beginning of 2011 its intention to frack in South Africa (Gerardy, 2011.). As the fracking

debate unfolded more online media reports were published and are still being published. One of the major events in the fracking debate that enjoyed online media coverage was the moratorium that was imposed on the issuing of TCPs. On 7 September 2012 the moratorium on fracking was lifted in terms of the issuing of TCPs. On that day an article generated by the international news agency Reuters was published on three online news outlets namely www.news24.com, www.sowetanlive.co.za and www.timeslive.co.za. Collectively, the three media reports received 226 comments with diverse responses to government's green light for fracking.

1.6 Problem statement

The media have played a key role in deciphering fracking to the wider South African population. Readers of five online news outlets namely 1) Independent Online, 2) *Mail & Guardian*, 3) News24 4) *Sowetan Live* and 5) *Times Live* voiced their concerns and support to the fracking debate through the posting of comments based on the articles. In order to further stimulate debate on this topic and to debunk myths surrounding fracking, online news outlets and other parties involved should address the concerns raised in the comments.

1.7 Research questions

1. What role do the media play in shale gas mining?
2. Based on the comments that were posted on selected news sites in response to the lifting of the moratorium on shale gas mining:
 - 2.1 What are the perceived benefits that shale gas mining could hold for South Africa?
 - 2.2 What are the concerns raised by online news consumers?
3. Based on the results what are the opportunities from a public relations perspective to address the concerns raised in the comments?

1.8 Outline of chapters

The subsequent chapters have been broken up as follow:

Chapter two contains a literature study. The two main paradigms in which the media are researched will be discussed. This will be followed by a discussion on two mass media theories relevant to this study namely, the Normative theory and Gratification theory.

Chapter three focuses on the research design and methods that will be used to analyse the three online media reports. The functions and uses of content analysis will be highlighted, followed by

qualitative and quantitative content analysis. The chapter concludes with a discussion on factors that influence the reliability and validity of research methods and its findings.

Chapter four presents the analysis and results of this thesis. The results of the qualitative content analysis and the quantitative analysis are discussed.

Chapter five summarises the thesis. The shortcomings of this study as well as recommendations for further studies in the field will be made.

1.9 CONCLUSION

This chapter outlined the objectives of this thesis and presented three research questions. A common understanding relating to shale gas (fossil fuels and natural gas) was presented, followed by the processes involved to extracting gas from shale formations. Lastly, the media's "involvement" with this fracking process was described.

CHAPTER 2

LITERATURE REVIEW

1. Introduction

This chapter concentrates on the theoretical premise of this thesis. The first part of the chapter highlights the importance of research and presents factors that let to investigations into the media and its perceived role in society. The second part focuses on the two research traditions that guide research in any social scientific research. The last part presents three mass media theories, i.e. the normative theory, uses and gratification theory, and Habermas' public sphere. Collectively, these three theories attempt to describe the perceived relationship between the public and the media, and shale gas mining in the middle.

2. Background to research

Formal research in the media has commenced in the twentieth century and has been shaped, guided and sponsored by different forces (O'Sullivan, Dutton & Rayner, 1998:321). These "forces" and factors that inspired media research included:

1. Changes in contemporary political systems;
2. The cross-fertilisation or conflict of different cultures;
3. The development of social institutions and organisations; and
4. The development of new information technologies (Carlsson, 2007:223).

In an attempt to rationalise how and why certain phenomena played off in the media, researchers borrowed concepts and theories from other domains, including psychology, sociology, linguistics and information sciences (Du Plooy, 2009: 15). The borrowing of theoretical concepts brought about unique mass communication theories in an effort to explain, interpret, predict and to reform the media's internal as well as external relationships (Fourie, 2007: 112).

Bezuidenhout (2014: 37) describes mass media theories as "binoculars" that bring a phenomenon closer to us to gain a deeper understanding of how and why news events play off in the media. Mass media theories also make it easier to describe concepts, constructs and relationships between specific processes, or phenomena that take place in the media and present a statement of how and why specific concepts are related (*Ibid.*).

With the emergence of various mass communication theories, scholars applied different approaches to categorise these theories. For example, McQuail (2010: 13-14) makes a distinction between, normative, operational, social scientific, cultural and everyday theories.

Normative theories describe how the media are supposed to operate in order to attain certain social values. Furthermore, normative theories also describe the relationship between (and expectations of) the media and its audience and the expectations of the latter on the former (McQuail, 2010: 12).

Operational theories serve as guidelines to the media on an operational level. In essence, it guides media outlets on how media elements such as news and advertisements should be selected and designed to please its audience (McQuail, 2010: 12).

Social scientific theory presents a theoretical explanation of the nature, working and effects of mass communication. These theories can be validated or rejected based on findings acquired through systematic and objective observations (McQuail, 2010: 13).

Cultural theory can be regarded as evaluative since the core aims of cultural theories are to differentiate between cultural artifacts according to some criteria of quality. Also, cultural theories challenge certain cultural relics as portrayed in the media. It can be said that this group of theories observe the media in terms of how culture is presented to the media audience (McQuail, 2010: 11-12).

Everyday theories as directly quoted from McQuail (2010: 14) refer to the “knowledge of the media we all have from our personal experience with the media”. This allows us to make sense of the media and to understand how the media should be interpreted to make sense of the world.

It is important to note that all mass communication theories are founded in either the positivist or critical social scientific research traditions (Du Plooy, 2009: 16; O’Sullivan *et al.*, 1998: 322). The two research traditions will be discussed in more detail below.

3. Media research traditions

As different mass communication scholars use different terms to describe the two main social scientific research traditions, the concepts “paradigm” and “tradition” are used as synonyms and are applied interchangeably in the discussion that follows next.

The positivist and critical research traditions will be discussed in terms of their 1) epistemological; 2) ontological; 3) meta-theoretical; 4) methodological and 5) axiological constructs. Before the discussion commences, meaning of the five concepts will be outlined below.

Epistemology originated from two Greek words namely *episteme* which means ‘knowledge’ and *logos* or *logia*, meaning the study or science or theory of something (Du Plooy-Cillers, 2014: 23). Scholars like Babbie, Mouton, Vorster and Prozesky (2001: 8), translate epistemology to

“truthful knowledge” and argue that the **epistemological position** of research refers to getting as close as possible to the truth.

With its roots in the Greek language, the ontological makeup of a research paradigm refers to the nature of reality (Du Plooy-Cilliers, 2014: 23). Baldwin (2004: 23) defines the concepts as “assumptions that are made about the nature of reality as we perceive it”. Thus, the **ontological position** refers to the way reality is perceived and measured in an attempt to answer questions such as: “What is reality?” and “How do we know what is real?”

As meta means ‘theory’ in Greek, the **metatheoretical position** can be interpreted as ‘theory about theory’. This position is described as “the theoretical lens that provide direction to the research in a particular field of study” (Du Plooy-Cilliers, 2014: 24). In other words, this component of a research tradition is focused on the underlying assumptions and implications of theories and how these theories contribute to describing, explaining and understanding certain media phenomena (Welman, Kruger & Mitchell, 2005: 21).

The **methodological position** can be seen as the “blueprint” of how research should be conducted from a particular research paradigm in order for the research findings to be regarded as valid (Babbie *et al.*, 2001: 49). This underlying theoretical position guides the researcher in terms of appropriate methods to collecting and analysing data (Du Plooy-Cilliers, 2014: 24). As the two research traditions will be discussed below, it will become clear that one relies on quantitative data and the other on qualitative data to make sense of the world.

Lastly, the **axiological position** of a research tradition refers to the study of value and value judgements (Du Plooy-Cilliers, 2014: 24). This is derived from the concept *axios*, which means “worthy” and *logos*. In essence, axiology is concerned with the role of values in research and whether values should be considered or left aside in order to reach valid conclusions from research. The two research traditions will be discussed next with particular emphasis on their different positions and approaches to research.

3.1 Positivist tradition

The positivist tradition is also called the dominant paradigm or quantitative research approach (Du Plooy, 2009: 22). As this research tradition is unfolded below it will become clear that the label “quantitative research” is linked to this research tradition’s distinct research methods.

The origins of the positivist tradition can be traced back to the 17th century in Europe during the time of the French Revolution when industrialisation and urbanisation were high on the agenda (Du Plooy, 1996: 3). Social scientists came to the realisation that society is somewhat disrupted through all the changes and that investigations need to be done to restore harmony and stability (*Ibid.*). As social scientists explored ways to investigate society on how to instill order and

stability, they turned to the natural sciences for inspiration (Fourie, 2007: 17). They were subsequently intrigued by the quantification of certain phenomena through objective observations and decided to adopt the approach for their own investigations (McMillan & Schumacher, 2006: 23).

From an epistemological position, positivist researchers believe that a distinction can be made between scientific knowledge and non-scientific knowledge (Du Plooy-Cilliers, 2014: 23). This research tradition only focuses on scientific knowledge that is gained through observations made by our senses that were captured through appropriate scientific methods (Fourie, 2007: 117). This clear-cut epistemological position leads to three main ontological assumptions about the dominant tradition as observed by Du Plooy-Cilliers (2014: 25). The first view is that an external reality exists and can be measured through different ways. However, this research tradition does not consider the unobservable internal reality of individuals that are linked to decisions or action based on their social, psychological, historical and cultural background or experiences. Secondly, positivists believe that there is a single, objective and stable social and physical external reality that is governed by various laws (Du Plooy-Cilliers, 2014: 25). Thirdly, it is accepted that a given cause would have the same effect on all people, because they form part of one reality.

From a **metatheoretical position**, positivist researchers developed generalisations about the causal relationships between two objects or variables (Du Plooy-Cilliers, 2014: 26). In essence, this means that scientists make certain predictions or develop hypotheses about the perceived impact (causal effect) of one variable on another if certain scientific conditions are adhered to. Hypothesis development is usually the culmination of a rigorous literature review and emerges as a natural step in the research process (Du Plooy, 2009: 77). Furthermore, any hypothesis should possess the following four essential characteristics:

- It should be compatible with current knowledge;
- It should be logically consistent;
- It should be in its most parsimonious form; and
- It should be statistically testable (Wimmer & Dominick, 1991:222)

Another underlying metatheoretical principle is that all phenomena should be treated the same way (Fourie, 2007: 117). This means that, regardless of the phenomena under investigation, a set of rules, as prescribed by the research paradigm, needs to be adhered to when conducting quantitative research.

The **methodological position** of this paradigm extends to the quantification of data and data analysis (Du Plooy-Cilliers, 2014: 27). This means that all research projects that are following the dominant research tradition should only deliver quantifiable data and produce results that can be

scientifically computed (Babbie *et al.*, 2001: 49). Once quantitative research has been conducted, researchers apply deductive reasoning to reach conclusions. Du Plooy (2009:86) presents the following example to demonstrate how deductive reasoning is applied:

Men are mortal --- The president is a man --- Therefore, the president is mortal.

The underlying axiological aim of positivist research is to investigate an objective reality (Du Plooy-Cilliers, 2014: 27). To be an objective, positivist researcher, the investigation needs to be described accurately step by step (*Ibid.*). Consequently, if another researcher replicates the same study by following the documented steps, he/she should reach the same conclusions as recorded by the initial researcher (Du Plooy-Cilliers, 2014: 27). Additionally, the two main axiological principles of positivist research are the demonstration of 1) reliability and 2) validity of research findings (Du Plooy, 2009:131,135). Reliability refers to the consistency of a research instrument. This means that the correct research instrument should be used to give the same results at different times. Validity, in this context means that researchers should produce results that can prove or disprove the hypothesis or answer the research questions that were asked in the beginning of the research.

Although the positivist research paradigm has been acknowledged as a valid foundation for conducting research, it has a few limitations. A few of the main limitations will be discussed next.

3.1.1 Limitations of the positivist research tradition

Babbie *et al.* (1998: 41-42) argues that social phenomena are fundamentally different from natural phenomena and that social theories will never have the same form or logical structure as natural scientific theories.

Secondly, Keyton (2011:53) argues that positivist research in general does not lend itself to capturing the complexity or depth of communication. She adds that since researchers only focus on a limited number of variables at a time, it becomes challenging to examine the phenomenon in its entirety.

Thirdly, Fourie's (2007:123) criticism relates to the fact that human action is not just an observable response to stimuli and that the construction of meaning and values differs from individual to individual and group to group. The result is that that it becomes "impossible" to reach general conclusions only on the basis of observable facts. He further argues that internal factors should also be considered to get a holistic picture of the phenomenon under investigation.

3.2 Critical tradition

The critical research tradition is also called the alternative paradigm and many scholars refer to this research tradition as the qualitative research approach (Fourie, 2007: 30).

The critical tradition has a relatively shorter history than that of the dominant tradition. The roots of this tradition can be traced back to Germany to the period between World War I and II (Du Plooy 2009: 31). In the early 1920s a group of German scholars came together and established the Frankfurt School which was also known as the *Institute für Socialforschung* (Fourie, 2007: 127). The school focused on researching contradictions in existing social scientific theories.

In 1933 the school was closed down by the Nazis, which led to the emigration of many of the social scientists to the Columbia University in the United States where they continued working on the construction of the critical paradigm (Fourie, 2007: 127). The five main constructionists of the critical tradition are Max Horkheimer, Theodor Adorno, Herbert Marcuse, Eric Fromm and Walter Benjamin (Du Plooy 2009: 31). The Frankfurt School was again reopened in the 1950s and research has continued with a focus on modern societies and the impact of media on contemporary culture and ideology (Fourie, 2007: 127).

Critical theorists claim that all human societies are structured around certain power relationships and that these relationships dominate the production of all forms of knowledge, including our moral and normative knowledge (Higgs & Smith, 2006: 67). Another view is that there is no single reality, but that reality is formed by social conditioning (Du Plooy-Cilliers, 2014: 31). Thus, the ultimate aim of research from a critical paradigm is to obtain valid information in order to expose and critique unjust societal practices and consequently contribute to transforming societies. (*Ibid*).

From an epistemological position, knowledge is linked to historical and social context and experiences (Du Plooy-Cilliers, 2014: 31). From this perspective, knowledge is not permanent and should also not be generalised within a particular context. A second premise is that knowledge should be questioned and scrutinised and not merely taken by face value (Du Plooy-Cilliers, 2014: 31). Thirdly, it is argued that one would never be able to get complete knowledge of the outside world and that the observable external information is different from internal perceptions or views held by people (*Ibid*).

The ontological position (the nature of reality) of critical realists is that social reality has multiple layers and that one person's reality through observations and experiences may not be the same as the next person's view of reality (Du Plooy-Cilliers, 2014: 32). Social researchers including Du Plooy-Cilliers (2014: 32) argue that only certain aspects of our reality are seen as real and that "reality" is independent from human interpretation. Fourie (2007: 133) also adds that in terms of the mass communication research, critical theorists see the mass media as symbolic forms

of expression.

Theories that were constructed on the fundamentals of the critical tradition (the metatheoretical position) should ideally be 1) practical and include a 2) plan of action in order for people to understand and question what is happening around them. (Du Plooy-Cilliers, 2014: 33).

From a methodological position qualitative research is strongly associated with induction and exploration in research, rather than deductive testing of preconceived theories (David & Sutton, 2004:77). Inductive reasoning is ideally applied when formulating findings, by moving from specifics (data, responses or observations) to establishing patterns, which are compared or contrasted. Du Plooy (2009:88) explains that one would start with observations (or measurements), and end with descriptions of what was observed (or measured), or continue to formulate a theory that explains what was observed or measured.

Qualitative data is nonnumerical and can range from words, phrases, sentences or ideas that were obtained through unstructured to semistructured approaches (Hesse-Biber & Leavy 2004:3). Qualitative research designs can also be classified as interactive or non-interactive. Interactive qualitative methods use face-to-face techniques to collect data from people in their natural settings (McMillan & Schumacher, 2006:26). Examples of interactive qualitative methods include ethnographical studies, phenomenological studies, case studies, grounded theory and critical studies. Noninteractive design or analytical research includes concept analysis and historical analysis. According to Keyton (2011:65) it is difficult to apply a level of reliability and validity to qualitative research. Keyton argues:

“Rather than ask whether the data and interpretation are reliable and valid, qualitative researchers focus on the issue of credibility, or the extent to which interpretations can be validated as true, correct, and dependable.”

The **Axiological position** (value of research) allows for a degree of subjectivity and supports the notion that there is a level of subjectivity in any type of research (Du Plooy-Cilliers, 2014: 33-34).

3.2.1 Limitations of the qualitative research tradition

As with the positivist tradition, the critical tradition also faces criticisms from various levels. Keyton (2011: 69) highlights three main limitations of this approach. Firstly, she argues that people who are being observed (research participants) can consciously or sometimes unconsciously change their behaviour when they are being observed. Thus, research participants may do or say something more or even something different when the researcher is not present. Secondly, Keyton (2011: 69) argues that the observations made by a researcher are interpreted through the researcher’s frame of mind. Thus, the researcher would try to make sense of an observation through his/her own

experiences, historical, social and psychological frames. Then thirdly, Keyton (*Ibid.*) argues that not all social phenomena would be accessible to critical researchers. Parents who are talking with their children about sex might be more willing to take part in quantitative methods to reveal more information about their approaches

Other scholars including Wimmer & Dominick, (1991: 45-46) argue that sample sizes are generally too small to generalise the data beyond the sample selected. They support the idea that the information collected from qualitative methods is often used to prepare a more elaborate quantitative analysis.

3.3 Quantitative vs qualitative research traditions

Tayie (2005: 86) summarises the main premise of the two main research traditions. He observes that quantitative researchers obtain data from an objective point of view. As reality is external and can be observed with our senses, a second or third scientist would most likely get exactly the same results as the initial researcher. Subsequently, “reality” can also be divided into different components and each component can be investigated separately. In contrast, Tayie (*Ibid.*) concludes that qualitative research is not objective. A unique reality is created as part of the research process and is based on the topic being investigated and the research participants. To qualitative researchers, reality is regarded as a holistic concept and cannot be divided into different parts.

McQuail (2010: 68) makes a few alternative observations about the two different research paradigms. Firstly, he points out that one research tradition is not the mirror image of the other paradigm. Instead, he sees the two paradigms as alternative “avenues” of enquiry that follows different research agendas and methods, with consequently two different types of “answers”. McQuail (*Ibid.*) further supports the idea that one tradition could be applied to complement the other tradition to gain a deeper understanding of a phenomenon.

Lastly, Keyton, (2011: 8) observes an essential similarity between the two research traditions. The scholar detects that both paradigms rely on empirical data to prove/disprove mass communication theories or to develop new concepts. In the case of mass communication theories, empirical data refers to factual evidence (or data) that can be observed by our senses, and analysed and interpreted through methods unique to the two paradigms (Fourie, 2007: 117).

4. Mass communication theories

Three mass communication theories will be presented next that will form the foundation of this thesis. Firstly, the normative theory will be presented in an attempt to describe **why the media reported on shale gas mining** and continue to do so. Secondly, the uses and gratification theory

aims to explain **why people read online news**. Thirdly, Habermas's theory on the public sphere will be presented in an attempt to present an understanding of **why online readers of the articles commented** on the article.

4.1 Normative theory

Normative theory has its roots in the positivist paradigm and attempts to describe the role the media play, or ought to play, in society (Fourie, 2008: 179; McQuail, 2010: 14).

Christians, Glasser, McQuail, Nordenstreng and White (2009: 21-25) trace the fundamentals of normative theory to four separate theories. The four theories (or traditions), namely the corporatist tradition, libertarian tradition, social responsibility tradition and the citizen participation tradition were upheld over four different eras in an attempt to justify the work of the media.

From a corporatist theoretical perspective, many expectations rest on the shoulders of the media. Firstly, it is expected of the media to report on matters that could potentially impact social institutions such as religion, education and the family (Christians *et al.*, 2009: 22). Secondly, the media should play a cooperative role in promoting the contributions of the different social structures by taking a less critical role when reporting on issues linked to economic enterprises, religion and education (*Ibid.*). On the other hand, the corporatist tradition acknowledges the fact that the media are linked and aligned to certain social, political and cultural elites that have an impact on the coverage of news events and the angles taken to present the news to the public (*Ibid.*).

The libertarian tradition promotes the principle of freedom of expression of the media. The tradition supports the idea that people could own and use the media for whatever purpose as long as it remains within the framework of the law. The media are also seen as an instrument of freedom and a tool to uncovering the truth (Christians *et al.*, 2009: 23).

The social responsibility tradition has two main premises. Firstly, this tradition regards the media as free from severe restrictions such as laws and regulations that prevent content to be published or broadcast. Secondly, the *social responsibility* part refers to the media's obligation towards their listeners, readers and viewers to deliver an "adequate" service by reporting on important news events that people should know about (Christians *et al.*, 2009: 24).

The citizen participation tradition is the latest contributor to the normative theory and sees the media as belonging "to the people, with an emancipatory, expressive and critical purpose" (Christians *et al.*, 2009: 25). This tradition opposes centralised authority over the media and thus emphasises the importance of local small-scale media initiatives as a tool for local communities to make their voices heard (*Ibid.*).

From a normative perspective McQuail (in Nel, 2005: 5-6) presents seven main assumptions, or indirect duties, about the media.

- Firstly, the media have the potential to influence, control and stimulate progress and change in society, thus the media can be seen as “a power resource”.
- Secondly, the media are seen as the proverbial stage or arena where important events play off in front of the readers, listeners and viewers.
- Thirdly, the media are seen as an important societal structure that deciphers new concepts and technologies to the public.
- Since the media report on heroes and victories on the one side, but also on scandals and wrongdoings on the other side, the media act as a platform to fame and disgrace people from walks of life.
- The media also serve as a yardstick for deciding what is normal and what may not be “socially acceptable”.
- The media serve as an entertainer and play a role in what we do in our free time.
- Lastly, it is assumed that the media play a key role in politics by playing a key role in sustaining democracy in a country.

From a normative perspective, the media play (or should play) an important role in telling the public about shale gas mining in South Africa. From this perspective, it is the media’s duty to keep society up-to-date about the latest changes at the shale gas front and the practice’s potential impact on the county. The next theory, i.e. uses and gratification theory, aims to theorise why people read online news articles about shale gas mining.

4.2 Uses and gratification theory

The uses and gratification theory attempts to explain people’s motives behind the reading of books, magazines or newspapers; listening to radio and viewing television; and accessing the internet (Carrier, 2004: 197-198; McQuail, 2010: 423). The theory also sheds light on why people prefer different mass media products.

Perry (2004: 217-218) explains that humans have social and psychological “needs and wants” and turn to the media and different media products to fulfill those various levels of needs and wants. The media scholar further argues that media consumers have grown accustomed to certain media products as it remedied needs and wants of the past. Thus, people are likely to “consult” with a particular media product to fulfill the needs and wants from time to time.

Furthermore, Dainton and Zelle (2011: 166) present four main needs that the media perceivably fulfill. These needs are linked to: 1) entertainment; 2) information; 3) personal identity and 4) personal relationships and social interaction. People listen to music, watch a movie or access online content because of its entertainment value. Similarly, people could actively look for

information on a particular topic to makes sense of a phenomenon (information-seeking need). Media consumers also attend to the media to reaffirm their personal identity or to find out about the current trends that will make them more socially acceptable. Lastly, people turn to media products, as a group or family, to encourage groups or family discussions and subsequently build relationships and social interaction. It becomes clear from the discussion above that people have a choice of what they want to hear, read or view and when they want to do it (Dainton and Zelle, 2011: 166).

Glascok (2004: 279-280) brings in another dimension to the theory and argues that the action of consuming media products does not necessarily always fulfill a particular need, but could also become a habit. In other words, people do not always buy a newspaper to fulfill a current or particular need, but they may buy and read the newspaper, because it is a habit that was initially developed through previous wants and needs that were fulfilled by the newspaper (or any other media products).

Nellis (2004: 253) writes about a direct link between the uses and gratification theory and computer mediated communication (CMC)³. The scholar's main argument is that CMCs have opened new ways of fulfilling peoples' needs for entertainment, information, personal identity and personal relationships and social interaction. Consequently, this theory links with Habermas' theory of the public sphere. (This theory will be discussed in the next section).

Although Fourie (2007: 237) acknowledges the merits of the uses and gratification theory, he highlights an "objection" against the theory. Firstly, he argues that the theory does not have a theoretical basis. He further argues that the concept follows an a-theoretical approach because it does not "really explain the complex cognitive processes involved in the experience and interpretation of media content (Fourie, 2007: 237).

McQuail (2010: 425) argues that the theory cannot be applied to explain all incidents of media engagements. He is of the opinion that the uses and gratification model is more relevant to certain media products or news events where motivation on certain topics is enhanced by external factors. An example is governmental elections. People do not always read stories of a political nature, but their interest in political news might be enhanced and motivated by family, friends or colleagues in order to share ideas and to maintain communication (*Ibid.*).

4.3 Public sphere

The last theory, as inspired by the critical paradigm, attempts to answer the following question:

³ CMC refers to the application of new communication technologies such as email, instant messaging and even the placing of comments on forums to communicate with other people (Nellis, 2004: 246).

“Why do people leave comments on online news sites?” Habermas’ observations of the public sphere may shed light on this phenomenon.

Jürgen Habermas, a well-known promoter of the critical paradigm, traced the interaction of societies who lived in the 1600s and 1700s and discovered that there were two distinct “publics” at the time (Duvenage, 2007: 328-329). He came to the realisation that there was something called a “private sphere” and a “public sphere”. The private sphere constituted members of the monarch (or the state). The public sphere, on the other hand, referred to the poor working class (the rest of society).

Habermas theorised that the people of the time got together in various settings such as coffee houses and salons in Europe (and most likely campfires and communal tribal areas in the Africans context) to talk about important issues and matters in their societies. These places were called public spheres, as anyone was welcome to join the conversation and raise their opinion on a particular issue (Duvenage, 2007: 330-331). Debates and discussions in public spheres were characterised by the quality of the arguments and not necessarily the position or qualifications of the participants.

Habermas then observed that the introduction of newspapers, films and later on radio and television had a dire impact on the public sphere. Instead of people meeting up with other members of the community to discuss the issues of the day, people turned to the mass media to get the latest news. Discussions on certain topics were also not evaluated on the strength of the argument, but were substituted by specialists and educated members of the public (Fourie, 2007: 139-140). This led to a decline of the public sphere. Fourie (2007: 139) argues that quality and value of information distributed by news outlets becomes questionable as media outlets become more commercialised and subsequently money driven.

However, the concept or idea of public spheres gained new interest as digital and social media have been introduced to society. Members of the public can now join groups on social media and form their own public spheres where they can discuss burning issues. Online news outlets have also contributed to the stimulation of discussion on issues and events by allowing readers to post their opinions and comments underneath the article.

Habermas’ public sphere has not been met without any criticism. Fourie (2007: 143-144) lists four criticisms of the public sphere from the positivist traditions. Firstly, he argues that the theory does not acknowledge the libertarian, informative and educational role the media play in society and how it contributes to the development of the democracy in the country. Secondly, Fourie (*Ibid.*) argues that the theory’s assumption about people with power and those without power is too rigid. He also argues that the Habermas’ theory does not acknowledge media users’ ability to be critical and judgmental over issues reported in the media. Lastly, Fourie argues that the public sphere does

not acknowledge the entertainment values of the media.

5. Conclusion

This chapter set the theoretical premise for this thesis. The importance of research in the mass media was highlighted, followed by a discussion on the two main research traditions or paradigms. The normative theory, uses and gratification theory and the theoretical foundation of the public sphere were presented and will serve as the building block in an attempt to analyse the comments made by online news consumers.

The following chapter focuses on the research approach and methodology that will be applied in this research study.

CHAPTER 3

RESEARCH METHODOLOGY AND DESIGN

1. Introduction

This chapter outlines the fundamentals of the research methodology and design that was followed during this research to ensure reliable and valid empirical data to answer the predetermined research questions.

The first part of the chapter defines the research problem and the four research questions. The research methodology is then described with particular focus on the issues such as the purpose of the study, the research approach and research method, i.e. content analysis. Factors that influence the reliability and validity of content analysis are also discussed in relation to the research method. The last part contains an eight-step content analysis approach with clear descriptions of how the online articles were identified, the units of analysis were chosen, and how the analysis was performed.

2. Problem statement and research questions

2.1 Problem statement

One of the biggest events on the South African shale gas mining front was the lifting of the moratorium on the issuing of technical cooperation permits to potential shale gas miners. This action prompted online news consumers to respond to this through the posting of online comments to web articles that broke the news. An assessment of the public's perception about shale gas mining would aid the media and organisations involved with hydraulic fracturing to address these perceptions in order to 1) to create a common understanding of the real benefits and to 2) facilitate the perceived and potential threats that are linked shale gas mining.

2.2 Research questions

This thesis aims to answer the following five research questions:

1. What role do the media play in shale gas mining?
2. Based on the comments that were posted on specific selected media websites in response the lifting of the moratorium on shale gas mining:
 - 2.1 What are the perceived benefits that shale gas mining could hold for South Africa?
 - 2.2 What are the concerns raised by online news consumers?

3. Based on the results what are the opportunities from a public relations perspective to address the concerns raised in the comments?

The first question relate to the theoretical assumptions made about the media. The answer to these to questions will be based on the theories that were presented in Chapter two of this thesis. Research questions three and four will be answered through a systematic analysis of comments that were placed by online news consumers.

3. Research methodology

The research questions as highlighted in the previous section prompted two main research methodological considerations. Firstly, the questions evoke clues to the purpose of the study and secondly they provoke the type of research instruments that should be used to obtain data for the research questions.

3.1 Purpose of the study

Du Plooy-Cilliers (2014: 286 – 287) argues that the purpose of any study should be clearly stated, as a research project may be deemed “meaningless” if it is not linked to a particular purpose. Babbie *et al.* (1998: 79-84) elaborate that a research study could serve one or multiple purposes, i.e. to *explore*, to *describe* and/or to *explain*.

Firstly, research may be directed to *explore* a particular phenomenon. Davis (2014: 75) highlights that exploratory research projects usually explore a relatively unknown field or phenomenon that will prompt questions for further investigations. Babbie *et al.* (1998: 80) further explain that researchers conduct exploratory studies to: 1) satisfy the researcher’s curiosity and desire to improve his/her own understanding of a particular topic; 2) test the feasibility of more extensive studies in the same field; 3) explore the most appropriate methods to successfully conduct follow-up studies; 4) clarify the central concepts and constructs of a study; 5) determine priorities for further research; and 6) develop new hypotheses about an existing phenomenon.

Research can also serve to *describe* the characteristics of a particular phenomenon and could also be aimed at establishing relationships between variables or relationships between different phenomena (Davis, 2014: 75-76). Scholars like Babbie *et al.* (1998: 81) argue that descriptive studies are valuable in the sense that it may contribute to establish certain phenomenological classifications, draw up narrative descriptions and record case studies.

Explanatory studies aim to explain why certain things happen and, depending on the phenomenon, how the frequency of occurrences can be eliminated, minimised or enhanced (Davis, 2014: 77). Babbie *et al.* (1998: 81) argue that the major aim of explanatory studies is to indicate

causality between variables and events and to obtain information to “predict” the occurrences of similar phenomena.

This research inquiry aims to achieve two goals. Firstly, it aims to explore the relatively unknown domain of shale gas mining in South Africa. Secondly, the study aims to establish and describe the perceived benefits and concerns the online news consumer may have about such a controversial technological and scientific development in the South African context. Thus, this research can be classified as both an exploratory and descriptive study.

3.2 Mixed-method research

It is evident from the research questions that both qualitative and quantitative research methods should be applied to sufficiently address the research questions at hand. Thus, a mixed-method approach will be conducted where qualitative research will be conducted first, followed by quantitative methods.

The use of mixed-methods during a particular research inquest is not unique and many academics have documented the advantages of this approach. Scholars including Alexander, Thomas, Cronin, Field and Moran-Ellis (2008: 128-129), and Greene, Caracelli and Graham (1989, 255-274) highlight five main purposes of the use of mixed-methods in social research. These are to 1) triangulate; 2) complement; 3) develop; 4) initiate and 5) expand.

Triangulation refers to a scientific examination of a phenomenon by using two or more research methods, and/or more than two data sources (Alexander *et al.*, 2008: 128). Greene *et al.* (1989: 256) suggest that triangulation could reduce the potential of biased results if only one method is used, and can potentially strengthen the validity of the research results.

Mixed-methods can *complement* each other and help to uncover the possible existence of different dimensions of a phenomenon (Alexander *et al.*, 2008: 128). For examples, an initial quantitative investigation could be conducted and based on the findings, a qualitative research method can be applied. The latter investigation could shed light on how to interpret the initial data and to uncover different “realities” of the population.

Another advantage of mixed-methods is that one approach sometimes aids with the *development* of more accurate research instruments (Alexander *et al.*, 2008: 128-129). The results from an initial qualitative enquiry could aid with the development of appropriate quantitative research tools (Greene *et al.*, 1989: 260).

When the results of one part of a study prompt an unintended second exploratory part of the study it is said that the first part *initiated* a subsequent part (Alexander *et al.*, 2008: 129). An example is when the results from the initial study appear to be full of contradictions. The results

from the first part then prompt the necessity for a second part to understand the contradictory results (*Ibid.*).

Lastly, *expansion* refers to use of different methods and different datasets to get closer to the “truth”. Greene *et al.* (1989: 260) also refer to this approach as a “multitask” study which is usually conducted when big sets of data from different origins and perspectives need to be interpreted.

From the different purposes of mixed-methods discussed above it becomes clear that this research project intends to *triangulate* the research data in order to *complement* the results in search of possible multi-dimensions within the data.

This part of the chapter answered questions relating to the purpose and approach of this research project. The next part elaborated on the methodology that was followed to obtain the desired answers or results for the research questions. A method called content analysis will be discussed next.

4. Content analysis

Content analysis is an accepted and widely used research approach in the media research domain. Although many academics have similar views of this approach, scholars have added their own nuances when describing the method.

According to Taylor and Willis (1999: 45) content analysis is a research tool that can be traced to sociology, but it has been adopted and widely applied in the media context to evaluate the content of different media products. Bryman (2012: 289) defines content analysis as: “an approach to the analysis of documents and texts (which may be printed or visual) that seeks to quantify content in terms of predetermined categories and in a systematic and replicable manner”. Berger (2014: 231) goes a step further and labels content analysis as a tool to measure the “verbal behaviour” as a form of human behaviour that is presented in various media products, including comic strips, films and television programmes. Bordens and Abbott (2011: 246) refer to content analysis as a method to analyse “written or spoken record for the occurrences of specific categories or events”. Also, Wilkinson (2004: 183) explains that content analysis examines a set of data for recurrent themes or instances that can be *systematically* identified across the data set.

Based on the definitions above, it can be summarised that content analysis deals with the measuring of what is said about a particular topic and how it is said in various media products including newspaper articles, radio programmes and television documentaries. A secondary assumption that can be made from the definitions above is that content analysis can be applied as either a qualitative method or a quantitative methods, or in the case of this thesis, a combination of the two. Wigston (2009: 4-5) and Wilkinson (2004: 184) affirm the two assumptions and add that

content analysis should always be conducted 1) systematically and 2) objectively. “Systematically” refers to fact that content analysis should follow precise rules and a set procedure in order to come up with reliable data. Secondly, a study can only be regarded as “objective” if a second or third researcher reaches the same conclusions. Thus, the methodology used to perform content analysis should be clearly outlined from the onset.

The steps that are followed during this investigation are discussed in Part three and contain clear distinctions between qualitative and quantitative research approaches.

4.1 Advantages of content analysis

Berger (2014: 239) highlights five advantages of applying content analysis as a research methodology. Firstly, he argues that content analysis is *unobtrusive*. This means that the content analysis is different from interviews and observations in the sense that it does not “intrude” on the subjects that are being investigated and, subsequently, does not affect the outcome of the research. Adding to this particular advantage of unobtrusiveness, Bryman (2012: 304) elaborates that content analysis does not require the same level of ethical approval before a study can be conducted.

Secondly, this type of analysis is *relatively inexpensive*, because it does not cost much to obtain or duplicate the content under investigation. This advantage links up to Berger’s (*Ibid.*) third and fourth advantages. The third advantage highlights the assumption that content analysis can *deal with current topics* and present-day interests, thus it is *relatively easy to obtain the material* in question. Thus, content analysis is a flexible method and can be applied in various contexts and kinds of textual scenarios (Bryman, 2012: 304-305). The last advantage is that content analysis is one of the few flexible research tools that successfully blend a qualitative and quantitative enquiry.

With its characteristics, Berger (2014: 240) concludes that content analysis allows us “to gain insights into the mindset of those who created the texts”.

4.2 Limitations of content analysis

Content analysis also “suffers” from a few limitations. Bordens and Abbott (2011: 248-250) summarise two of the main limitations of this methodology below.

Firstly, content analysis is a *descriptive* methodology. Subsequently, it cannot establish causal relationships among variables (Bordens & Abbot, 2011: 248). In other words content analysis cannot draw conclusions between the content of text and the producers of the text (Taylor & Willis, 1999: 47). Secondly, the findings of a content analysis are not always long-lasting and can even change over a short period of time (Bordens & Abbot, 2011: 249). This means that the results of content analysis may have a short time of relevancy, but that are dependent on the content that is being researched.

Other disadvantages linked to this research method relate to arguments that the quality of the research findings are directly linked to the quality of the document(s) under investigation (Bryman, 2012: 306). Thus, there is a direct link between the quality of results and the quality of the documents the data is extracted from. Researchers should thus make sure that the documents under investigation have not been distorted in some way. Another issue mentioned is that it is not always easy to code the research data as the classification of the information is mostly linked to coder's knowledge and interpretation of the content (*Ibid.*).

4.3 Addressing the limitations of content analysis

As mentioned earlier, this thesis is a combined exploratory/descriptive study into the field of shale gas exploration and mining and the perceived benefits and concerns this practice might have on the country. Thus, this research project does not aim to make any links between the comments and the online news consumers who placed the comments.

Secondly, the researcher acknowledges that the data obtained for this study may have a short relevancy, but the results could serve as baseline data for longitudinal studies. Furthermore, the researcher is confident that the source data is of sufficient quality to deduce satisfactory answers to the research questions.

5. Reliability and validity of research results

Two important issues that need to be addressed are factors that relate to the reliability and validity of the research results.

5.1 Reliability

Neuman (2012: 121) refers to reliability as steps to be taken to ensure that the results obtained from an empirical investigation are dependable and consistent. Koonin (2014: 254) adds that it is important to indicate in any type of study how the reliability of the results can be insured by explicitly stating how data need to be handled.

Although Neuman (2012: 121) argues that perfect reliability can never be guaranteed, he suggests three steps that are relevant to content analysis to improve the reliability of the investigation. Firstly, he suggests that the elements under investigation should be clearly defined and should not be confused with other constructs. In response to that, the sampling units, coding units and context units relevant to this analysis have been clearly described in Step one (section 5.1) Secondly, Neuman (*Ibid.*) suggests that "precise level of measurements" be described in order to prevent any confusion. Steps 4 and 5 (section 5.4) elaborate on why both manifest and latent

content will be considered in this analysis. The last piece of advice Neuman (2012; 122) offers is to conduct a pretest or pilot study first to test if the procedure was sufficiently described to ensure a high level of reliability. Another important set of factors to consider is to ensure the validity of research results.

5.2 Validity

Koonin (2014: 256) refers to validity as factors to determine and ensure whether the research measured what it was supposed to measure and thus obtain “valid” answers to the research questions. The scholar highlights two levels of validity to observe when developing a research project. These levels are internal validity and external validity.

When testing for internal validity the following question should be asked: “Will my research method or design answer my research question?” (Koonin, 2014: 257). In a response to testing the internal validity the author is confident that content analysis is an appropriate approach that will supply valid answers to the research question.

The second level of validity refers to external validity. To test the external validity, the following questions need be answered: “Would you find the same results if you conduct the same research to a bigger population?” (Koonin, 2014: 257). Although this research project aims to explore and describe, the researcher is confident that the sampling unit contains sufficient data that can be extracted and tested in a wider population.

6. Steps in conducting content analysis

Palmquist (as cited and interpreted in Babbie *et al.*, 1998: 492-493) outlines an eight step method to conduct content analysis. The steps as indicated in Table 1 make a clear distinction between qualitative and quantitative research methodologies, and the outlines steps to ensure that reliability and validity is maintained throughout the research process.

STEPS	DESCRIPTION	RESEARCH METHODS AND INDICATORS
Step 1	Decide on the units of analysis	Qualitative research
Step 2	Decide on the categories	
Step 3	Code the frequency of a concept	Quantitative research
Step 4	Decide on how to distinguish among concepts	Reliability
Step 5	Develop rules for the coding of texts	

Step 6	Decide what to do with irrelevant information	Validity
Step 7	Code the text	Methodology
Step 8	Analyse results	Chapter 4

TABLE 1: The eight steps of content analysis.

Source: Palmquist (In Babbie *et al.*, 1998: 492)

The first two steps deal with the identification of units and categories and thus form the qualitative part of this thesis. Step three deals with the recording of the frequency of a particular category. Since the latter step deals with numbers, quantitative research methods will be applied. Steps four to six deal with issues linked to the reliability and validity of the research. Step seven outlines the process and the methods that will be used. Lastly, step eight refers to the results and will be discussed extensively in Chapter 4. The research steps will be discussed in more details below.

6.1 Step 1: Decide on the units of analysis

The first step is to determine the units of analysis that would be most appropriate for this study. Wigston (2009: 15) indicates that the units of analysis are reliant on the research question. In other words, the most appropriate units should be identified that will sufficiently answer the research questions. Krippendorff (2004: 98-99) distinguishes between three different types of units. These units are 1) sampling units; 2) coding units; and 3) context units. The three different units will be discussed in more detail below.

6.1.1 Sampling units

Sampling units refer to the general criteria a particular document should comply with in order to be included in a particular analysis (Krippendorff, 2004: 99). Scholars, including Davies (2014: 97) also refer to the sampling unit as the “sampling population”.

The purposive sampling method was applied to find the most appropriate sample for this particular study. This method, also called relevance sampling, provides the choice to the researcher to identify predetermined elements the sampling units should contain in order to be considered for a particular investigation (Du Plooy-Cilliers *et al.*, 2014: 142-143; Bornman, 2009: 447; Krippendorff, 2004: 118-119;). According to Du Plooy-Cilliers *et al.* (2014: 143) the advantage of using this sampling method is that every unit of the sample could assist with answering the research question.

The concerns that were categorised in this research project needed to have fallen within the following parameters:

- 1) The comments should have been published as a response to an online article about the moratorium that was lifted on shale gas mining;
- 2) As the announcement of the lifted moratorium was made on 7 September 2012, only the comments of articles what were published on that day were considered; and
- 3) Only articles that were published by South African news outlets were considered.

An advanced search on www.google.co.za was conducted with the following parameters:

search phrase used: moratorium lifted on fracking

country: South Africa

date: 7 September 2012

sorted by: relevance

Table 2 below contains the results from the above search criteria. It should be noted that since “South Africa” and “7 September 2012” form part of the advanced search criteria, it can be assumed that all the articles below complied with these two search parameters.

Web page	Title of article	Does this article explicitly report on the moratorium that was lifted?	Did a SA news outlet publish this article?	Does the article contain comments published by readers?	If yes, how many comments were published.	Can this article be included into the sample?
www.news24.com	SA lifts moratorium on fracking	✓	✓	✓	151	✓
www.bdlive.co.za	Cabinet lifts moratorium on shale gas fracking in Karoo	✓	✓	X	✓	X
www.timeslive.co.za	Fracking possible as moratorium on	✓	✓	✓	20	✓

	shale gas exploration lifted					
www.wwf.org.za	WWF-SA critiques lifting of fracking moratorium	✓	X	X	n/a	X
www.mg.co.za	Fracking will save us: Cabinet drops moratorium	✓	✓	✓	60	✓
www.moneyweb.co.za	Shale gas fracking moratorium lifted: Bonang Mohale – chairman and VP, Shell SA	✓	✓	X	n/a	X
www.iol.co.za	Karoo fracking ban lifted	✓	✓	✓	21	✓
www.litnet.co.za	SA lifts moratorium on fracking	✓	X	X	n/a	X
www.2oceansvibe.com	Fracking Gets The Governmental Green Light	✓	X	X	X	X
www.polity.org.za	DA: Statement by James Lorimer, Democratic Alliance Shadow Minister of Mineral Resources, on government lifting moratorium on exploring for shale gas	X	X	X	n/a	X

www.fin24.com	Sasol jumps on fracking nod	✓	✓	X	n/a	X
www.90by2030.org.za	You can't have your gas and drink your water!	X	X	X	X	X

TABLE 2: Sampling units for analysis

The following article did not show up in the search results, but was tested for its eligibility to be included into the sample⁴:

www.sowetanlive.co.za	Cabinet is going to allow fracking in Karoo	✓	✓	✓	21	✓
--	---	---	---	---	----	---

Based on the scrutiny above, a total of five web-based articles met the criteria for this research. Collectively, these articles delivered 273 comments that formed the sample for this investigation.

Now that the sampling unit has been clearly defined and identified, coding units need to be identified in order to analyse the comments.

6.1.2 Coding units

Coding units, also commonly known as units of analysis, refer to the actual component in a particular text (or population) that will be categorised. According to Wigston (2009: 15) units under investigation can include words, sentences, paragraphs, themes, concepts, characters, items, or even a combination of time and space.

The research questions of this thesis lent itself to analysing the different concerns that were raised in the comments. The best way to capture these concerns was to code different themes. Consequently, the comments that contained multiple concerns linked to shale gas mining were effectively categorised under more than one theme.

6.1.3 Context units

Krippendorff (2004: 101) refers to this type of unit as “limits that are set on the information to be considered in the description of the recording units”. Krippendorff (*Ibid.*) elaborates that context

⁴ Although the article on www.sowetanlive.co.za did not appear in the results, it complied with all the mandatory criteria and has thus been considered for inclusion.

units usually surround the recording units in order to help identifying the units that are to be categorised.

It is important to sufficiently describe the context of this content analysis for two reasons. Firstly, the thematic units that were analysed needed to refer directly to shale gas mining. Thematic concerns that were not directly linked to shale gas mining, were not categorised. Secondly, this thesis was shaped around the theoretical principles of content analysis. Although the theory and approach may contain similar elements of computer-mediated communication/ discourse analysis or web content analysis, these two approaches were not considered in this study.

Step two elaborates on development of categories that will be used to categorise the various coding units.

6.2 Step 2: Decide on the categories that will be coded

Appropriate categories needed to be established to allocate every unit of analysis, i.e. thematic concerns in a particular category (Wigston, 2009: 16, 32).

Babbie *et al.* (1998: 492) argue that predetermined categories may be good to ensure more focused research results. On the other hand, the same scholars argue that the incorporation of new categories, as they emerge from the data, could lead to more “surprising” research results. The different categories for this research project will be determined through qualitative research methods. The determination of categories form part of the results and would thus be discussed in more detail in Chapter 4.

6.3 Step 3: Code the frequency of a concept

This step is particularly relevant to this study as both qualitative and quantitative data is required to answer the research questions. This step particularly refers to the application of quantitative research methods to determine how many units were similar and were categorised together (Babbie *et al.*, 1998: 492). Sufficient provision was thus made to capture the frequency in every category.

6.4 Steps 4 and 5: Distinguishing among concepts and rules for coding of text

According to Babbie *et al.* (1998: 119) it is important to describe in detail how certain concepts should be counted (or categorised). Thus, should the coder identify specific words or terms (manifest content) in a unit that refer to a category, or should the coder consider indirect assumption (latent content) in the comments that refer to a certain category (Babbie *et al.*, 1998: 88). For the purpose of this study, the population (comments) will be scrutinised to determine the presence of any manifest and latent themes.

6.5 Step 6: What to do with irrelevant information

The researcher acknowledges the potential presence of irrelevant information that might not fall within a particular category or that is unrelated to this study. Although the classification of specific themes may reduce the existence of irrelevant information, any unrelated themes that do not explicitly or indirectly refer to shale gas mining, will not be considered as relevant to this study and will be put under the “unrelated” category.

6.6 Step 7: Coding the text

Up until now the population was identified and described, as well as the units of analysis, i.e. themes. It was also indicated that the identification of relevant categories formed part of the qualitative research investigation.

One last question to answer is: “Who did the coding and analysis of this study?” All aspects of this research were conducted by the author of this thesis. The author made use of a computer software called MAXQDA version 11. According to their website www.maxqda.com (2015), this application was developed to aid with the analysis of qualitative and mixed-method data. It is however important to note that although the computer application has many automatic functions, the researcher (also the author of this thesis) manually identified categories and the units for assessment.

6.7 Step 8: Analyse the data

The next chapter reveals all the data that were obtained during the actual research process. This chapter sufficiently addressed the important aspects that were considered to obtain reliable and valid data for the research questions.

7 Conclusion

This chapter addressed issues pertaining to the research methodology and design that was used to execute this research project. The chapter started off by presenting a problem statement and four research questions. It was also motivated as to why a mixed-method content analysis was deemed appropriate to obtain reliable and valid data for this study. An eight-step content analysis was presented and the qualitative and quantitative steps were clearly differentiated. Aspects pertaining to reliability and validity were also discussed under the last two steps.

CHAPTER 4

ANALYSIS AND RESULTS

1. Introduction

This chapter presents the analysis of the comments followed by a discussion on the results. Research question 1 will be discussed from a theoretical perspective and attempts to address the obligation of the media towards shale gas mining. Research questions 2.1 and 2.2 will be answered based on the results from the analysis. The last question addresses opportunities from a public relations perspective to address the concerns highlighted in the comments.

2. Research questions

This thesis attempts to answer the following four research questions:

1. What role do the media play in shale gas mining?
2. Based on the comments that were posted on specific selected media websites in response the lifting of the moratorium on shale gas mining:
 - 2.1 What are the perceived benefits that shale gas mining could hold for South Africa?
 - 2.2 What are the concerns raised by online news consumers?
3. Based on the results what are the opportunities from a public relations perspective to address the concerns raised in the comments?

3. RESEARCH QUESTION 1: What role do the media play in shale gas mining?

The first question will be answered from both the positivist and critical traditions. As previously indicated, the dominant (positivistic) paradigm views society as a “normally functioning good society” (McQuail, 2010: 63). Consequently, research conducted from a positivistic angle investigates the functioning of the media as a societal structure and the role it plays to maintain the *status quo* of the society it represents (Fourie, 2007: 178).

On the other hand, from a critical or alternative perspective, society is seen as diverse with heterogeneous perceptions about the world (McQuail, 2010: 66). Secondly, the media are also seen as a powerful instrument, in the hands of a small group of people, aiming to promote certain ideologies and viewpoints. Accordingly, research from a critical approach is concerned with how the media use its power to frame media events in a way that reinforces certain ideologies (Fourie, 2007: 178).

Based on the positivist premise it can be argued that the media have a responsibility to report on anything that has the potential to change the *status quo* of society. In the case of shale gas mining in South Africa, the lifting of the moratorium could hold both positive and negative repercussions to the communities around the identified area in the Karoo, as well as the wider South African society. Based on the fact that articles were published on various news webpages including the five that were analysed in this thesis, it can be concluded that the media fulfilled its duty to inform society about the moratorium that was lifted. The role of the media in the fracking debate can further be measured through a calculation of the number of follow-up articles that were (and will be) published about the shale gas issue at hand.

From a critical paradigmatic perspective, it can be argued that the media reported on the lifting of the moratorium in order to achieve a particular goal. Based on the articles identified for this research, the goal of the media in this case was to question the shale gas mining practice and the potential harm it poses to the environment. Another important observation to highlight is that three of the five articles identified (except IOL and *Mail & Guardian*) for analysis were all aggregated from the international news service Reuters. This in itself can be examined from a critical perspective and raises the question of the agenda behind the perceived homogenous reporting of the moratorium that was lifted. Furthermore, based on the comments posted against the articles, the media accomplished its duty by creating a public sphere where the issue at hand was debated.

To answer the Research question 1, it is evident that the media served its duty to report on shale gas mining. However, based on the analysis of the comments, the media created a potential moral panic about the relatively new phenomenon in the South African context.

Moral panics are an episodes, often triggered by alarming media stories and reinforced by reactive laws and public policy, of exaggerated or misdirected public concern, anxiety, fear, or anger over a perceived threat to social order (Krinsky, 2013: 1). One of the first attempts to describe moral panics comes from Stanley Cohen back in 1972. In his book “Folk Devils and Moral Panics” Cohen (1972: 9) explains that societies are often subject to moral panics as a result of how the media “stylise” and in a “stereotypical fashion” present a perceived threat to societal values and interests. He adds that moral panics have different effects on society. Whilst certain moral panics are of short duration and already forgotten, other moral panics may last longer in the media and may even result in policy changes (*Ibid.*).

An example that complies with the characteristics of a moral panic is the e-tolls controversy in the Gauteng province. Continued reporting causes the moral panic to persist. This has brought about court cases between the South African National Roads Agency and other concerned parties.

To conclude, it can be rightfully assumed that the media whether intentionally or unintentionally created, a moral panic with regard to shale gas mining.

4. RESEARCH QUESTION 2: What are the perceived benefits and concerns raised against shale gas mining?

The comments are discussed based on the alphabetical order of the digital news outlets the articles were published on. Thus, the article published on Independent Online (IOL, See Annexure A) is analysed first, followed by the *Mail & Guardian* (Annexure B), News24 (Annexure C), SowetanLive (Annexure D) and TimesLive (Annexure E)

The comments were grouped to reinforce certain themes or to facilitate the transition between two themes where appropriate. Thus, the comments may not always be in the order as they appear on the webpages.

4.1 Independent Online

The article titled “*Karoo fracking ban lifted*” was published on 7 September 2012 on the Independent Online’s digital news outlet (IOL, 2012). This article yielded 21 comments in reaction to the moratorium that was lifted.

4.1.1 Perceived benefits

Only one comment referred to the perceived benefits of shale gas mining. A person using the handle mikethurgood placed the very first comment and responded:

“If the exploratory drillings confirm the gas resource which, at the moment, is purely an estimate, it would be of immense benefit to South Africa.... The fracking technology would provide work for South Africans, although I have heard that it is anticipated that the fracking companies could be bringing their own employees on site.”

4.1.2 Concerns

Although mikethurgood highlighted the potential benefit of shale gas mining, the respondent’s comment also highlighted few concerns linked to shale gas mining:

“Yes, fracking in other parts of the world has devastated agricultural areas, primarily through the release back to the surface of the fracking water containing various chemicals to aid the release of the natural gas.” (mikethurgood)

Responses from other readers also raised the concern about the detrimental effect fracking might have on the environment:

"It's the land, the people, the animals. It's life itself, that these chemicals will destroy."
(ZAlove357)

"To me, squirting tons of chemically saturated water into the ground with no expectation of pollution seems naive and irresponsible." (MikeF)

"I'm not an e[n]vironmentalist, but this is a bad decision. Fracking is a terrible process"
(Gareth W)

"It's the 'enviro[n]mental thing' I have an is[s]ue with." (Tinatwork)

The second set of concerns relate to bribery and corruption.

"Amazing how fast government can be at making decisions when money is involved.."
(dblo7)

"Report released 'at the appropriate time' - does this mean after the thick envelopes have been received and the new cars ordered???" (sad_life)

"This is just another go for the gover[n]ment getting their grubby little hands on more money for themselves, oh my poor South Africa." (Peggy Madden)

"What did you expect from the greedy, corrupt South African government pigs?"
(Jo Garth Cronje)

"Collins Chabane and you obviously have a silent finger in the pie, you bloody rubbish will sell your mother for money" (hamlet_2be)

A person by the handle LennonZA did not support shale gas mining, but did not supply any reasons:

"I'd say it's fracking stupid." (LennonZA)

A neutral theme that arose from the discussion is the importance of a regulatory framework to control the shale mining process:

“But any fracking work must only be carried out under very stringent controls, and the Department of Minerals would need to have inspectors continually on site to ensure that whatever safety and environmental constraints are rigidly adhered to. And fracking water released back to the surface must be 100% recovered and reprocessed, and the salts recovered for reuse.” (mikethurgood)

A final observation is the reference made to a documentary called “Gasland” that was produced in the USA by Josh Fox. The documentary showed footage of polluted drinking water and the environment that was allegedly caused by shale gas mines.

“This is sick... watch Gaslands. In America fracking is rampant and the laws have been amended to give immunity to the gas companies from any damages to the environment. In areas where people rely on wells or boreholes- you now have all these funny chemicals and gases mixing in with the drinking water to the point that people can light the water coming from their taps like a flame thrower” (Guest [1])

“Gasland was a biased, emotionally driven piece of drivel. Yes, the[re] were some early failures (gas in the water for about four families) but the modern process is safe and effective.” (Guest [2])

“Oh Really... what is biased and emotional about simply filming what is actually happening... what is biased and emotional about the Gas companies refusing to acknowledge what has been happening to the innocent people whose water is poisoned... fact is these "safe" techniques were being claimed in the documentary too...and yet no Gas company boss was prepared to drink from the tap water ...” (Guest [1])

“Anyone who is new to this issue should watch the Gasland and TruthLand documentaries. Make up your own mind.” (MikeF)

4.1.3 Summary of perceived benefits and concerns

Based on the analysis of the comments placed against IOL’s article about the moratorium on fracking that was lifted, the following can be deduced:

The only perceived benefit is the potential job opportunities that might be created.

The main concerns are:

- 1) Pollution at various levels;
- 2) Bribery and corruption linked to shale gas mining;
- 3) Concerned, but no reasons were given.

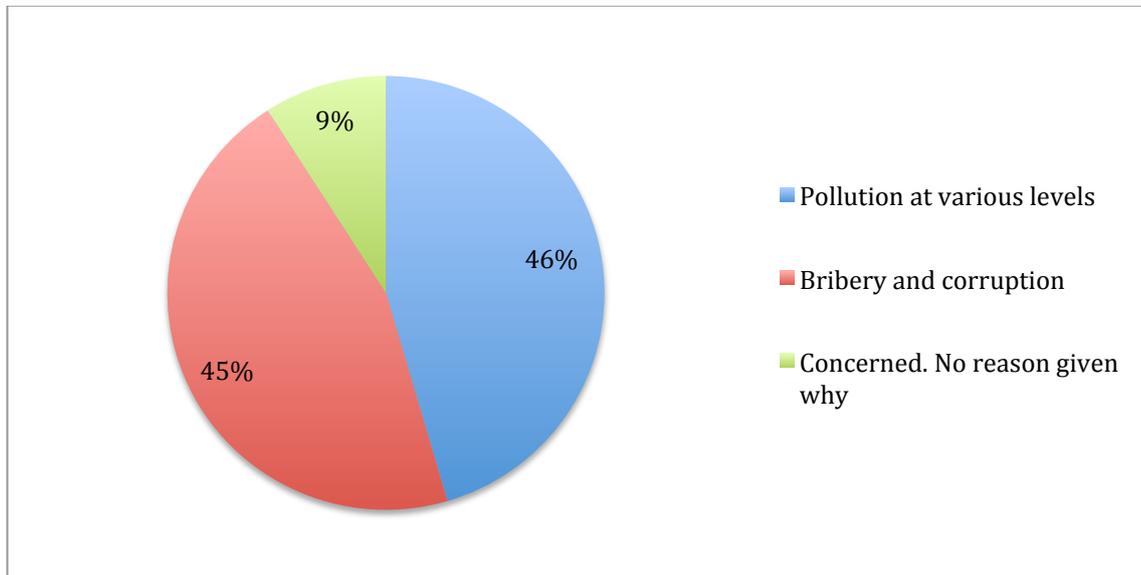


FIGURE 1: A graphical representation of the main concerns relating to fracking according to the comments placed on IOL.

Two alternative (neutral) themes that came from the comments were:

- 1) The importance of a regulatory framework to control the mining process and ultimately minimise pollution; and
- 2) Reference to the documentary *Gasland* that were used to either support concerns against fracking or to dispel the threads linked to the practice.

4.2 *Mail & Guardian*

The *Mail and Guardian* reported on the moratorium that was lifted in an online article titled: “*Fracking will save us: Cabinet drops moratorium*”. A total of 60 comments were posted in response to the article.

4.2.1 Perceived benefits

According to one comment, shale gas would aid with reducing CO₂ emissions.

“But don't underestimate the potential benefits from fracking - it has transformed the US economy and contributed to reducing their CO2 emissions for the first time in history. [F]or that alone we should be welcoming the technology.” (semarumi)

Another positive comment alludes to the fact that shale gas is a “cheap” form of energy that is mostly needed in South Africa.

“Fracking has operated successfully in the USA for over 40 years with minimum pollution. The reality is that without cheap energy South Africa will really be DOOOOOOMED!!!!” (LancasterL)

The third and last positive remark supports government's decision to explore shale gas, but no detail is given as to why the idea of shale gas mining is supported.

“So there are some sensible people in the ANC. Now comes hysterical doomsday emails, and Karoo blinkered Karoo lovers” (Yandys1)

4.2.2 Concerns

The majority of the concerns are linked to the perceived detrimental effect shale gas mining might have on the environment. A person with the handle of Jonathandea⁵ raised a few environmental concerns, which were supported by other comments.

“So, to set aside all the scientific debate, temporarily, is there an opinion amongst the fracking proponents as to why, tens of millions of people, in more than one hundred and fifty five formally recognized bans, moratoria or restrictions, would willingly forego the so called massive benefits of shale gas by rejecting fracking where they live, raise, their children, source drinking water, grow crops and breed animals for food, milk and other products? Are these communities, (towns, cities, provinces, counties, states and even whole countries) simply alarmist and extremist? Is there perhaps any shred of good reason for such a step? Why would they turn their backs on this shale gas bonanza? Why are dozens, yes dozens more communities - made up of people just like those on this comment thread, agitating for similar action against fracking in their jurisdictions? Any ideas?” (Jonathandea)

⁵ The author acknowledges that “Jonathan Deal” is the name of the person who started the Safe the Karoo campaign, and is one of the biggest “voices” against shale gas mining in especially the Karoo, and South Africa. However, it is unclear if this comment was placed by the same person and if someone else writes under a handle which incidentally reflects the same name.

In support of the comment placed above, there were a few contributions to the discussion that raised similar concerns.

“[S]o, in your opinion - fracking is entirely safe with no risk of groundwater pollution, any other pollution or any dangerous impact to the environment? [P]oint me in the direction of where that[']s conclusively proved – preferably not a 'study' sponsored by an energy/gas company (a link/reference to a website will do, i am able to look up myself..)”

(Ian McIntosh)

“THIS IS CRAZY!!!! This website is taking a bias stand. NONE of you are obviously aware of the negatives associates with hydraulic fracturing.

THIS WILL POLLUTE OUR UNDERGROUND WATER SUPPLY. MOST OF WHICH IN THE WESTERN CAPE ORIGINATES FROM BASINS IN THE KAROO. THIS IS A BAD IDEA.” (Sean Sylvia)

“No pollution? Absolute crap...a simple google search implies otherwise. You also seem to bypass the fact that fracking requires massive amounts of water.” (Ian McIntosh, in a separate comment from the one above)

“The entire region is susceptible to high risk from drought, and now they want to back a means of polluting the Karroo aquifers.” (Shaman sans Frontieres)

“Thank you Minister Shabangu - you have just delivered a death sentence to all South Africans, as we do not have the water resources for your polluting projects and for our people.” (Judith Taylor)

“There is no good or safe way of fracking, it is a bad move and I will not vote DA because they do not oppose this mess.” (Moonbeam Eleven Crocket)

I can't believe they would endanger all the agriculture and tourism potential of the Karoo to make a few politically connected individuals and the Chinese incredible rich.

(Hubert Jefferson)

“South Africa gets gas, maybe. Well, Shell et al gets the gas (if they find any) and the Karoo gets it's water supply permanently destroyed...” (Banjoza)

I am curious where all this water is going to come from, pump it in from the sea?

(White trash)

“That is what you get if you allow illiterate to vote for leaders who don't give a damn about the environment. The destruction continue.....viva democracy.” (Beeshaas)

“Firstly fracking is proven to cause earthquakes > making money no matter the consequences or loss of life?” (RobbieYahu Robbie)

The second main concern is linked to the perception that some form of bribery and corruption is linked to the moratorium that was lifted.

“If oil is found in commercial quantities, money will ensure that it is 'mined'. No opposition will be able to overcome the greed of the politicians who will get their pockets lined when they approve 'fracking' regardless of any impact on the Karoo. The 'plunder off our coasts' is an indication that money will triumph over all.” (Keith Roberts)

“The only thing that fracking will save is the extensive retirement kickbacks some high and mighty ANC people drool after... The ANC are dragging their heels over freeing up of legislation to enable us to make solar power and, if the scale is big enough, sell it back into the grid. They are only interested in Big Business and selling off our resources and making money for themselves on the side.” (Shaman sans Frontieres)

“The cadres are going to be VERY rich. This is going to be bigger than the arms deal in bribes paid out” (Big Pete)

“Obviously substantial kickbacks to ANC comrades.” (Guest)

*“‘Minister in the presidency’ - a title for someone who knows f*all, talking on behalf of comrades who are only interested in short-term money in their pockets”* (Corrupt_comrat_nr1)

“solve our energy woes? this is more like, let's exploit and pillage the Karoo to make more \$\$\$ (ok, RRR)” (Ice cream snackwich)

“Minister in the Presidency Collins Chabane said that fracking offered an opportunity to skim off billions in kickbacks and other "enticements" that were vital to the enrichment of the tenderpreneur class.” (Piel Vet)

“MAN but they know how to bribe hey... eeish!” (Banjoza)

“Here we go the start of another personal enrichment avenue for our wonderful ANC leadership!”
(Howard Roark)

“South Africa was “an energy scarce country” really? so suddenly we're not a water scarce country? I reckon the above was meant to read “our bank accounts are millions to scarce”..... sadly the money this could rake in for the country won't be used for it.” (Just a curious guy)

“WE ARE DOOMED. ANOTHER SELL OUT BY THE PATHETICALLY STUPID, GREEDY, SHORT-SIGHTED, CORRUPT AND INEPT ANC TO THE CORPORATE PSYCHOPATHS. LET THE REVOLUTION BEGIN.” (John Porter)

“Obviously someone is getting a kick back, please tell me if I am incorrect.” (1conniejooste1)

“Looks like desperation for revenue and buddy boosting takes precedence over the environment and what's good for the rest of us. That's just a consequence of having ageing politicians who don't give a rat's ass about the future, and only care for their pockets today. And that has nothing to do with illiterates!” (Les Gp)

The third biggest concern is that only a small group of people will benefit from shale gas:

“Fracking is the other people's attempt to try and export to make more money, whilst ignoring the impact on the region.” (pastabag)

“[B]enefits going to investors and the government rather than back to the public.’ Doesn't the government represent the public? Oh no, I forgot, the government represents the anc and it gets the benefits.” (Keith Roberts)

“[T]he consumer and economy will still be locked into the same price spiral, but the spoils get to be divvied up afresh amongst new cadres and comrades of the ruling elite.” (ZA Observer)

Another category of concerns is the link between shale gas mining and companies such as Shell and Sasol.

“Just let us know how much Shell kicked your stupid slave ass (as if you're not one now, you'll be one soon enough with this mindset)” (Jfgn)

“Shell arrived with barrels of cash.” (Moonbeam Eleven Crocket)

“If you love SA boycott Shell and Sasol!” (Samten Dorje)

“Sasol are not pushing for Fracking, so your comment requires a little rationality behind it. Sasol in fact are under extreme pressure to improve their environmental impact in SA, and as such have created a +ve drive in that regard.” (pastabag)

Other themes from the comments relate to the opinion that there are other forms of energy that should be invested in instead of shale gas mining.

“Then we hear how good it will be for us. If we used the SUN Water and Wind we would have more than enough engery for our country.” (1conniejooste1)

“As if SA does not have enough sun and wind to exploit, both renewable.” (Wordscanhelp)

“I wasnt proposing alternatives, but in an area with little water and plenty sun I'd assume solar would be a better option.” (Ian Mcintosh)

As with the article that was published on IOL, a comment made reference to the importance of a regulatory framework that should guide the mines in order to protect the environment.

“South Africa needs to work with overseas expertise to ensure that proper effective controls are in place and that all drilling is properly supervised and audited. Simply shouting NO and parroting cliches will serve neither the environment or future generations.” (LancasterL)

Lastly, an alternative concern about the practice of shale gas mining is that the concerns might be “overstated”.

“As a professionally qualified and recognised water expert, who has studied Karoo groundwater, read the US EPA's manual on fracking and understands a little about how environmental activists run their campaigns, I am afraid that I have to conclude that:-
- the dangers of fracking are being wildly overstated; and
- fracking is among the less important water quality and quantity challenges that South Africa faces. (semarumi)

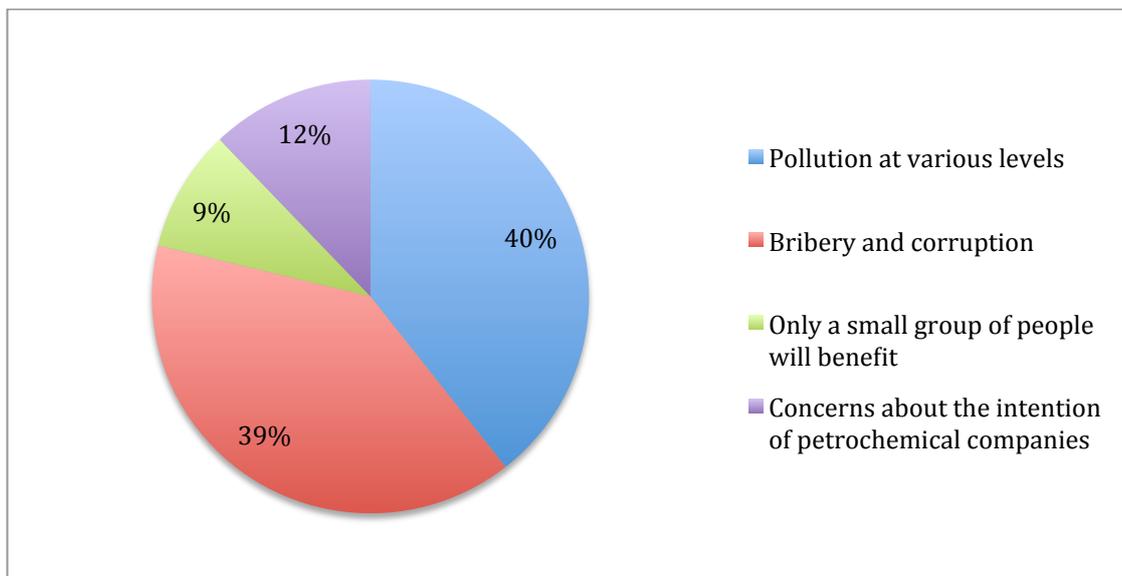


FIGURE 2: A graphical presentation of the main concerns in the comments placed on the *Mail & Guardian* news site.

4.2.3 Summary of perceived benefits and concerns

The perceived benefits are:

- 1) Shale gas could contribute to lowering the CO₂ emissions of the country;
and
- 2) Shale gas is a more affordable form of energy that South Africa needs.

Most of the concerns raised in the comments corroborate with the findings of the comments that were posted on the IOL's version of the story. These concerns are:

- 1) Pollution at various levels;
- 2) Bribery and corruption;
- 3) Only a small group of people will benefit from shale gas; and
- 4) Concerns about the intention of petrochemical companies.

The following neutral themes were also identified from the discussion:

- 1) The importance of a regulatory framework to control the mining process and ultimately minimise pollution;
- 2) The practice of shale gas mining is linked to companies such as Sasol and Shell;
- 3) Alternative options of renewable energy such as the sun and wind should be explored instead of shale gas mining; and

- 4) The concerns about fracking might be overstated.

4.3 News24

On their webpage, News24 received 114 comments in response to their article titled “SA lifts moratorium on fracking”.

4.3.1 Perceived benefits

The only perceived advantages are linked to the positive economic implication of shale gas mining.

“This is such good news for South Africa, a real game changer in terms of our economy and future.”

(David de Mattos)

“Difficult decision but the correct decision by government. Clearly fracking poses risks, as we experience all over our country on a daily basis in our vast mining activities that are all ready in existence. But the potential impact on the employment crisis, and the benefits to the economy, as much as 3% additional GDP in the early stages of the mining and much more beyond that, are benefits that South Africa does not have the luxury of turning down.” (Justin_Frittelli)

4.3.2 Concerns

Some people on the other hand are skeptical about the economic implications of fracking. The first comment below was published in direct response to Justin_Frittelli’s comment on the economic benefits of fracking followed by a few skeptical responses about the economic benefits.

“I think, Justin, that the concern, apart from the ecological concerns, is what the real economic implication will be for South Africans. Will the extraction of this gas be to the benefit of the people? Will fuel prices go down, will the cost of electricity once again become considerate to the means of the middle income class who still solely carries the rest of the country?”

(Wynand_du_Toit)

“The size of SA’s gas find is only part of it -- what counts is how much it will cost to get it out of the ground.” (Phillip_Newmarch)

“How does the fracking contribute to the development and well-being of South Africans and South Africa?” (James Else)

The next comment reiterates skepticism about the economic benefits. Additionally, the comment highlights environmental concerns and a concern about who will benefit from shale gas mining. The latter thematic concern is framed below.

“Over the last 7 years the [g]as boom has transformed America's energy economy. Their oil exports are at an all--time low, methane burns more cleanly than most fossil fuels (even though when it leaks from the infrastructure it causes much more damage than CO2), and estimated supplies should last a couple of centuries. It is the energy of the future.

But at what cost? High demand and easy fortunes don't go hand--in--hand with environmental responsibility. Perhaps the shale gas trapped beneath the Karoo can help SA's economy, but can we really afford to drill more responsibly than our American counterparts? Who will truly benefit: the effected communities? The people of South Africa? Do we have the intellectual capital and maturity to do it properly and safely?” (JamesTKirk)

The environmental concerns are:

“Two questions in my mind.

Will South Africa be the first country to use the fracking option? If no, how are the countries using fracking avoiding water and environment pollution?” (Controversy)

A person with the handle Sht Stirrer responded to the questions above:

“1. No

2. They're not” (Sht Stirrer)

“This is REALLY scary people.. Please lets not let these corporations destroy our water sources.. Water is bloody precious. If you dont know much about fracking. PLEASE educate yourself first!! Seriously people, we cant let them do this!
<http://www.youtube.com/watch?v=phCibwj396I>” (Suka)

“If you want to see what fracking has done in the past.. you don't need to watch more than this documentary to see its an absolute rape on natural land and the water table..
<http://www.youtube.com/watch?v=phCibwj396I>” (Greg_Quinn)

“WHAT ABOUT OUR PRECIOUS WATE[R] RESOURCES, OUR FRESH AIR, OUR FUTURE!!! HAVE YOU NOOOOOOOOO SHAME?????????????????” (QI)

“If you do fracking in the Karoo you are going to f&&ck up the ground water...you know it is going to be the result but they don't, and that is the African disease of "not knowing that you don't know". (max.reynecke)

“Nice one minister thought we were short of water in South Africa fracking uses millions of litres of water. Explain if you will can this be recycled. Not that I would wish to drink previously poisoned water!” (cathy.raats)

“Growth” at the expense of our environment is not growth... ask the Chinese! they have learnt the hard way... and now its too late. Their rivers, air, ground are all poluted, and unrecoverable. There is no debate if fracking does or doesn't polute, it does!! And the Karoo rels heavily on its ground water for irrigation and for its animals. Frack off SHELL!!” (Harald)

“So our infrastructure is falling apart all over, the best they can do to screw us even further is to poison our drinking water, I pray to God to send all the Karoo snakes upon them” (Nellis_la_Grange)

“FOX has done a whole show on this. The places in USA that allowed Fracking, are destroyed, and their water and agriculter is polluted and infected. This is so screwed up! The end is near!” (Soldier Of Christ)

“In Australia is reeds groot areas agv.hierdie metode van gas ontginning vernietig en sal rehabilitasie nooit weer die areas leefbaar kan maak nie.Water bronne is vergiftig en selfs plante groei nie weer om hierdie putte nie.Dit gaan kattestrofiese gevolge vir die karoo he.Australiers word kwaad as jy net oor fracking begin praat.” (Anton Bester)

*“This explains fracking a bit more, <http://www.dangersoffracking.com/>
The question is thus, can the karoo communities survive this? (water shortages?)” (ben.mostert)*

“Right so having 1000's of contaminated water reports and sick people is deceptive and misleading? If you turn on your tap it starts sizzling and is actually flammable.. yes, really deceptive isn't it.” (Greg Quinn)

“Fracking is a dangerous venture. It is rather costly to do it properly, which is not exactly what the developers are usually aiming for. They are driven by the corporate bottom line, driven by shareholders, of course. One of the biggest ongoing environmental disasters (in the energy

*realm), is the exploration of the Alberta Oil Sands in Canada. I wish you could see the environmental impact! Here's one article on it, discussing the pro's and cons of fracking: <http://www.calgarysun.com/2012/06/11/oil-industry-agrees-with-mulcair-on-fracking>. It would take real visionaries to consider this Karoo-toffie and decide on the proper guidelines, if it goes that way. Those interested should take a peek at Jeff Rubin's book, *The End Of Growth*.”*
(Johann Malan)

“WELL WELL THERE GOES THE ...THE UNIQUE PEACEFUL AREA OF THE KALAHARI KAROO BASINWERE THE SHEEP FARMERS ARE”
(Anthony D'Alpoim Manesa”

The following comments link environmental concerns with bribery and corruption. The latter theme is then further explored.

“The Karoo is one of the most ecologically diverse and beautiful places in the world. Our corrupt politicians and the fracking companies must seriously get lost. Was having a great day until I read this article... Goodbye Karoo, Hello toxic chemicals and destruction...”
(JournoSergio)

“Alas a poor decision. The damage hereafter will surpass the bribery by.....;; cannot calculate the damage,it's;; beyond calculation.” (Rampant)

“Great, government officials lining their pockets to the detriment of the environment...”
(pieter.louw.520)

“Who got bribed?” (Wouter.basson.5)

“So the bribes have been paid then?” (zaatheist)

“I wonder what the "back--hand" cost was???” (Victor Loftie--Eaton)

“Mmmm...took a while for the cheque to clear the bank...” (Vicker.man.3)

“Now the fracking fun and games start. I will not support any company that has a hand in this exporation...how much money has changed hands? Or did the Gov place a moratorium, so that they could get their hands in the companies that stand to make trillions from this? It would be nice to see how many of them suddenly appear as board members in these companies.”
(Phillip Beukes)

“It had to come, the bribes must just be too big to say no to.” (Jo Themba)

“[T]hey have done what???????????????????? How dare they!!!!!!!!!!!!!!! Whose grubby little hands have been greased this time???? A.N.C. AND GOVERNMENT YOU ARE A BLOODY DISGRACE!!! HOW DARE YOU DO THIS TO OUR COUNTRY???????????????? WHO DO YOU THINK YOU ARE? (QI)

“We knew our corrupt government would only be after the money, at any cost, i mean, we knew that, we had better pull up our socks and actively start to resist this if we wish to protect the Karoo.” (Sean_Keys)

“Read <http://www.karoospace.co.za/karoo-space-magazine/talking-point/100-fracking-the-karoo-the-people-say-no> See who will benefit then you comment. Most of this money will grease palms nothing else.” (Sonny Jacobs)

“This is not about fracking, its about who can make some money through corruption and bribes.” (Sharon Houghton)

“Time to send in Malema. The ministers have been bribed and given shares by shale, please help. We want to know which ones. Hehehehehe” (Sisa N Mtwana)

“Where there is money there are signatures on the dotted line. (Especially by the ANC cadre machine)” (Greg Quinn)

“Personal kick-backs enrichment of cANCer caders and greedy politicians will make sure that fracking will go ahead. As usaul integrity and honesty will always bite the dust under these greedy pigs!” (Jannie Kotze)

“Once again the ANC government shows their "locust" approach to the resources of this country -- rape the earth of it's resources even if they're not immediately required. We can rest assured that some over-weight, uneducated minister is receiving a nice back--handed payment for this decision!” (Graeme Van Greunen)

“Sounds like money has changed hands ! The way we do business in SA. I wonder if the ANC investment arm, has shares in this somehow ?” (Adrien McGuire)

“...let's not be naive and not see the farce by the Government first imposing the moratorium to gain financially from the lifting of same moratorium” (Wynand_du_Toit)

“I find it truly amazing that someone hasnt done some sort of attempted assassination or some crazy suicide bomb threat with all this blatant corruption and unbelievable in your face, couldnt give a damn about you antics that this government continues to do.....like really enough is enough already, please this is all getting way out of control, we wont have a country much longer if this carries on... P.s this is NOT an invitation for someone to try assassinate or blow something up!!!” (Sean Thomson)

“What comrade is going to get the contract to "monitor", "administer" the contract, be the sole exorbitantly priced "Health and Safety auditor", be the sole BEE compliant equipment supplier?” (Herbert Daniël Du Plessis)

“Its time to fire the government! They will do anything to frack up the country, or what is left of it! Wherever fracking is or was used it created problems! It therefore automatically follows, that South Africa has to use it as well! Nobody can be that stupid, unless there is an "INCENTIVE SCHEME" in place to benefit the "honourable" government gang members! (Alf_Pop)

“QUESTION 1. Who in government go the bribe money from Royal Dutch Shell to do their frakking in the pristine areas of the Karoo?

QUESTION2. Who will take responsibility when the reserves of water below the Karoo are contaminated beyond restoration?

QUESTION 3. How does the fra[c]king contribute to the development and well-being of South Africans and South Africa?

QUESTION 4. When will the ANC Government realise that they have made a pact with the Devil? Actually, there are too many questions, and I feel betrayed by the leaders of our country – once again, the short-term (personal) financial gain is seen as more important than the critical need to preserve the integrity of the planet and the eco-systems that are integral to our survival. SHAME ON SHELL!! SHAME ON US!! (James Else)

The next set of comments highlight the concerns readers have about the involvement of petrochemical companies on shale gas extraction.

“Of course. How predictable... There must be some major kickbacks going on between Shell and the ANC. Wish I was a fly on the wall...” (Kyle McLaren)

*“[T]he only people who will benefit from this will be Shell and the ANC corruption machine.
“(Greg Quinn)*

“Frack off SHELL!!” (Harald)

*“Goodbye Karoo, we will remember you as you were before Shell had the opportunity of
messing you up.” (Jacqui Daane Van Rensburg)*

“Frack you Shell! Lost my vote and petrol Rands, you tossers.” (John Birch)

*“Stop supporting Shell!! This is when greed exceeds survival..what a shame...what a bloody
shame...I hope they will find NOTHING in the [K]aroo but the bea[u]tiful silence and peaceful
sunsets they would never appreciate because they are a bunch of shallow h[y]pocrit[e]s,”
(Ronel Strauss)*

“Everyone should boycott (S)Hell.” (HughflInfluence)

“And don't support any Shell outlets.” (Iceberg_Standard)

*“<http://www.guardian.co.uk/environment/2012/apr/23/shell-nigeria-oil-spill-bigger>
Who are you going to trust? Not Shell!” (Tony van Niekerk)*

“Think they did this to see what back--hands they will get from Shell ???” (Johnny)

*“Boycott Shell with a vengeance, they don't give a Tinker's Toss for the environment or the
local population, just take a look at their destruction in Nigeria!! The acid water problem in
Gauteng should be enough of a warning that our water resources cannot be compromised!”
(Joy Skene)*

*“We have no other option, every South African should, from today, boycott Shell products, do
not buy Shell petrol or diesel. Apart from the fact that Shell could be the cause of the
destruction of the Karoo as we know it, please check on Shell's reputation elsewhere in the
world i.e. Nigeria.*

We must act now!” (Daniel Venter)

*“Now the war begins -- people BOYCOTT SHELL!!!! Let these scum know -- we, the people
of SA -- do NOT want these Big Oil vermin polluting our pristine Karoo..... !!!”
(Nick_Armstrong)*

The last set of comments refers to the perceived involvement of China in shale gas mining in South Africa. This notion is supported by other comments made on the page.

“Mmm, do I smell Chinese money or is that the waft of insufficient--funds--to--keep--cadres--employed--and--thus--voting--for--me?” (MarkH)

“This rotten and led government will sell this country to the highest bidder.” (Karl van Rooyen)

“[A]nd one of them is China!!!” (Essy Osthuizen, in direct response to the previous comment)

“I day China will be owners off Africa, and they will shoot every one who wants to protest”
(Sarel Claassens)

“So here is the real question ----- do we want this to be exploited by international oil companies that are answerable to the international media and subject to international law? or would we rather have the chinese come in here and do it with no regard for our environment, our economy or our laws?” (Andrew James Redman)

Three comments support the notion that overseas companies will reap the benefits of the shale gas exploration in South Africa.

“5 years from now you will have karoo towns full of multi nationals, dont think for one second the people of the karoo will benefit.” (Jo_Themba)

“Interesting that the initial study was done by the US Energy Information Administration. Makes you think..... Selling out the future of the country so many people fought for over decades. This is certainly the time for citizen activism.Where do I donate?” (Tony_van_Niekerk)

“Foreingers would be stupid to invest coz as soon as the gas comes out and the money starts hitting the tills it will be nationalised.” (Francois Lintvelt)

There is also the perception that only a small group of people will benefit from shale gas mining, whilst other people will be negatively affected or will not benefit at all.

“Somebody will get rich -- other bodies will get poor!” (Phillip_Newmarch)

"I wonder how much the poorest of the poor who is going to do the hard work, is going to get paid?" (anell.olivier)

"The last person going to benefit from this is the consumer. Any savings we might make on energy from this will be masked as an increased tax." (Greg_Quinn)

A set of comments also opposed fracking, but no reasons were given.

"Fracking idiots" (Colin Windell)

"We are just so FRACKED! Another SAD decision in a country gone SAD.."
(Dewald Scholtz)

"Jy kan met jou ma gaan speel vir R200mil. Frackoff!" (nj.zyl)

A set of (neutral) comments related to the Treasure the Karoo Action group, one of the biggest opponents of shale gas mining in South Africa.

"Treasure the Karoo Action Group (TKAG), headed up by Jonathan Deal, has been the only formal opposition and has been fighting this cause on behalf of the masses. They are in desperate need for donations to pay for legal fees, to take on Shell and the Government (who has shares in Shell) to stop fracking coming to South Africa. Please check out their website: <http://treasurethekaroo.co.za/>" (Natasja Ware)

"Donate toward saving the Karoo from fracking at <http://www.treasurethekaroo.co.za>"
(Marianne.brand)

There were also neutral comments relating to the importance of a regulatory framework.

"I'm sure the fracking will be done responsibly, ther[e] are too many people watching them for it to be otherwise!" (Irishman)

"The Netherlands uses "fracking" all over the country and 60% of the[i]r water is from boreholes.

Now SA must get a proper regulatory framework in place and find out if there is even any usable gas in the first place." (Andrew_Nieuwmeyer)

“NOW so how on earth (excuse the pun) do you ever think they would enforce ANY proper regulatory framework...” (Essy_Osthuizen)

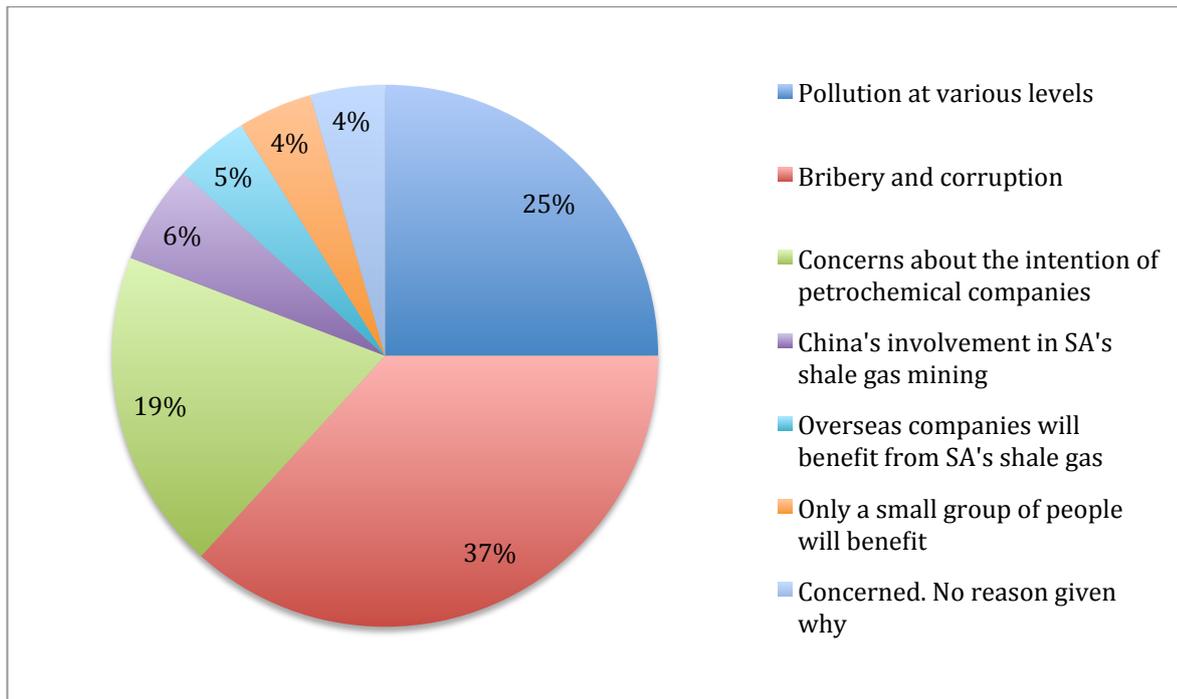


FIGURE 3: A graphical presentation of the main concerns in the comments placed on News24.

4.3.3 Summary of perceived benefits and concerns

Based on a summary of the comments the main perceived benefit is that shale gas exploration would help with South Africa's economic growth.

The main concerns are:

- 1) Pollution at various levels;
- 2) Bribery and corruption;
- 3) Concerns about the intention of petrochemical companies People are opposed to fracking, but did not give reasons why.

A neutral theme from the comments refers to the importance of a regulatory framework to minimise the potential harm that could be caused by fracking.

Certain generic themes are already visible from the analysis. The last two sets of comments from the Sowetan Live and Times Live webpages will also be analysed separately. A discussion will follow.

4.4 Sowetan Live

The article published on the Sowetan live titled “Cabinet is going to allow fracking in Karoo” contributed to 44 comments to the analysis.

4.4.1 Perceived benefits

All three comments that support shale gas mining were published by the same person in response to other comments.

“CAN YOU ALL BE POSITIVE FOR A CHANGE. NEGATIVE NEGATIVE. YOU COMPLAIN ABOUT THE PETROL PRICE. IN COUNTRIES WITH OIL RICHES, THEY PAY R2 A LITRE AND WHEN THE GOVERNMENT TRIES TO SAVE YOU R10 YOU STILL CALL THEM STUPID ON BEHALF OF 10 FARMERS” (manu.menne)(1)

“Goodluck on your ministerial duties @sowetan. I AM so excited about our government's decision. Good one for us. Lots of energy. You may go on and bash on Zuma. He will not be around near future. Maybe if juju wants attention, he should go and ask about who is the major shareholder. We are talking billions here” (manu.menne)(2)

“I am excited about the decision. I remember Msg Shabangu's speech to the cabinet about fracking. She simply expressed it by saying "it's a God given gift" for south Africans” (manu.menne)(3)

4.4.2 Concerns

The first main thematic concern relates to overseas companies:

“There we go again to exploitation of our land and minerals by multi-nationals. The government and cabinet should go FREK somewhere else, not in Mzansi.” (Nincompoop)

“Our govt is a bltch to multi nationals.” (CheeseBoy)

The next set of comments refers to the perception of bribery that played a role in the lifting of the moratorium.

“Did they finally pay some dollars? Wow we will have a tracking deal commission of inquiry in five years time. I like this. Phambili comrades.” (warry)

“When (the results of the study) ... came back, they recommended that it was clearly safe for us to have that programme of exploration of shale gas,” Chabane told reporters. Should read... “When we (the greedy and ba\$tar\$)... realised how much money we could make from back-handers and bribes, it became clearly advantageous for our own personal fortunes to have that programme of EXPLOITATION through shale gas” Chabane thought, while telling reporters.”
(16-12-1838)

*“WTF!!!!???? Who was bribed!!! CheeseBoy... I couldn't agree more. Backsides in the air folks, we are about to be royally f*cked yet again.”* (RobinH)

“This comes at an interesting time. Wonder how much they get paid under the table for this... surely they (ANC) need funds for electoral expenses and wives.... jets.... 4X4's.... etc.”
(bytheway1)

The second main concern revolves around pollution.

“All this at what cost to the environment? Irreparable damage for unsustainable energy. Take it all the way to the ConCourt! Rather build a solar power station there..... Send out tenda's for that!”

(LOA)

“The Karoo has one of the most delicate ecosystems in the country, it also has the least water. Now we are looking at destroying both the little underground water that they have and the entire ecosystem. Are you sure that is the legacy you want to hand on to the next generation?”

(MommaC)

Two comments negatively associate Shell to fracking.

“@Sowetan, What is "Shale" now, or are you trying to say Shell? Just asking” (Rockwell)

“Look for the information about what Shell has done to the Niger Delta then tell us that this is a good idea.” (MommaC)

A set of (neutral) comments also refers to the movie *Gasland* as a means to portray the dangers of fracking on the environment.

“Look for a documentary called *Gasland* then tell us that this is a good idea.” (MommaC)

“Go watch / google a documentary called “*Gasland*”, it’s all about how the big business are setting up this fracking thing in america and how it poisons the land and the people/animals living on it.” (Sageville)

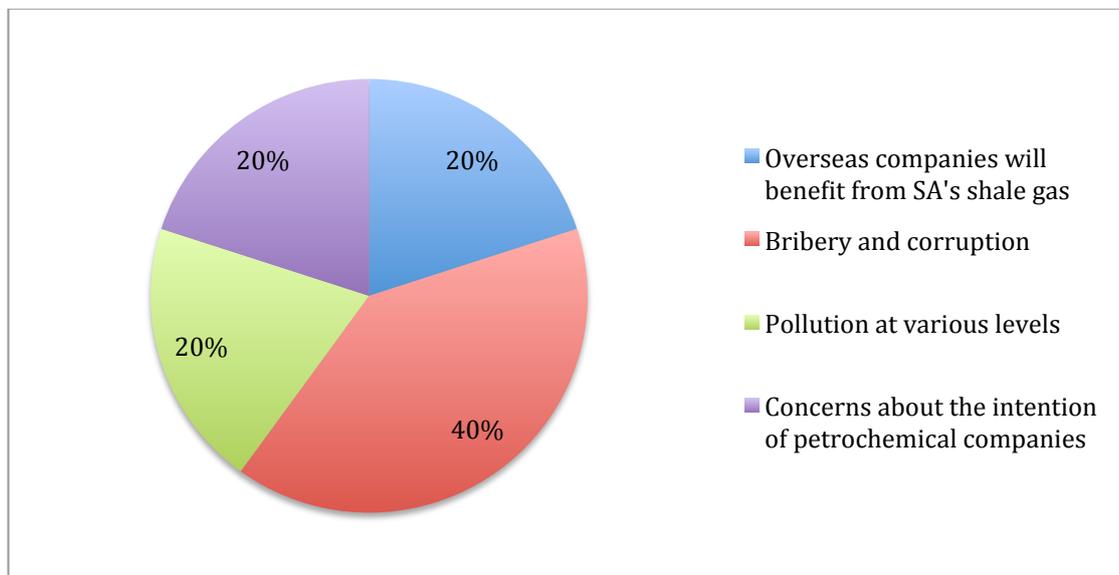


FIGURE 4: A graphical presentation of the main concerns in the comments placed on *Sowetan Live*.

4.4.3 Summary of perceived benefits and concerns

In summary the only perceived benefit as highlighted from the comment is an alternative cheaper source of energy.

The concerns are:

1. International companies that are going to benefit from fracking; and.
2. Various levels of environmental pollution.

Alternative comments include:

1. Reference to the movie in an attempt to justify why fracking should not take place; and
2. A link that is made between Shell and fracking.

The last set of comments that will be analysed come from an article that was published on the Times live website.

4.5. Times live

An article titled: “SA lifts moratorium on fracking” was published on 11 September 2012. A sum of 20 comments was posted.

4.5.1 Perceived benefits

The perceived benefit from the comments is linked to shale gas that would be a cheaper source of energy.

“You're being a bit negative. Fracking could serve to be a great boon for SA. Fracking has been used to recover tight gas for fifty years now and other than a couple of cases of broken casing it has proven to be an environmentally sound source of energy. Far better than our present source – coal. Gas has a multitude of benefits; it can be used in the SASOL plants to increase their petrol and petrol products (like fertilizer) production, when burning it is easy to turn on and off (unlike nuclear and large coal plants) and so it can assist renewables by ensuring there is enough supply to the grid, and it is relatively carbon frugal compared to coal” (South_One)

“This might be good for SA in order for us to have "our own " cheap energy. But, even Sasol increase fuel prices when oil prices goes up and coal prices goes down. But we should continue with this exploration as we need to prepare when everyone will do their part to remove the ANC from the Union buildings. We need to be prepared. O Happy day.” (Loggenberg)

“Dear me, such hysteria without any facts or foundation. The USA has been extracting shale gas for over 40 years and despite many "emotional claims" there has been no pollution. Shale gas has seen electricity prices almost halved in many states with more benefits to follow - like gas powered ve[h]icles.” (Spitfire)

“Even the UK, one of the most ecologically responsible countries in the world has released a joint report from the Royal Society and Royal Academy of Engineering that shows the technique is safe if firms follow best practice and rules are enforced” (Dawin_Rules)

4.5.2 Concerns

A major concern raised against fracking is the perception of pollution that is caused by fracking.

“Now the government argues that "South Africa is an energy scarce country". Hello! Our bigger immediate and long term panic should be SA's water scarcity which, in the water scarce Karoo is directly threatened by fracking.” (katrynVBengal)(1)

“What's going to happen when the gas is up and the area is ruined?” (cANCerSurvivor)

“As South Africans we should not be supporting any political party and their associated beneficiaries in this matter - we as conscientious citizens should be protecting our environment, our country, and in this case the water for many future generations living in the Karoo instead of just the current generation's fuel needs now!” (PaulW)

“People of the Karoo will be left with irreparable environmental and water damage and finally just a little personal advise to you 5) resentment is drinking poison hoping another person dies” (katrynVBengal)(2)

“What insanity is this?? the cost of polluting the Karoo cannot be left for future generations to bear. In an area where sunshine is abundant and water is scarce, these greedy, heartless, careless polluters will squeeze the earth, and pollute the aquifers. (Moonbeam_ElevenCroc)

The second main concern is linked to the perception that some form of bribery and corruption is linked to the moratorium that was lifted.

“Oe the greed of politicians and their fiends. I'd be very interested to know what the Americans' interest in this gas is.” (katrynVBengal)

“A few elite cadres will be left holding the kickbacks and the poor will be poorer, sicker and uneducated.” (cANCerSurvivor)

“whatever the corrupt anc what is fine to me, careless on what they do.” (mmugabe)

“The ministers need to be audited, this moratorium was lifted and someones bank balance grew.” (Moonbeam_ElevenCroc)

The first three comments link corruption with the oil company Shell and the last three raise concerns over Shell and its intentions in South Africa.

“This is going to be a disaster of monumental proportions. Shell is going to destroy the area whilst a few 'connected' get rich” (RSA.RommaCyndi)

“It will make for interesting reading when the names of those in Cabinet who endorsed the lifting of this moratorium, are compared to the names of those who are linked to Royal Dutch Shell's South African BEE partners!” (Stirrer)

“Ask your Ibo brothers in the once beautiful Niger Delta how they feel about Shell's Care for the Community...The lily white Shell will run away with the money like in Nigeria and their hand-full of glutinous black partners will make more money than you or they can calculate” (katrynVBengal)

“Shell will take their jobs and profits with them.” (cANCerSurvivor)

“Maybe if you check up to see who owns Shell, you may even change your mind. Even a racist reason to be against this would be good (in this instance)” (RSA.Mommacyndi)

“Say No to Shell and Sasol, boycott these monsters. No fracking on earth.” (Moonbeam_ElevenCroc)

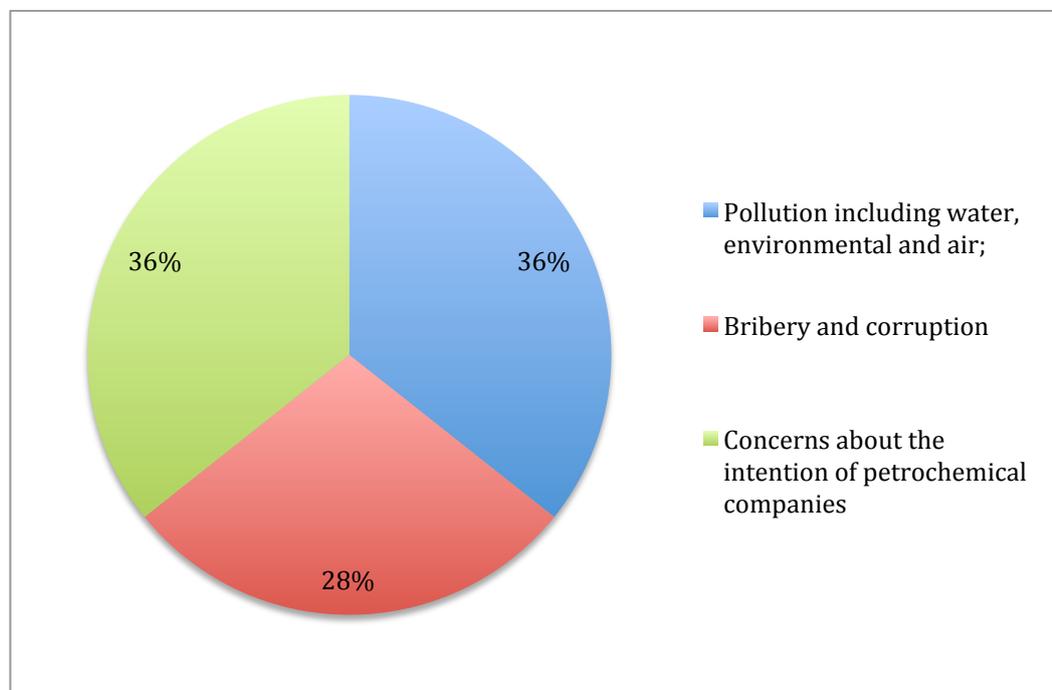


FIGURE 5: A graphical presentation of the main concerns in the comments placed on *Times Live*.

4.5.3 Summary of perceived benefits and concerns

The main perceived benefit is shale gas that would be an alternative form of energy and which will be cheaper than the electricity that we get in South Africa.

The main concerns are:

1. Shale gas mining could cause pollution on many different levels; and
2. The presence of bribery and corruption in the lifting of the moratorium.

A neutral concern is Shell's involvement with shale gas mining.

The analysis of the five online articles resulted in diverse perceived benefits. However, the concerns are very similar.

5. RESULTS

The collective perceived benefits of concerns will be summarised below.

5.1 Perceived benefits (Collectively)

A total of five dominant perceived benefits were identified through all five sets of comments. These are:

- Potential work opportunities that might be created;
- Shale gas could contribute to lowering the CO₂ emissions of the country;
- Shale gas is a more affordable form of energy that South Africa needs;
- Shale gas would help with South Africa's economic growth; and
- Alternative and cheaper source of energy.

5.2 Concerns (Collectively)

There are also six main concerns that were raised. These concerns are:

1. Pollution including water, environmental and air;
2. Bribery and corruption;
3. Concerns about the intention of petrochemical companies;
4. Only a small group of people will benefit from shale gas;
5. Overseas companies will benefit from SA's shale gas; and
6. Some comments expressed concerns, but did not give a reason why they are concerned.

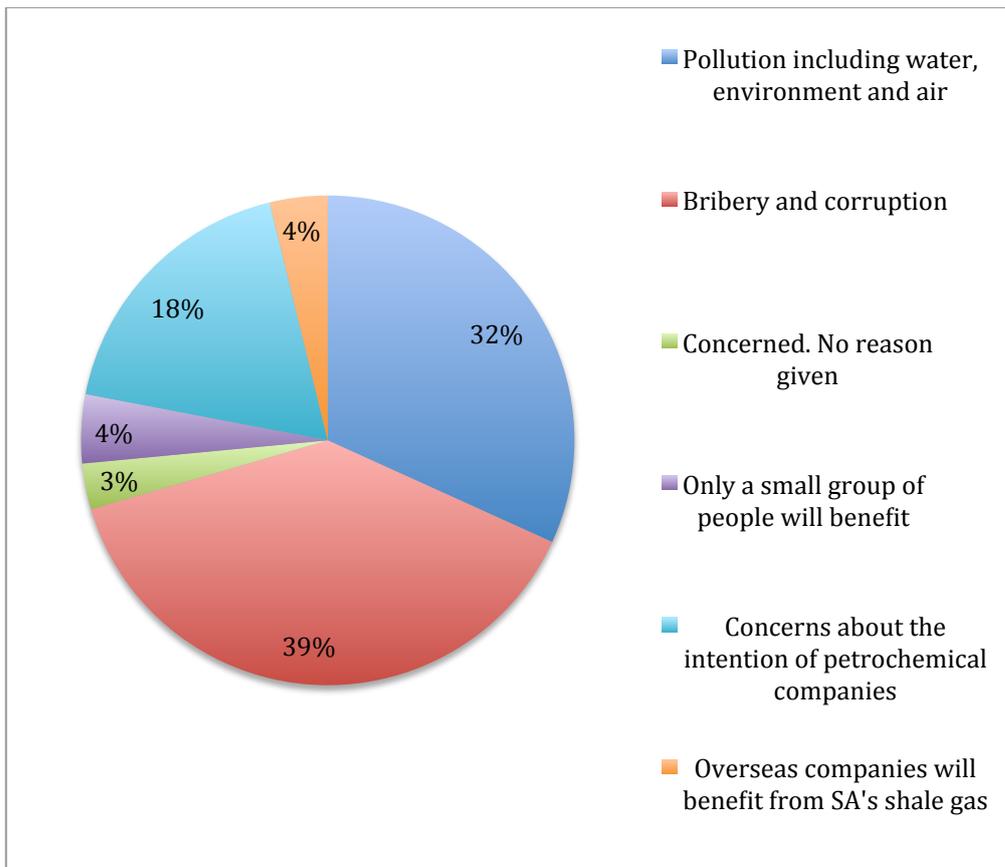


FIGURE 6: A graphical representation of the main concerns as highlighted in the comments placed on five news sites.

The neutral comments identified will form part of the discussion under section six that addresses research question 3.

6. RESEARCH QUESTION 3: Based on the results from the analysis, what are the opportunities from a public relations perspective to address the concerns raised in the comments?

Media scholars including Clear (2015: 1) acknowledge that journalists and public relations practitioners (PRPs) are dependent on each other for various reasons. On the one hand journalists need PRPs to obtain facts for newsworthy articles. On the other hand, PRPs need journalists to get news out to the public (*Ibid.*). It is thus important that this thesis also

address shale gas mining from a public relations perspective. Based on the analysis, PRPs linked to shale gas mining could focus and benefit by addressing the following issues:

1. Communicate the regulatory framework and procedures that will be put in place to minimise pollution. This could also be used in an attempt to address concerns raised in the movies *Gasland* and *Truthland*.
2. Shale gas mining is linked to certain petrochemical company brands such as Shell and Sasol. Links were also made between shale gas mining and China. It would be wise for PRPs involved with shale gas mining to differentiate between brands and actions linked to shale gas mining.

7. CONCLUSION

This chapter answered the research questions that were set for this thesis. Question 1 was attended to through a theoretical approach from both a positivistic and critical perspective. A concept called moral panics was also presented in an attempt to justify the actions of the media with regard to shale gas mining.

Research question 2 was answered based on the analysis of the comments. All five sets of comments were systematically analysed and the results were presented at the end of each section. A collective set of perceived benefits and concerns were also presented under section 5 of this chapter.

Research question 3 was also answered through the results that were obtained from the analysis.

CHAPTER 5

DISCUSSION

1. Introduction

This chapter extends the discussion on the findings from the analysis that was conducted in the previous chapter. Five main perceived benefits and six concerns were identified. These findings will be compared with two other sets of benefits and concerns. The first set was compiled by Prof Danie Vermeulen (2013: 260-261) from the Institute of Groundwater Studies at the University of the Free State. The second set comes from Prof Peter Sandman, a public relations “guru” based in the USA. The chapter ends off with a discussion on the contribution this study has made to the field of communication in the shale gas mining environment.

2. Benefits and risks according to Prof Vermeulen

Vermeulen (2013: 251) describes 2 main “positives” and 11 “negatives” that are linked to shale gas mining. He based his set of “positives” and “negatives” on observations that were made during two study tours to different shale gas sites in the USA and interviews with different role-players.

1. He argues that shale gas could improve South Africa’s energy “deficit” if the natural gas is “substantial”.
2. He is of the opinion that operations linked to shale gas mining has improved over the years, which might make the practice safer than what it was a few years ago, thus minimising various levels of pollution (Vermeulen, 2013: 260).

The “negatives” are:

- The amount of water required for fracking;
- The amount of trucks required to transport the water needed;
- Dust that might be generated;
- Noise that might be heard from the sites;
- The Karoo’s unique fauna and flora might be negatively influenced;
- Well construction;
- Methane emissions;
- Earthquakes;
- Backflow water;

- Migration of fluids; and
- Fracking fluid.

3. Benefits and risks according to Prof Sandman

Prof Sandman's compiled his list of "plusses" and "minuses" from consultations with two companies that are currently extracting shale gas in the USA (2013). He highlighted 1 main benefit and 5 concerns.

His "plus" refers to the economic benefits shale gas has on a country, especially in the USA. He breaks it down into:

- Royalties for property owners;
- New job opportunities;
- Increased tax revenue;
- Improved transport infrastructure;
- Export opportunities; and
- A cheaper form of energy (Sandman, 2013).

Sandman's "minuses" include:

- The risk that leaking frack fluid, gas, or oil can contaminate local well water, groundwater, or surface water;
- The risk of drill rig explosions, fires, and other accidents, which can injure workers and neighbours and lead to air contamination;
- The contention that fracturing shale lets harmful gases, previously trapped underground, travel to the surface;
- Routine leakage of methane and other hydrocarbons into the air; air pollution from the heavy equipment that shale gas and shale oil exploitation requires;
- The need to contaminate large quantities of water (sometimes in places where water is scarce) with various chemicals to make the frack fluid, and the need to put the frack fluid someplace when its job is done;
- The growing evidence that fracking can sometimes destabilize hydrogeology and cause "mini-earthquakes" that may or may not be harmless; and
- The proliferation of thousands of drilling sites in people's backyards, pristine wilderness areas, and other places where they are not necessarily wanted.

4. Comparing the findings

The findings of this research project (see Chapter 4) corroborate with some of Vermeulen's and Sandman's benefits and concerns, but they also add unique indicators for consideration in subsequent studies.

Perceived benefits from this study	Vermeulen's perceived "positives"	Sandman's "plusses"
Potential work opportunities that might be created		New job opportunities
Shale gas could contribute to lowering the CO ₂ emissions of the country		
A more affordable form of energy that South Africa needs		A cheaper form of energy
Shale gas would help with South Africa's economic growth		Increased tax revenue
Alternative and cheaper source of energy		
	Shale gas could improve South Africa's energy "deficit" if the natural gas is "substantial".	
	Operations linked to shale gas mining has improved over the years, which might make the practice safer than what is was a few years ago, thus minimising various levels of pollution	
		Royalties for property owners
		Improved transport infrastructure

TABLE 3: A comparison between the perceived benefits of shale gas mining

As can be seen from Table 3, there is a correlation between the study results and Sandman’s perceived benefits of new job opportunities, cheaper energy and economic growth. The next table compares the concerns.

Concerns about fracking	Vermeulen’s perceived “negatives”	Sandman’s “minuses”
Pollution of water, the environment and air	Methane emissions Backflow water Migration of fluids Fracking fluids	Leaking frack fluid, gas, or oil can contaminate local well water, groundwater, or surface water; Routine leakage of methane and other hydrocarbons into the air; air pollution from the heavy equipment that shale gas and shale oil exploitation requires; The need to contaminate large quantities of water (sometimes in places where water is scarce) with various chemicals to make the frack fluid, and the need to put the frack fluid someplace when its job is done; The risk of drill rig explosions, fires, and other accidents, which can injure workers and neighbours and lead to air contamination; The contention that fracturing shale lets harmful gases, previously trapped underground, travel to the surface
Bribery and corruption		

Concerns about the intention of petrochemical companies;		
Only a small group of people will benefit from shale gas		
Overseas companies will benefit from SA's shale gas		
	Amount of water required for fracking	
	Number of trucks required to transport the water needed	
	Dust that might be generated	
	Noise that might be heard from the sites	
	The Karoo's unique fauna and flora might be negatively influenced	The proliferation of thousands of drilling sites in people's backyards, pristine wilderness areas, and other places where they are not necessarily wanted
	Earthquakes	The growing evidence that fracking can sometimes destabilize hydrogeology and cause "mini-earthquakes" that may or may not be harmless

TABLE 4: A comparison between the concerns of shale gas mining

With regards to the concerns as tabulated above, the readers' concerns about water, environmental and air pollution and its negative effects on humans and animals compares well with the concerns mentioned by the other two scholars. This study can add four more concerns to the list. These are:

- Processes in obtaining shale gas mining rights could be linked to bribery and corruption;
- Concerns about the intention of petrochemical companies;
- Only a small group of people will benefit from shale gas mining; and

- Only international (multi-national) companies are going to benefit from South Africa's shale gas deposits.

As a general comment, the author is also of the opinion that the perceived links between fuel companies such as Shell and Sasol, and the practice of shale gas mining could potentially pose confusion and unintentional damage to the companies' brands and reputation if shale gas mining is conducted in the country. This might be explored in more detail in further studies to determine the actual extend of the perception.

5. What was achieved by this thesis?

This research is one of the first attempts in South Africa to measure the perceived benefits and concerns of South Africans with regard to shale gas mining. Although there are lists of predictions from different perspectives (like that of Vermeulen and Sandman's), the author has not come across any empirical studies that either confirmed or tested the list of benefits and concerns in the South Africa context. Furthermore, the study also presented three unique indicators to the list of concerns. The research finding can also be used as a foundation for subsequent studies in the field to further explore the extent of the perceptions of shale gas mining from a South African perspective.

This study can also be of value to journalists and science communication specialists. As many questions and concerns are raised through the comments, journalists can address the issues that have not been covered in the media as yet.

PRPs can also benefit from this study as it highlights some of the potential PR "dilemmas" that might be faced by companies who are going to engage in shale gas mining activities in the country.

6. Limitations of this thesis

The author has identified two main limitations of this study. Firstly, although this research has shown a significant correlation of findings over all five news sites, a comparison with the findings of the readers of the printed version of the different newspapers may have brought deeper insight into the study.

Secondly, a thematic content analysis of the articles and a comparison with the results may have also brought new insights into how hydraulic fracturing is framed in the media and how the readers have responded to the content of the articles.

7. Opportunities for further investigation

This has also created news opportunities for subsequent research in the field.

1. One opportunity is to conduct a longitudinal study of the comments posted by the readers of the same five online news sites to measure if they are more accepting or more resistant towards shale gas mining.
2. The media articles can be analysed to determine if a moral panic about fracking persists in the media, and if so, to what degree.

In conclusion, this chapter compared the results of this study with two other sets of perceived benefits and concerns. Although certain correlations can be drawn, it has become evident that South Africans have certain unique perceptions about shale gas mining that would need to be addressed.

CHAPTER 6

CONCLUSION

This thesis analysed the comments posted against five online articles that reported on the moratorium that was lifted on the exploration of shale gas mining in South Africa. The data sets, in this case the comments, were obtained from the following five online news sites:

- IOL;
- *Mail & Guardian*;
- News24;
- *Sowetan Live*; and
- *Times Live*.

The results were compared with Vermeulen's predicted "positives" and "negatives" and Sandman's "pluses" and "minuses". To some extent the study results corroborated with two other sets of perceived benefits and concerns. Additionally, the study also added a few more factors to consider when communicating either the benefits or concerns about fracking to society.

The results of this study can also potentially contribute to further studies in the field of science communication in the shale gas mining industry.

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ANNEXURE A

IOL

Title: Karoo fracking ban lifted

url: http://www.iol.co.za/scitech/science/environment/karoo-fracking-ban-lifted-1.1378160#comments_start

Comments were retrieved for analysis on: 10 July 2015

mikethurgood	<p>Oh dear, what a tremendous amount of cynicism this decision has invoked! But it's entirely the fault of the government and it's ANC controller that are responsible for this problem.</p> <p>Yes, fracking in other parts of the world has devastated agricultural areas, primarily through the release back to the surface of the fracking water containing various chemicals to aid the release of the natural gas. But in addition, various chemical industries producing highly contaminated process water have also been allowed to pump that contaminated water down disused well piping instead of spending the money on properly processing it and removing the contaminating salts. So other factors have compounded the ruination of what were originally good agricultural soils.</p> <p>It has been a disgraceful record, about which those companies involved should be utterly ashamed. The time has come to demonstrate how the fracking process can be carried out without contaminating valuable clean water supplies in aquifers, and not to destroy otherwise good agricultural land. The government has a heavy responsibility, if it has the capacity to manage it. And, at the present time, I am not confident about this. Any contaminated water coming back to the surface should be processed and the salts removed. They can then be reused, so one would have a recycling process. I don't know exactly in what way the added salts aid the release of the natural gas which is absorbed in the shale, but I can't see it involving any chemical processes, rather that aiding the water to fill the pores in which the gas has been retained and reducing the solubility of the gas in the water, especially methane.</p> <p>If the exploratory drillings confirm the gas resource which, at the moment, is purely an estimate, it would be of immense benefit to South Africa. It should also please the nuclear opponents!</p> <p>But any fracking work must only be carried out under very stringent controls, and the Department of Minerals would need to have inspectors continually on site to ensure that whatever safety and environmental constraints are rigidly adhered to. And fracking water released back to the surface must be 100% recovered and reprocessed, and the salts recovered for reuse.</p> <p>But there are aspects which seem to have been conveniently overlooked. The fracking technology would provide work for South Africans, although I have heard that it is anticipated that the fracking companies could be bringing their own employees on site. Our government should resist this with a steel determination. And also if organisations like Save the Karoo, or whatever, want to take their objections to fracking to court, they have a need to very carefully watch the ANCYL, when it appreciates - which it hasn't done so, yet! - what a highly effective campaign for fracking they would be able to mount. And if anyone, especially non-blacks, have any doubts on just how African blacks will demand that their natural resources should be exploited by South Africans for the benefit of South Africa, just wait!</p> <p>Marikana could pale into insignificance. Politics will metaphorically explode.</p> <p>But, for the benefit of South Africa and South Africans will be the criteria which the government will necessarily have to achieve with this energy resource, if the reserves are proven to be correct by the exploratory drillings.</p>
dblo7	Amazing how fast government can be at making decisions when money is involved..
Guest	It's funny how the same people in this forum whine and complain about high energy costs and when domestic energy sources are developed, they same group of whiners start posting. You can eat your cake or you can have your cake, you can't do both.
ZAlove357	Who cares if it anywhere near the SKA. It's the land, the people, the animals. It's life

	itself, that these chemicals will destroy. Not the SKA?!!! SKA is a man-made construction. The irony is SKA is looking for life, and Fracking is destroying life.
dblo7	Very few people in Africa care about human life. What chance is there of respecting nature..
Guest	This is sick... watch Gaslands. In America fracking is rampant and the laws have been amended to give immunity to the gas companies from any damages to the environment. In areas where people rely on wells or boreholes- you now have all these funny chemicals and gases mixing in with the drinking water to the point that people can light the water coming from their taps like a flame thrower.... it 's sickening how greed drives people...pure greed. How many people, fauna and animals will suffer when the fracking chemicals contaminate the natural water supply... without water we die.... when fracking leads to all those health issues.... no money in the world from gas sales will be enough to repair the damage done..... but then this government has shown it cares nothing for its people.... all decisions are made with money and greed driving the individuals... I bet those reports mention nothing of the damage fracking has done in the USA??? Make these reports public you lying government thieves.... let us see what evidence you have conjured to motivate fracking be allowed !!?
Guest	Gasland was a biased, emotioally driven piece of drivel. Yes, their were some early failures (gas in the water for about four families) but the modern process is safe and effective.
Guest	Oh Really... what is biased and emotional about simply filming what is actually happening... what is biased and emotional about the Gas companies refusing to acknowledge what has been happening to the innocent people whose water is poisoned.... fact is these "safe" techniques were being claimed in the documentary too...and yet no Gas company boss was prepared to drink from the tap water ... I'd like to see you volunteering to go drink water from the boreholes and wells after the "safe fracking" starts.
sad_life	Report released "at the appropriate time" - does this mean after the thick envelopes have been received and the new cars ordered???
ET1C	"The decision was based on recommendations contained in the report" - No, it was based on the amount of kickbacks they probably paid government to give them the green light. This is totally fracked up! To Cabinet - I hope you enjoy the new cars you're going to be buying with your kickback money while the environment gets raped to bits...
MikeF	Anyone who is new to this issue should watch the Gasland and TruthLand documentaries. Make up your own mind. To me, squirting tons of chemically saturated water into the ground with no expectation of pollution seems naive and irresponsible.
Guest	Oh, yeah - we should start basing public policy on a bunch of activist documentaries. For God's sakes, seek other opinions, do some research. For real ecological devastation, take a look at open pit mining and coal burning.
LennonZA	I'd say it's fracking stupid.
Glynn Erasmus	'then they go into the environmental thing...' -shows how much respect he has for that process, and the outcome we can expect- they will have a fight on their hands though.
Peggy Madden	In Pennsylvania they have been doing fracking and the farmers on whose land they have, fracked? admit that they did it for the money and the land is now no good for farming!!! This is just another go for the government getting their grubby little hands on more money for themselves, oh my poor South Africa.
Guest	I'd like to see some citations on that (other than activist, biased "documentaries").
Gareth W	I'm not an environmentalist, but this is a bad decision. Fracking is a terrible process
Jo Garth Cronje	What did you expect form the greedy, corrupt South African government pigs? Typical MO...wait a few months and do it anyway. What a massive fail.
hamlet_2be	Collins Chabane and you obviously have a silent finger in the pie ,you bloody rubbish will sell your mother for money
Tintinatwork	It's the "enviromental thing" I have an issue with.
Paul Mark Maarman	f up to follow....

ANNEXURE B

Mail & Guardian

Title: Fracking will save us: Cabinet drops moratorium

url: <http://mg.co.za/article/2012-09-07-cabinet-breaks-ground-on-fracking>

Comments were retrieved for analysis on: 9 July 2015

Guest	This is like people aboard a spaceship saying "Let's drill into the fuel tank and tap off and burn some fuel. We'll check the consequences later".
semarumi	<p>As a professionally qualified and recognised water expert, who has studied Karoo groundwater, read the US EPA's manual on fracking and understands a little about how environmental activists run their campaigns, I am afraid that I have to conclude that:-</p> <ul style="list-style-type: none"> - the dangers of fracking are being wildly overstated; and - fracking is among the less important water quality and quantity challenges that South Africa faces. <p>We should also remember that the current permission is for exploration. There is a fair chance that the region's geological history will mean that there are no economically exploitable reserves.</p> <p>So lets give science a chance, find out what we have and cut the hysteria until we know what we are talking about.</p> <p>But don't underestimate the potential benefits from fracking - it has transformed the US economy and contributed to reducing their CO2 emissions for the first time in history. for that alone we should be welcoming the technology.</p>
Guest	<p>Let's rather not underestimate the folly of thinking the "solution" is simply to find more stuff to burn. Our problem is we burn too much stuff. Hard to accept, but that IS actually our problem. This is short-term-solution seeking, thinking that the old "neverending growth" model still holds. It doesn't.</p> <p>But we're going to leave that problem for our grandkids. Stuff them.</p>
Jonathandea1	So, to set aside all the scientific debate, temporarily, is there an opinion amongst the fracking proponents as to why, tens of millions of people, in more than one hundred and fifty five formally recognized bans, moratoria or restrictions, would willingly forego the so called massive benefits of shale gas by rejecting fracking where they live, raise, their children, source drinking water, grow crops and breed animals for food, milk and other products? Are these communities, (towns, cities, provinces, counties, states and even whole countries) simply alarmist and extremist? Is there perhaps any shred of good reason for such a step? Why would they turn their backs on this shale gas bonanza? Why are dozens, yes dozens more communities - made up of people just like those on this comment thread, agitating for similar action against fracking in their jurisdictions? Any ideas?
Yendys1	So there are some sensible people in the ANC Now comes hysterical doomsday emails, and Karoo blinkered Karoo lovers
Ian McIntosh	Right.... Cause you think fracking is ok everyone who doesn't must be hysterical ?
Frank De Sales	That's an ad hominem argument. Stick to the facts
Frank De Sales	A simple 'Google search' also reveals that the earth is hollow and Hitler escaped there, the world is flat, Jesus was black, Elvis is alive and the Queen of England and George Bush are actually lizards. Anecdote isn't data. Some evidence please
Ian McIntosh	Simple google search with a modicum of intelligence. Hence my stating EPA Wyoming .
Frank De Sales	<p>How smug. "Intelligence" isn't picking the bits that match your preconceived notions.</p> <p>The EPA Wyoming document says nothing conclusive. All I want is something from a recognised source saying, "Professors A and B from the Universities of C and D (they can</p>

	<p>be in the singular or a think-tank or scientific research group), in study involving X, and with control group Y, have shown that activity Z has this effect on ground water/earthquakes/your mom/the sky/dassie, etc".</p> <p>Is that hard? Or exactly what more research should be looking for?</p>
Ian Mcintosh	<p>Not smug, your previous comment about what you can find on the Internet was puerile hence my clarifying that you'd need a bit of intelligence to sift through the garbage.</p> <p>EPA site is down at the moment, so I couldn't look at the report on Dimock, but that looked to be quite interesting re: ground water pollution.</p> <p>No it's not hard, although if you are so desperate to believe it doesn't harm the environment then that to would probably not be conclusive Btw , what facts were in yendys1 statement? Zero...</p>
Frank De Sales	<p>Very convenient. I guess twelve hours later it still isn't on-line? Does '...that looked...' mean you haven't read it? Come on! I've learnt the hard way to take my quacks in small doses. Alarmism is a pet hate. Prove to me fracking is dangerous</p>
Ian mcintosh	<p>if you bothered to have a look at the EPA site you'd notice the banner stating the site downtime. its still up. and yes, haven't looked at would imply i hadn't read it.</p> <p>so, in your opinion - fracking is entirely safe with no risk of groundwater pollution, any other pollution or any dangerous impact to the environment? point me in the direction of where thats conclusively proved – preferably not a 'study' sponsored by an energy/gas company (a link/reference to a website will do, i am able to look up myself..)</p>
LancasterL	<p>Earthquakes????!! - what utter nonsense. Doomsayer propaganda at its worst. Fracking has operated successfully in the USA for over 40 years with minimum pollution. The reality is that without cheap energy South Africa will really be DOOOOOOMED!!!!</p>
Sean Sylvia	<p>THIS IS CRAZY!!!!</p> <p>This website is taking a bias stand. NONE of you are obviously aware of the negatives associates with hydraulic fracturing.</p> <p>THIS WILL POLLUTE OUR UNDERGROUND WATER SUPPLY. MOST OF WHICH IN THE WESTERN CAPE ORIGINATES FROM BASINS IN THE KAROO. THIS IS A BAD IDEA.</p> <p>Be smart people don't follow along to this sad song.</p>
Paul Bluewater	<p>There are many normally intelligent commentators on this thread who do themselves no favours by commenting on a essentially technical matter from hysterical positions of ignorance !</p> <p>I fully support the exploration effort, i.e. seismic and exploration wells. I will reserve my comment on the development plan once we understand the location and size of any potential reservoir(s), and the details of production, processing, and transport. Gas Development is surely the subject of future applications for Environmental Permits. Lets save our blanket condemnations until it is clear what any development would entail!!!</p> <p>The process of actual exploration is a very low impact activity which will leave little footprint in the case of geological failure (seismic and exploration wells). We would learn a lot! Shell may spend 800 million US (?) learning that there is nothing there!A little boon town here and there for limited time.... A little economic action for these inactive regions at worst. Let them have that, Shell and the unemployed who will benefit from the exploration phase.</p> <p>If it is a geological success, we can actually evaluate sensibly the cost benefit relationships. This is when you need to be sharp!</p> <p>Exploration and development are two very different activities! Development will follow typically after 5-10 yrs if exploration is successful, and it has an entire Permit process on it's own, terms of which is totally unknown today!! If anything, Shell has cleverly got you lot to shoot your load prematurely! Should there actually be a sensitive development in the future.....you'll all have gone home and said..."oh well, we knew this would happen" and walk off.</p> <p>Keep your powder dry, you may need it!!</p>

	<p>If it is a geological success, it will be a material economic boost! In fact, we should already be making plans to run off more Mozambique gas, and hope we find the reserves locally to augment the industry later.</p> <p>This "oil business is the big boogy man" theme is way out of date. Take a closer look at the industry, in an open minded way. And I assume you naysayers all have a zero fossil fuel footprint in 'your' lives!!</p> <p>Direct you anger to the plunder off our coasts by outrageous over-fishing right now or some other real and imminent crisis..... lets see what the explorers find, then regroup...</p> <p>Some reason, please..</p>
Keith Roberts	<p>If oil is found in commercial quantities, money will ensure that it is 'mined'. No opposition will be able to overcome the greed of the politicians who will get their pockets lined when they approve 'fracking' regardless of any impact on the Karoo. The 'plunder off our coasts' is an indication that money will triumph over all.</p>
maliel stemmet	<p>The lawful owners of this country A.K.A we "The Taxpayers ,should really force the issue ,like people did in Gauteng with the tollgate story.Refuse to pay taxes ,and we'll have them by the short and curlies.Lets boycott Eskom..hook up a car battery for light and cook with gas...Lets create an economic revolution by refusing to pay for shit,and stop being a convenience bag for the Anc,the banks,the squatters,the poor guy/girl with 10 kids,...etc..Our energies as well as the country's are being sapped by the Anc and the Chinese and one thing is guaranteed here, we the Taxpayer will be the last if we're lucky to benefit from this.</p>
Wordscanhelp	<p>This is alarming. The article did not go into the negative side of fracking, except for a one-liner. As if SA does not have enough sun and wind to exploit, both renewable. Risking even small water sources in the Karoo is insane and will not make the country energy safe. This is very irresponsible</p>
Brian Williams	<p>All I can say, is that if the ignorant masses continue to vote in the ANC, is that when they have NO Water, they will be running to the UN crying for help, and after 20 years or more, still blaming all their troubles on " apartheid".</p>
Jfgn	<p>I'm simply enthralled by the insult of your general intelligence when we're told by a simpleton like Chabane that we are "an energy scarce country". Really now, I suppose some of the largest deposits of coal have zero energy value. Just let us know how much Shell kicked your stupid slave ass (as if you're not one now, you'll be one soon enough with this mindset) back and we'll leave it at that!</p>
ZA Observor	<p>SA has no shortage of coal, but several challenges in the energy supply price chain - one is accelerating prices of importing crude oil when Government acts to weaken the rand exchange rate (considered necessary for exports to balance growing current account trade deficits). Another factor is the source of crude imports and their sensitivity to OPEC stranglehold over supply which effectively holds world economies to an energy ransom.</p> <p>PetroSA (aka Mossgas) continues to be a massively expensive failed attempt to supply sufficient gas for liquification, which government chooses to overlook as expediently as the failure of the pricing mechanisms of the Central Energy Fund and very large slice of tax making up the price we pay at the pump. Over 80% of the price of fuel in South Africa is currently made up of government levies and taxes (29%) and the BFP or Basic Fuel Price (55%), which is not sustainable if crude doubles in price over the coming year to, say, US\$200 per barrel.</p> <p>More than a third of fuel in SA actually is not imported but produced synthetically back home, mostly by Sasol, with the benefits going to investors and Government rather than back to the public who originally funded its creation. There would be no change in the price of crude (on which our energy is priced) by Shell or Sasol fracturing the Karoo rock, but more profits to go around - the consumer and economy will still be locked into the same price spiral, but the spoils get to be divvied up afresh amongst new cadres and comrades of the ruling elite.</p> <p>Water, by contrast, is a distinctly finite resource of which SA is in worsening short supply, despite seasonal rains, with no new dams and pipelines planned to supply the Eastern Cape and other provinces.</p>
Keith Roberts	<p>"benefits going to investors and the government rather than back to the public." Doesn't the government represent the public? Oh no, I forgot,</p>

	<p>the government represents the anc and it gets the benefits. Also, Clocolan in common with a few adjacent towns, has had no water for weeks. Almost all the bakkies in the area now carry Jo-Jo tanks to collect water from farm boreholes. So water is as important as oil, more so in that if you have water you do not have to use your vehicle to collect it.</p> <p>As for the fracking in the USA, isn't there some opposition to fracking there?</p>
LancasterL	<p>Dear me, such hysteria without any facts or foundation. The USA has been extracting shale gas for over 40 years and despite many "emotional claims" there has been no pollution. Shale gas has seen electricity prices almost halved in many states with more benefits to follow – like gas powered vehicles. Even the UK, one of the most ecologically responsible countries in the world has now released a joint report from the Royal Society and Royal Academy of Engineering that shows the technique is safe if firms follow best practice and rules are enforced - and now, exploratory shale gas recovery is being mooted in at least seven sites around the UK.</p> <p>The report was commissioned by the government's chief scientist, Sir John Beddington.</p> <p>"Our main conclusions are that the environmental risks of hydraulic fracturing for shale can be safely managed provided there is best practice observed and provided it's enforced through strong regulation," said the report's chair, Prof Robert Mair from Cambridge University.</p> <p>"The UK regulatory system is up to the job for the present very small scale exploration activities, but there would need to be strengthening of the regulators if the government decides to proceed with more shale gas extraction, particularly at the production stage," he</p> <p>The report contains 10 top-line recommendations for strengthening regulations, including:</p> <ul style="list-style-type: none"> · Comprehensive monitoring of methane in water and the atmosphere before, during and after operations · Use of an independent well examiner empowered to carry out onsite inspections on demand · Better co-ordination between the various government agencies involved <p>Hydraulic fracturing, involves drilling down into shale formations and fracturing the rock using explosives or hydraulic pressure.</p> <p>Water is pumped in containing sand particles that prop open the cracks in the shale, allowing the gas out, and a tiny amount of chemicals.</p> <p>The report recommends more monitoring, but says shale gas recovery should be safe if done properly.</p> <p>In the US, concerns have been raised that the gas or the chemicals can enter drinking water supplies.</p> <p>However, the report concludes that gas contamination should not be a problem - the risk is very low - because fracking takes place at a depth of many hundreds of metres, a long way below the level of aquifers.</p> <p>Each well is lined with layers of steel and cement; and this, the scientists conclude, will prevent gas leakage .</p> <p>South Africa needs cheaper energy to make our industries more competitive - whilst more and more vehicle manufacturers are looking at gas powered cars that will release us from the strangle hold that the criminals who run OPEC have us in. Piped gas will also provide low cost</p>

	<p>heating and cooking for millions of homes as well as creating thousands of jobs in allied industries.</p> <p>It is time for emotional greenies to get real and work together with government to ensure that all their concerns are addressed. Simply screaming "no" is idiotic in the extreme.</p>
Ian McIntosh	<p>No pollution? Absolute crap...a simple google search implies otherwise. You also seem to bypass the fact that fracking requires massive amounts of water.. Which is generally in short supply in semi arid areas....</p> <p>Lastly - work with govt? Wtf cloud cuckoo land do you live in?</p>
LancasterL	<p>What pollution are you talking about? Facts please. And what alternative do you propose to working with government and the exploration companies?? Perhaps it is you living in cloud cuckoo land old chap.</p>
Ian McIntosh	<p>EPA findings in Wyoming. Plenty of other examples if you took the time to search.</p> <p>I wasn't proposing alternatives, but in an area with little water and plenty sun I'd assume solar would be a better option.</p> <p>Do you really think a means of extracting gas with excessive water amounts in a semi arid area is wise? Don't forget you are talking about a govt that can't even deliver a textbook....</p>
LancasterL	<p>The EPA findings in Wyoming are absolute nonsense. The wells they drilled were far deeper than any regular or normal boreholes - they were close to the depths where shale gas recovery was taking place. In all drinking water boreholes the EPA were UNABLE TO FIND ANY CHEMICAL ASSOCIATED WITH SHALE GAS RECOVERY!! Over the last three years, more than 4,000 wells have been drilled in the Marcellus shale formation in Pennsylvania with no pollution. This is not to say that potential problems should be ignored.</p> <p>South Africa needs to work with overseas expertise to ensure that proper effective controls are in place and that all drilling is properly supervised and audited. Simply shouting NO and parroting cliches will serve neither the environment or future generations.</p>
Shaman sans Frontiers	<p>The ghastly cabinet waits for the SKA deal to wrap up, and then springs this on us. The only thing that fracking will save is the extensive retirement kickbacks some high and mighty ANC people drool after. The entire region is susceptible to high risk from drought, and now they want to back a means of polluting the Karoo aquifers. Water is our most important strategic natural resource, and will continue to be so even if all of the mines are mined out, all of the heavy industries depart, and Jesus comes again. The ANC are dragging their heels over freeing up of legislation to enable us to make solar power and, if the scale is big enough, sell it back into the grid. They are only interested in Big Business and selling off our resources and making money for themselves on the side. We could have vast solar installations that are non-polluting, virtually cost-free once established, and - when the time comes - able to be dismantled and removed without leaving hectic environmental damage. The lack of vision, the covert greed, are incredible.</p>
Big Pete	<p>The cadres are going to be VERY rich. This is going to be bigger than the arms deal in bribes paid out</p>
Frank De Sales	<p>Robbie. I guess that since it's been 'proved', you have the academic research handy to show it?</p> <p>No confusing data and anecdote. No references to funny websites your friends and co-thinkers post on?</p> <p>Thought not.</p> <p>PS: lose the extensive use of exclamation marks</p>
JohnnieVercuil	<p>Stop this nonsense before it gets completely out of hand. This will do absolutely nothing to South Africa's energy problems. The same story was told about SASOL.</p>
JohnnieVercuil	<p>Even if shalegas is found it will not save South Africa's energy problems. The same story was told when SASOL started.</p>
Ralph	<p>Goodbye pristine Karoo. The government is too incompetent to solve the energy crisis by other means.</p>

Erica Jones	Crazy! [Do not drink this water youtube clip added]
Frank De Sales	This fake has been disproved numerous times
Erica Jones	..by those with vested interest in energy companies. It's funny how those who sought to find the truth are labelled as fakes. In the interest of BIG business and governments intent on brainwashing the masses.
Guest	Obviously substantial kickbacks to ANC comrades.
Corrupt_comrat_nr1	"Minister in the presidency" - a title for someone who knows f*all, talking on behalf of comrades who are only interested in short-term money in their pockets. No vision for a sustainable future. When will they learn,that when all food sources and nature has been destroyed, you can not eat money!
Ice cream snackwich	solve our energy woes? this is more like, let's exploit and pillage the Karoo to make more \$\$\$ (ok, RRR)
Judith Taylor	Thank you Minister Shabangu - you have just delivered a death sentence to all South Africans, as we do not have the water resources for your polluting projects and for our people. Minister Molewa - where are you in this mes?
Piel vet	Minister in the Presidency Collins Chabane said that fracking offered an opportunity to skim off billions in kickbacks and other "enticements" that were vital to the enrichment of the tenderpreneur class. Overseas they have the "American Dream", well we too have our dreams and fracking is a good method to achieve those dreams. To remain merely middle class is a nightmare, and we all prefer dreams to nightmares. Paraphrasing some fool who cared for the downtrodden he said : "I have a dream that one day this nation will bow down as a vast fleet of Rolls-royces, each with a little ANC flag fluttering proudly in the wind, as the blue-light convoys scream past to yet another catered function with free whisky." Viva the struggle to be obscenely rich! And anyone who doesn't like it can just frack off!
Banjoza	Super idea! South Africa gets gas, maybe. Well, Shell et al gets the gas (if they find any) and the Karoo gets it's water supply permanently destroyed but hey, who gives a shit about that, hardly any voters there anyway and those oil companies... MAN but they know how to bribe hey... eeish!
Moonbeam Eleven Crocket	Idiots!! Mr Chabane ought to be audited, we all know that Shell arrived with barrels of cash. There is no good or safe way of fracking, it is a bad move and I will not vote DA because they do not oppose this mess.
White trash	I am curious where all this water is going to come from, pump it in from the sea?
Alisha Abad	The only thing that will save us is a new government ... and I'm not talking about ANC or ANC-Lite (aka DA).
John Porter	Well said. Both the ANC and the DA are corrupt, and will destroy the environment for a quick buck. The DA mass animal killer, Bra Bredell, is defended by Zille. Both she and Zuma are Verwoerd clones -'arrpgant, ruthless and power hungry. Goodbye beautiful country.
Bruce Bayer	Appalling
Howard Roark	Here we go the start of another personal enrichment avenue for our wonderful ANC leadership ! Bigger everyone else ! As long as the pigs can feed on the trough of misery all is deemed well. I suggest we make it as expensive and dangerous as possible for these cockroaches of opportunity to operate. If they are willing to gamble with the livelihood and health of hardworking people then they should accept the consequences ! Otherwise we will walk the road like Nigeria ! I say fight back and fight back dirty ! Tires are vulnerable, tankers are vulnerable, it is dark at night and equipment go missing !
Just a curious guy	South Africa was "an energy scarce country" really? so suddenly we're not a water scarce country? I reckon the above was meant to read "our bank accounts are millions to scarce"..... sadly the money this could rake in for the country won;t be used for it. Won;t be used to build roads or improve hospitals or to build new prisons or go toward the price of power stations.....
John Porter	WE ARE DOOMED. ANOTHER SELL OUT BY THE PATHETICALLY STUPID, GREEDY, SHORT-SIGHTED, CORRUPT AND INEPT ANC TO THE CORPORATE PSYCHOPATHS. LET THE REVOLUTION BEGIN.
Hubert Jefferson	Absolutely shocking news. If it provided free / cheap power to all and especially the poor it would be one matter, but the main intention is to ship the gas to China through Saldana. I can't believe they would endanger all the agriculture and tourism potential of the Karoo to make a few politically connected individuals and the Chinese incredible rich.

Beverly Young	Verwoerd? wot was his name? predicted many years ago that "our country will be given to the yellow people"....words to that affect. He wagged his finger and begged that China not be allowed into Africa. Here we go. Break up 30 million years worth of history and ship it to china.....@TKSD, tourism? ha ha.....I spent 12 years in tourism, they do not have a clue what this means..... slaughter @Hubert Jefferson
Samten Dorje pastabag	If you love SA boycott Shell and Sasol! Sasol are not pushing for Fracking, so your comment requires a little rationality behind it. Sasol in fact are under extreme pressure to improve their environmental impact in SA, and as such have created a +ve drive in that regard. My next question to you would be, given the choices you have in SA, what would boycotting Sasol achieve anyway ? They can export so you will only be shooting yourself in the foot. We have very few crude oil processing companies in SA, we are a pure importer of oil, and the local gas/coal is being used only by Sasol for petrol derivatives i.e. large profit margin. Fracking is the other people's attempt to try and export to make more money, whilst ignoring the impact on the region. Go bark up the international companies trees rather.
1conniejooste1	How come when everthing that DOES NOT WORK anywhere else in the world, is dumped on South Africa. Then we hear how good it will be for us. If we used the SUN Water and Wind we would have more than enough engery for our country. Obviously someone is getting a kick back, please tell me if I am incorrect.
RobbieYahu Robbie	THIS IS BULLSHIT !! Firstly fracking is proven to cause earthquakes >>>> making money no matter the consequences or loss of life ????? why not start many solar farms in the very karoo ??? solar power is clean harmless ... AND renewable daily and also free !!! free ??? ohh no the rulers of this world dont want us the slaves to be free and have free electricity !!! then we have wave-power as well as sea-current power ??? also totally free and it never stops NOT EVEN IN THE DARKNESS of night !!! WE ARE SICK AND TIRED OF BEING FOOLED AND BRAINWASHED AND LIED TOO !!! WAKE-UP AND START THE CHANGE NEEDED TO REPAIR OUR HOME >>>> OUR PLANET ... OUR ORGANIC VESSLE ON WHICH WE ARE TRAVELLING THROUGH THE UNIVERSE !!! STOP FORCING US TO USE FOSSIL OILS AND GAS !!!! STOOPID WE ARE NO MORE!!!!
Ian Mcintosh	Um, isn't south Africa a water scarce country as well? Easier to live without energy than water...
Beeshaas	That is what you get if you allow illiterate to vote for leaders who don't give a damn about the environment. The destruction continue.....viva democracy.
Les Gp	That was a stupid statement. Not the smartest way to get people to follow your cause. Isn't it that you catch more bee's with honey??? Anyway it's shameful whats about to happen. Looks like despiration for revenue and buddy boosting takes precedence over the environment and whats good for the rest of us. That's just a consequence of having ageing polititians who don't give a rats behind about the future, and only care for their pockets today. And that has nothing to do with illiterates!

ANNEXURE C

News24

Title: SA lifts moratorium on fracking

url: <http://www.news24.com/SciTech/News/SA-lifts-moratorium-on-fracking-20120907>

Comments were retrieved for analysis on: 10 July 2015

Sht Stirrer	Oh frack...
Controversy	Two questions in my mind. Will South Africa be the first country to use the fracking option ? If no, how are the countries using fracking avoiding water and environment pollution?
Sht Stirrer	1. No 2. They're not
Hermann Hanekom	@controversy. Go ask the Americans. They are livid.
PB	It would be very interesting to find out how much of the estimated 200 million dollars is going to end up in ANC cadres' pockets..... In another couple of years when it all blows up in our faces, it will be "eish, it was Apartheid's fault".
Phillip Beukes	Now the fracking fun and games start. I will not support any company that has a hand in this exporation... how much money has changed hands? Or did the Gov place a moratorium, so that they could get their hands in the companies that stand to make trillions from this? It would be nice to see how many of them suddenly appear as board members in these companies....
JamesTKirk	www.gaslandthemovie.com/
Jo Themba	It had to come, the bribes must just be too big to say no to.
Suka	This is REALLY scary people.. Please lets not let these corporations destroy our water sources.. Water is bloody precious. If you dont know much about fracking,PLEASE educate yourself first!! Seriously people, we cant let them do this!! http://www.youtube.com/watch?v=phCibwj396I
Vicker.man.3	Mmmm...took a while for the cheque to clear the bank...
Andrew Nieuwmeyer	Sanity prevails! The Netherlands uses "fracking" all over the country and 60% of there water is from boreholes. Now SA must get a proper regulatory framework in place and find out if there is even any usable gas in the first place.
Adrien McGuire	Sounds like money has changed hands ! The way we do business in SA. I wonder if the ANC investment arm, has shares in this somehow ?
Phillip†Newmar ch	@andynct maybe -- but they don't have shale--gas. That makes a big difference.
Gustav†Kriel	farking humans... money and power, money and power, money and power!!! Elke hond kry sy dag!
Nick†Armstrong	Typical of our spineless, SPINELESS government -- just like they were 'bought out' by the Chinese in denying the Dalai Lama a visa -- so too have the sea--urchins been bought out by Shell... Now the war begins -- people BOYCOTT SHELL!!!! Let these scum know -- we, the people of SA -- do NOT want these Big Oil vermin polluting our pristine Karoo..... !!!
Alft†Pop	Its time to fire the government! They will do anything to frack up the country, or what is left of it! Wherever fracking is or was used it created problems! It therefore automatically follows, that South Africa has to use it as well! Nobody can be that stupid, unless there is an "INCENTIVE SCHEME"

	in place to benefit the "honourable" government gang members!
Greg+Quinn	If you want to see what fracking has done in the past.. you don't need to watch more than this documentary to see its an absolute rape on natural land and the water table.. http://www.youtube.com/watch?v=phCibwj396I
Rory Hewitt	Unbelievable!
max.reynecke	The parasites will suck this country dry, there is nothing like an African's ability to self destruct.
Tony van Niekerk	Max, it is not just "an African" country issue. They did the same thing in America! Was that just "an American" country thing? It is about greed and it is the same on any continent.
QI	they have done what???????????????????? How dare they!!!!!!!!!!!!!!!!!!!! Whose grubby little hands have been greased this time???? A.N.C. AND GOVERNMENT YOU ARE A BLOODY DISGRACE!!! HOW DARE YOU DO THIS TO OUR COUNTRY???????????????? WHO DO YOU THINK YOU ARE???????????????? WHAT ABOUT OUR PRECIOUS WATER RESOURCES, OUR FRESH AIR, OUR FUTURE!!! HAVE YOU NOOOOOOOOO SHAME???????????????? ROYAL DUTCH SHELL YOU CAN GO AND JUMP IN THE LAKE, HOW DARE YOU BRIBE THESE TERRIBLE PEOPLE FOR YOUR OWN FINANCIAL GAIN!!!!!!!!!!!!!!!!!!!! STUFF UP YOUR OWN COUNTRY AND ACTUALLY GET STUFFED AT THE SAME TIME!!!! YOU ARE LIKE THE CHINESE, MONEY SPEAKS WITH THE A.N.C. AND YOU HAVE DANGLED TOO BIG A CARROT FOR THEM NOT TO TAKE IT WITH GLEE!!!! SIS ON ALL OF YOU. VOTE FOR CHANGE, VOTE D.A.!!!
max.reynecke	Tony, what Americans do is not my problem....If you don't maintain you sewerage works the sh&t is going to run in the streets and flow in the rivers....cause and effect, a foreign concept to our brothers....if you do fracking in the Karoo you are going to f&&ck up the ground water....you know it is going to be the result but they don't, and that is the African disease of "not knowing that you don't know".
Greg Quinn	Well said QI. For once it makes sense to use caps lock in a post :)
Graeme Van Greunen	Once again the ANC government shows their "locust" approach to the resources of this country -- rape the earth of it's resources even if they're not immediately required. We can rest assured that some over-weight, uneducated minister is receiving a nice back--handed payment for this decision!
Catherine Mandl	"LOCUST APPROACH" Yes. EXACTLY so.
Sedick Gydien	Well, rape seems to be an acceptable past--time in South Africa....
Karl van Rooyen	This rotten anc led government will sell this country to the highest bidder .
Essy Osthuizen	and one of them is China!!!
Sharon Houghton	This is not about fracking, its about who can make some money through corruption and bribes.
Leon Scheepers	Unfortunately Sharon,you are right.
Victor Loftie-Eaton	I wonder what the "back--hand" cost was???
theo.joubert.3	They are already very successful in destroying SA public service, service delivery, infrastructure to name but a few. Now they are setting their target on our environment. Will they not stop until everything in SA is totally destroyed?
Essy Osthuizen	and they'll succeed at destroying it too!
cathy.raats	Nice one minister thought we were short of water in South Africa fracking uses millions of litres of water. Explain if you will can this be recycled. Not that I would wish to drink previously poisoned water!
Greg Quinn	You can't use it.. its unusable.. you can of course use it to light your gas lamps.

Anthony O'Kelly	Money (greed) always wins.
Kyle McLaren	Of course. How predictable... There must be some major kickbacks going on between Shell and the ANC. Wish I was a fly on the wall...
TBlaar	Don't these people watch Isidingo!!!!!! :D
Mary Sadler- -Altena	Lord help us.
Jacqui Daane Van Rensburg	Goodbye Karoo, we will remember you as you were before Shell had the opportunity of messing you up.
MarkH	Mmm, do I smell Chinese money or is that the waft of insufficient--funds--to--keep-- -cadres--employed--and-- thus--voting--for--me?
JournoSergio	The Karoo is one of the most ecologically diverse and beautiful places in the world. Our corrupt politicians and the fracking companies must seriously get lost. Was having a great day until I read this article... Goodbye Karoo, Hello toxic chemicals and destruction...
ETIDORHPA	This government will do anything for money. Goodbye beautiful Karoo. (Wipes tears)
Johnny	Does the Cabinet know what they are doing ?? do not think so. Are any of them knowledgable or specialists in fracking and do they know what it's about ?? Think they did this to see what back--hands they will get from Shell ???
Dhavandran Palavar	we are fracked by cANCer.
nj.zyl	Jy kan met jou ma gaan speel vir R200mil. Frackoff!
HughflInfluence	Everyone should boycott (S)Hell.
Justin†Frittelli	Difficult decision but the correct decision by government. Clearly fracking poses risks, as we experience all over our country on a daily basis in our vast mining activities that are all ready in existence. But the potential impact on the employment crisis, and the benefits to the economy, as much as 3% additional GDP in the early stages of the mining and much more beyond that, are benefits that South Africa does not have the luxury of turning down. If anyone was listening to President Obama last night at the DNC he committed America to reduce it's dependency on oil by 50% by 2020 through a variety of measures, with the key activity of shale gas fracking. I very much doubt one of the world most smartest leaders would be advocating an industry that would destroy the world most successful and largest democracy. South Africa potentially sits on the worlds fifth largest Gas find, this is equivalent to finding vast quantities of oil, i.e black gold, we should be celebrating our good fortune!
Harald	"Growth" at the expense of our environment is not growth... ask the Chinese! they have learnt the hard way... and now its too late. Their rivers, air, ground are all poluted, and unrecoverable. There is no debate if fracking does or doesn't polute, it does!! And the Karoo relies heavily on its ground water for irrigation and for its animals. Frack off SHELL!!
Jo_Themba	Justin, you asume that the money will actually reach the tax payer. It wont, same as the gas in Nigeria, the fishing rights in Namibia, the oil in Angola etc. 5 years from now you will have karoo towns full of multi nationals, dont think for one second the people of the karoo will benefit. There is enought money in this country to solve our problems, the problem is the lack of political will and ability(!) to fix issues.
Wynand_du_Toi t	I think, Justin, that the concern, apart from the ecological concerns, is what the real economic implication will be for South Africans. Will the extraction of this gas be to the benefit of the people? Will fuel prices go down, will the cost of electricity once again become considerate to the means of the middle income class who still solely carries the rest of the country? I am opposed to this process, because all I see is very real ecological risk and long term impact on a valuable, bio--diverse region. Furthermore, it seems that once again we are by--passing the internal supply--chain opportunity by offering our raw resources for sale to foreigners. And lastly, let's not be naive and not see the farce by the Government first imposing the moratorium to gain financially from the lifting of same moratorium. I do not think that this monetary reward will be offered to the people of South Africa... Sadly, looking at the above there is not much to be excited about, or grateful for.
Phillip†Newmar ch	Unfortunately, the 'benefits' mentioned are all just pie in the sky. It may be that the USA was able to make some extra money out of spare oil/gas expertise etc in the short term, and it all looks pretty spectacular. But take a closer look. The bottom has dropped out of the market, and people are going bust already. and there are still lots of bills to come which will have to be paid somehow.

	<p>I agree with you about Obama -- if he doesn't get re-elected we're all sc***ed, but he's made a mistake supporting this.</p> <p>The size of SA's gas find is only part of it -- what counts is how much it will cost to get it out of the ground. Even ignoring 'environmental damage (which could be very great), the straight cash costs here are likely to be many times higher than in the USA, and we could end up with gas that costs twice or three times the going rate.</p> <p>Somebody will get rich -- other bodies will get poor!</p>
Celeste†Hayes	<p>Oh my gosh it people like you that are so stupid and worry so much about money and black gold etc etc and when the land has been raped and there's no water no fresh air and no plants no life left then where are we going. Mother Nature is already fighting back harder than ever with all the weather patterns changing and people being wiped out by tsunami's earthquakes cyclones etc and yet we still just carry on for our own greedy needs and you think that's fine -- how pathetic. The human race needs to be taken off earth as soon as possible to be able to save her from idiots like you!!!!!!!!!!!!</p>
Sonny†Jacobs	<p>http://www.karoospace.co.za/karoo--space--magazine/talking--point/100--fracking--the--karoo--the--people--say--no</p>
ETIDORHPA	<p>What a short sighted comment...hope your grand kids give you a good bollocking one day!!!</p>
Mary Sadler- -Altena	<p>Oh come on, Obama smart? He's a puppet, just like other US presidents before him, so please don't tell me that because he fracks, we should all frack. Black gold = black death.</p>
Jannie Kotze	<p>Google Obama and you will see that he is the worlds most dangerous leader. He is doing this as a populist to get a second term in office. He is destroying moral and all sorts of respectable values just for his own bennifits.</p>
anakin.skyvader	<p>Gas coal and oil is OLD technology. It's purely about the \$\$\$</p>
JamesTKirk	<p>Over the last 7 years the Gas boom has transformed America's energy economy. Their oil exports are at an all-time low, methane burns more cleanly than most fossil fuels (even though when it leaks from the infrastructure it causes much more damage than CO2), and estimated supplies should last a couple of centuries. It is the energy of the future.</p> <p>But what at what cost? High demand and easy fortunes don't go hand-in-hand with environmental responsibility. Perhaps the shale gas trapped beneath the Karoo can help SA's economy, but can we really afford to drill more responsibly than our American counterparts? Who will truly benefit: the effected communities? The people of South Africa? Do we have the intellectual capital and maturity to do it properly and safely?</p> <p>I doubt it. But regardless, whether it's now or 30 years from now, the unfortunate fact is this WILL happen.</p>
Andrew James Redman	<p>Absolutely agree duanne... agree that money will rule and this WILL HAPPEN. this reserve is HUGE (475 tcf) -- 4th biggest reserve in the world - - bigger than the USA! if one looks at what it's done for the USA (massive reduction in greenhouse gas emmissions, massive boost to the economy etc) we cannot ignore it! So here is the real question ----- do we want this to be exploited by international oil companies that are answerable to the international media and subject to international law? or would we rather have the chinese come in here and do it with no regard forour environment, our economy or our laws?</p>
Honker Tonker	<p>South Africa is one of the most water--scarce countries in Africa. Playing with fire will get one burnt. I guess that is what awaits this foolish government... not that they cared for the plight of their people in the first place.</p>
Phillip Newmarch	<p>One needs to remember that the USA has had a major oil/gas industry for 100 years -- we haven't.</p> <p>Mining shale--gas helps them because otherwise that industry would run down. They already have the capacity. That's why they can do it 'cheaply'. And Andrew, you are wrong about 'bigger than the USA'. In fact 485 Tcf is nearly the same as the estimate for the Marcellus shale in Pennsylvania only -- not the whole USA. Further, the Marcellus field is half the area of the Karoo, so the gas far more concentrated. It's a bit like if Joburg's gold was spread in tiny fragments all over the country -- we'd have to dig up the whole place.</p>
Natasja Ware	<p>Treasure the Karoo Action Group (TKAG), headed up by Jonathan Deal, has been the only formal opposition and has been fighting this cause on behalf of the masses. They are in desperate need for donations to pay for legal fees, to take on Shell and</p>

	the Government (who has shares in Shell) to stop fracking coming to South Africa. Please check out their website: http://treasurethekaroo.co.za/
Celeste Hayes	Will definitely be donating even if as a disability pensioner it's only R50 a month but will certainly be joining the cause and helping in any way I can. Thanx for there web address Natasja. Mwah!!
Trevor Pietersen	Now we gonna see OUR FRACKING A\$\$...THIS government just wants more more
Mark Halbert	this is very sad news because fracking will turn the Karoo into a desert
GreyRibbonAwariness	"I am so upset at this" say the farmers who drive more than 1 car and inherited land that was unfenced, belonging to the Khoi who were once denied water too. http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CCYQFjAB&url=http%3A%2F%2Fpatachu.com%2Fcape--colony--khoi--dutch-wars%2F&ei=fbVJUM93z9HhBKilgNAC&usg=AFQjCNGXmOZzZRbF_GI_5MTeDaunLHVThg&sig2=lvUn92eFNb4IXYC7Ux24Tg
Nicci_Huysamen	mmm... not really understanding the relevance of your comment? Should the "farmers" who's forefathers "stole" the land from the Khoi just keep silent? Should they be happy that the environment be damaged for ALL South Africans, including the Khoi? What benefit does this hold for the Khoi? I'm sorry if I sound sarcastic, this is really not the intention. I really just want to understand your comment.
GreyRibbonAwariness	@nicci Well we all contribute to the need for fossil fuel, so we can't really complain. The farmers however have a different complaint about their drinking water and farm land under hypocrisy. I went to school with the Sterns and farmers who have the biggest voices against this and I can't say I will vouch for them as the most honest people.
Sht_Stirrer	GreyRibbonDiot, you are a first class hypocrite. You live in Norway, but support fracking in South Africa? Why don't you tell everybody here that, while Norway has some of the world's largest shale gas reserves, they refuse to do fracking in Norway? And that Norwegian companies are world leaders in fracking in OTHER countries, including the USA, and now planned in South Africa as a JV with Sasol? Working for StatOil, are you?
Paul_Gray	Remember that it is PASA who has offered up this massive slice of SA for exploitation. They are NOT interested in alternative energy, only money. Gas and coal are not sustainable... When 'shale' gas (and coal, become more important than food I guess those that have it, can eat money. Long term vision is something that does not exist with this government.
Rampant	Alas a poor decision. The damage hereafter will surpass the bribery by.....;; cannot calculate the damage,it's;; beyond calculation.
Sean_Keys	We knew our corrupt government would only be after the money, at any cost, i mean, we knew that, we had better pull up our socks and actively start to resist this if we wish to protect the Karoo.
Tony_van_Niekerk	Interesting that the initial study was done by the US Energy Information Administration. Makes you think..... Selling out the future of the country so many people fought for over decades.This is certainly the time for citizen activism.Where do I donate?
Mariette.brand	Donate toward saving the Karoo from fracking at http://www.treasurethekaroo.co.za
Iceberg_Standard	And don't support any Shell outlets.
Rampant	People of South Africa, boycott the products of the company involved in this venture.
Megan_Choi	No way in Hell!
Wouter.basson.5	This is sofa king wrong!!! Who got bribed?
Nellis_la_Grange	So our infrastructure is falling apart all over, the best they can do to screw us even further is to poison our drinking water, I pray to God to send all the Karoo snakes upon them
Sean_O'Donnell	Environment 0, ANC Gov 1
Sht_Stirrer	Environment 0, ANC Gov officials \$100,000,000
Andrew_Nieuwmeyer	Sanity prevails! The Netherlands uses fracking all over the country and 60% of their water is from boreholes. Now SA must get a proper regulatory framework in place!
Essy_Osthuizen	...and that will be like snow falling in hell! They can't even enforce law or run the country, towns, municipalities or education etc. etc. NOW so how on earth (excuse the pun) do you ever think they would enforce ANY proper

	regulatory framework...
Sonny Jacobs	You live in SA? Just wondering.
Irishman	We need to try and become more self sufficient in fuels, we are hurting every time the oil price fluctuates, I,m sure the fracking will be done responsibly, ther are too many people watching them for it to be otherwise! as an aside, anyone who has ever lived or worked in the Karoo knows the water tastes like crap and might be improved with the fracking!!
Mariette.brand	How can you expect responsibility from a bunch of money chasing looters? Karoo water tasting like crap can be improved with fracking???? You must be joking! Who are you trying to fool? Yourself?
Sht_Stirrer	You that Beavis from Beavis and Butthead?
Tony_van_Niekerk	Funny you say that. The gas price is linked to the oil price.No benefit there.
Greg_Quinn	The last person going to benefit from this is the consumer. Any savings we might make on energy from this will be masked as an increased tax.
raeesyumna.coenraad	frack se ' ma se
Justin Frittelli	Let's try get out of our anti government mentality, we all agree that the ANC scores poorly on most reasonable peoples scorecards, but this is not about the ANC, we have become self defeating and as a people are our own worst enemies, you sound like the lot who all told us World Cup 2010 would be a disaster, well like that event history will hopefully proof you wrong! Try have a positive attitude on something for once in your lives!
DuToitCoetzee	A business's success gets judge on its profits. Even if the world cup was a lovely "show", we all enjoy it and all went well the input was so high that when dividing it through the income you will realize that all South Africans could have had season tickets for years with the money lost. Even given the "positiveness" for SA 10 x more value it is still a massive lost. Bad example. The fact that we can cheer for a 1,7 billion initial investment, but we do not cry for a 30 billion missing a year shows how screwed our way of thinking is. Ignoring 30 billion, but embracing 1,7 billion tells me there are something funny going on. You cant get "commission" from lost/missing money, but you can from new monies.
Greg Quinn	Justin the World Cup's negative impact on our economy has already outweighed any positive impact it had.. so essentially for our economy the world cup was not a good choice. Fracking has been proven through many documentaries to be damaging to the environment. Go and watch Gasland (free documentary on YouTube) and make up your own mind. Sure it's great to be positive about things, but you have to be realistic too.
raeesyumna.coenraad	frack se ' ma se
Sean Tearnan	Money allways wins. A compromise would have been best for both parties. Now fracking has upper hand and enviro's are outta the pic.
Herbert Daniël Du Plessis	What comrade is going to get the contract to "monitor", "administer" the contract, be the sole exorbitantly priced "Health and Safety auditor", be the sole BEE compliant equipment supplier?
Sonny Jacobs	Eish the comrades are going to collect "maningi". http://www.karoospace.co.za/karoo-space-magazine/talking-point/100-fracking-the-karoo-the-people-say-no
DerpyHooves	don't understand South Africans, they complain that the electricity and petrol prices are too high, yet when a solution (more like a miracle) presents itself, now we must ignore it? t's easy to say 'no' to drilling in the deep sea or the artic or any other Eco sensitive place, but the fact remains that these things happen because YOU drive a car, YOU use electricity. As for the classic 'OmG ze cANCer r going 2 steal manie' is really getting old, I don't like the ANC, but I don't think halting progress is going help with the corruption problem. Think with your minds and not your hearts. See this from an utilitarian viewpoint.
Sonny Jacobs	Read http://www.karoospace.co.za/karoo-space-magazine/talking-point/100-fracking-the-karoo-the-people-say-no See who will benefit then you comment. Most of this money will grease palms nothing else.
dewalds3	Yes, sure - like the diamonds and the gold has solved the common South African's problems. Has It?

DerpyHooves	@dewalds Seeing that mining contributed 21% to the GDP in the 1970s (currently 7%), I'll say "yes", gold and diamonds contributed to the economy and ergo lessened the problems facing South Africa.
Tony van Niekerk	Progress is renewable energy. There will be no change to the cost of energy except an increase. Sasol fuel is linked to the oil price and so is gas. You are dreaming if you think this will bring down the cost of fuel or gas for anyone.
Tony van Niekerk	Have you read up about the problems faced with acid mine drainage? Who is taking responsibility? Who is paying for the clean up? Any mine owner? Never! Have you seen the problems caused by coal mining, underground fires and water pollution? Have you seen anyone taking responsibility? Only fools keep on doing the same thing and expecting a different result. Expecting mine owners or oil companies to take responsibility has never worked.
Greg Quinn	DerpyHooves the only people who will benefit from this will be Shell and the ANC corruption machine. Sure a few jobs will be created but that's where it will end.. we'll be left with a sparse, raped Karoo wasteland when all the reserves have been taken and the dust left by the trucks when they are gone.
Chris Steytler	The only water the Karoo has is underground, Goodbye Karoo.
Ronel Strauss	Stop supporting Shell!!! This is when greed exceeds survival..what a shame...what a bloody shame...I hope they will find NOTHING in the karoo but the beautiful silence and peaceful sunsets they would never appreciate because they are a bunch of shallow hipocrits,I hope they will drown in their money and I hope that they might never be ever happy with their stuffed bank accounts, may only evil accompany them...for the rest of their lives and may the effects and forces of fracking be with them for ever..
Joy Skene	Boycott Shell with a vengeance, they don't give a Tinker's Toss for the environment or the local population, just take a look at their destruction in Nigeria!! The acid water problem in Gauteng should be enough of a warning that our water resources cannot be compromised!
Vho-law Mindfull	Clinton sounds like a Royal Dutch shell executive
Tony van Niekerk	Clinton, I do know about the coal bed drilling. They also said there will be no environmental impact. So did BP in the Gulf etc etc. As we speak: http://www.iol.co.za/news/africa/nigerians-1.1375164#.UEnwLkTeRSM seek-action-after-oil-spills- One of many!
Iceberg Standard	Another arms deal situation. The ANC government is only seeing dollars and money in their pockets. This has nothing to do with finding alternatives.
Dewald Scholtz	We are just so FRACKED! Another SAD decision in a country gone SAD..
Greg Gow	Stuff them we will block their efforts to go near this area, just look how America is messed and polluted in various areas up by this process where they are using it.
Jannie Kotze	Personal kick-backs enrichment of cANCer cadets and greedy politicians will make sure that fracking will go ahead. As usual integrity and honesty will always bite the dust under these greedy pigs!
zaatheist	So the bribes have been paid then?
John Birch	This Clinton dude seems to know what he is talking about but this fracking is a short term thing in terms of geological events. And from what I understand they are trying to tap methane gas. Correct me if I am wrong. Every day we as humans produced millions of tons of waste (\$hite) that could produce methane, pig farms and cattle farms the same. Surely, (I know there is) the technology is out there can tap of this free source of methane. Without fracking up the environment. Think about it. Problem is money earned will be less, I suppose.
John Birch	Frack you Shell! Lost my vote and petrol Rands, you tossers.
Sisa N Mtwana	Time to send in Malema. The ministers have been bribed and given shares by shale, please help. We want to know which ones. Hehehehehe
pieter.louw.520	Great, government officials lining their pockets to the detriment of the environment...
Wayne Warren	HAHA! couldn't help but laugh, it was like reading a Battlestar Galactica script :-D
Soldier Of Christ	FOX has done a whole show on this. The places in USA that allowed Fracking, are destroyed, and their water and agriculter is polluted and infected. This is so screwed up! The end is near!
Soldier Of Christ	The Day of Jesus' return is near. REPENT and be received by God as a child of Heaven. Call on the name of Jesus and ask for him to save your life! Jesus is the only way, He is the truth and the life. Noone will get to see the father unless you have accepted Jesus as your Savior and Lord Almighty!
Greg Quinn	And this has what to do with religion???
Sean Thomson	I find it truly amazing that someone hasn't done some sort of attempted assassination or some crazy suicide bomb threat with all this blatant corruption and unbelievable in

	your face, couldnt give a damn about you antics that this government continues to do.....like really enough is enough already, please this is all getting way out of control, we wont have a country much longer if this carries on..... P.s this is NOT an invitation for someone to try assassinate or blow something up!!!
Anton Bester	In Australia is reeds groot areas agv.hierdie metode van gas ontginning vernietig en sal rehabilitasie nooit weer die areas leefbaar kan maak nie.Water bronne is vergiftig en selfs plante groei nie weer om hierdie putte nie.Dit gaan kattestrofiese gevolge vir die karoo he.Australiers word kwaad as jy net oor fracking begin praat.
ben.mostert	This explains fracking a bit more, http://www.dangersoffracking.com/ The question is thus, can the karoo communities survive this? (water shortages?)
Greg Quinn	This is excellent as well http://www.gaslandthemovie.com/
Colin Windell	Fracking idiots
Tony van Niekerk	http://www.guardian.co.uk/environment/2012/apr/23/shell-nigeria-oil-spill-bigger Who are you going to trust? Not Shell!
David de Mattos	This is such good news for South Africa, a real game changer in terms of our economy and future.
Stephen John Dickson	The ANC : An evil,greedy,devisive entity that can readily destroy a country within 20years and most likely the entire world in under a 100.....bottom line.
James Else	QUESTION 1. Who in government go the bribe money from Royal Dutch Shell to do their frakking in the pristine areas of the Karoo? QUESTION2. Who will take responsibility when the reserves of water below the Karoo are contaminated beyond restoration? QUESTION 3. How does the frakking contribute to the development and well-being of South Africans and South Africa? QUESTION 4. When will the ANC Government realise that they have made a pact with the Devil? Actually, there are too many questions, and I feel betrayed by the leaders of our country – once again, the short-term (personal) financial gain is seen as more important than the critical need to preserve the integrity of the planet and the eco-systems that are integral to our survival. SHAME ON SHELL!! SHAME ON US!!
Greg Quinn	It is sad James, unfortunately we all knew this decision was inevitable. Where there is money there are signatures on the dotted line. (Especially by the ANC cadre machine)
Pieter Cillie	Now you will see the land claims in the Karoo escalating into oblivion...
Sarel Claassens	1 day China will be owners off Africa, and they will shoot every one who wants to protest
Roland Giesler	This is a devious and misleading. Your picture is proven fraud, the methane was in the water way before fracking began. It's from the deliberately deceptive "gaslands" movie. I have no links or interests in the oil industry, but simply avail myself of the facts as best possible. News24 would to well to also do so. Shame of you!
Phillip Newmarch	Are you aware of the fact that the gas industry made a film to answer 'Gaslands', in which a 'teacher' sets out to investigate all these 'rumours' after watching Gaslands? She tours about interviewing (arranged) experts, finding cows grazing and bunny-rabbits hopping all hunk-dory etc. Meanwhile, back on the ranch, in real life one of her own wells leaked, and her neighbours want to sue. How's that for 'devious and misleading'? (see http://blog.shaleshockmedia.org/2012/06/12/truthland-lies/)
Greg Quinn	Right so having 1000's of contaminated water reports and sick people is deceptive and misleading? If you turn on your tap it starts sizzling and is actually flammable.. yes, really deceptive isn't it.
Daniel Venter	If anyone is unsure about what fracking is or could do to the environment watch 'Gaslands' - can be found on Youtube - or if you can go to the USA and visit the north western corner of Colorado and the north eastern corner of Utah. These areas are very similar to the Karoo. In spite of very strict environmental laws - especially in Colorado - these areas had been environmentally DESTROYED. It is impossible to restore these areas. Can we imagine what will happen in South Africa where law enforcement is just a rumour? We have no other option, every South African should, from today, boycott Shell products, do not buy Shell petrol or diesel. Apart from the fact that Shell could be the cause of the destruction of the Karoo as we know it, please check on Shell's reputation elsewhere in the world i.e. Nigeria. We must act now!
Francois Lintvelt	Foreigners would be stupid to invest coz as soon as the gas comes out and the money starts hitting the tills it will be nationalised.
anell.olivier	I wonder how much the poorest of the poor who is going to do the hard work, is going to get paid?
Kobus Otto	And we are sold out again. What will we say to the children of the future when they die of thirst?
Johann Malan	Fracking is a dangerous venture. It is rather costly to do it properly, which is not

	<p>exactly what the developers are usually aiming for. They are driven by the corporate bottom line, driven by shareholders, of course. One of the biggest ongoing environmental disasters (in the energy realm), is the exploration of the Alberta Oil Sands in Canada. I wish you could see the environmental impact! Here's one article on it, discussing the pro's and cons of fracking: http://www.calgarysun.com/2012/06/11/oil-industry-agrees-with-mulcair-on-fracking. It would take real visionaries to consider this Karoo-toffie and decide on the proper guidelines, if it goes that way. Those interested should take a peek at Jeff Rubin's book, The End Of Growth.</p>
pieter.louw.520	So...Africans are still bowing down to Colonialism...
Anthony D'Alpoim Manesa	WELL WELL THERE GOES THE ...THE UNIQUE PEACEFUL AREA OF THE KALAHARI KAROO BASINWERE THE SHEEP FARMERS ARE ..
Amaqoco	Does South Africa really NEED Shale Gas ?????

ANNEXURE D

Sowetan Live

Title: Cabinet is going to allow fracking in Karoo

url: <http://www.sowetanlive.co.za/news/business-news/2012/09/07/cabinet-is-going-to-allow-fracking-in-karoo>

Date comments were retrieved for analysis: 9/11/2012

Nincompoop	There we go again to exploitation of our land and minerals by multi-nationals. The government and cabinet should go FREK somewhere else, not in Mzansi.
MommaC	Stupidest fracking idea EVER.
CheeseBoy	Our govt is a b1tch to multi nationals.
warry	Did they finally pay some dollars? Wow we will have a tracking deal commission of inquiry in five years time. I like this. Phambili comrades.
16-12-1838	"When (the results of the study) ... came back, they recommended that it was clearly safe for us to have that programme of exploration of shale gas," Chabane told reporters. Should read... "When we (the greedy and ba\$ta\$rd\$)... realised how much money we could make from back-handers and bribes, it became clearly advantageous for our own personal fortunes to have that programme of EXPLOITATION through shale gas" Chabane thought, while telling reporters.
LOA	All this at what cost to the environment? Irreparable damage for unsustainable energy. Take it all the way to the ConCourt! Rather build a solar power station there..... Send out tenda's for that!
RobinH	WTF!!!!???? Who was bribed!!! CheeseBoy... I couldn't agree more. Backsides in the air folks, we are about to be royally f*cked yet again.
manu.menne	CAN YOU ALL BE POSITIVE FOR A CHANGE. NEGATIVE NEGATIVE. YOU COMPLAIN ABOUT THE PETROL PRICE. IN COUNTRIES WITH OIL RICHES, THEY PAY R2 A LITRE AND WHEN THE GOVERNMENT TRIES TO SAVE YOU R10 YOU STILL CALL THEM STUPID ON BEHALF OF 10 FARMERS
manu.menne	You see petrol failed the country
manu.menne	Petrosa
Rockwell	@Sowetan, What is "Shale" now, or are you trying to say Shell? Just asking
manu.menne	There are hundreds of comments on Zuma's apartheid comments, I wanna see how many comments we will get on this story. Honourable sowetan cabinet ministers
MommaC	manu.menne. STOP SHOUTING - it is rude. Look for a documentary called Gasland then tell us that this is a good idea. Look for the information about what Shell has done to the Niger Delta then tell us that this is a good idea. The Karoo has one of the most delicate ecosystems in the country, it also has the least water. Now we are looking at destroying both the little underground water that they have and the entire ecosystem. Are you sure that is the legacy you want to hand on to the next generation?
manu.menne	Shale is rock sand
man	There you go minister @mommac
_Sinudeity	manu.menne - You actually believe that fracking is going to make our petrol cheaper? It will just mean that the top dawgs can loot more out of the taxes.
RobinH	Manu,menne: SO what is there to be positive about in this messocracy? Please tell, as we would dearly love to be disabused of our cynicism.
manu.menne	@robinh. Lots of fuel products at a very low costs. Only if our government did not mess the contracts with shell. 10% towards Shell and the rest to Rsa. Robinh, you are Arabic, you should be in a position to tell us better
MommaC	Thank you dear, much appreciated. Now I really do advise you to look at that documentary. It is very scary. We have Sasol - don't make a damn worth of difference to the petrol price though.
manu.menne	@mommas. Your car is all ready causing a lot of damage to the environment.

MommaC	manu.menne Yes, and if we had a decent public transport, I'd do less damage. The problem is that this is HUGE damage. Water taps that can be set on fire, cattle dying, humans becoming incredibly ill, higher possibility of earthquake really nasty stuff
manu.menne	I am excited about the decision. I remember Msg Shabangu's speech to the cabinet about fracking. She simply expressed it by saying "it's a God given gift" for south Africans
manu.menne	@mommac. How about ppl in rural areas who need paraffin? Forget about them because you will say they must have electricity. How about my electronic gas stove, how about my caravan that needs gas?
MommaC	manu.menne ...Do you really think the price of gas will come down? Sasol doesn't make the price of petrol come down.
manu.menne	This is where our government prove nationalisation
manu.menne	By the sound of it they gave the major share to shell
RobinH	Manu: Firstly, How on earth you get to think I am Arabic is beyond me. I am from an Afrikaans and English background. Besides that. it is extremely naive to think that this would lead to cheaper fuel. And with respect, what you say about MommaC applies to all cars, yours included. That, however is irrelevant, as it goes about minimising, not eliminating.
manu.menne	@robinh. Do you want to tell me that your house does not produce garbage? A garbageless house. Energy efficient? Everything we touch produces residue
Bizzabo	RobinH .. Manu: Firstly, How on earth you get to think I am Arabic is beyond me. I am from an Afrikaans and English background. Kikikikiki
Sageville	Go watch / google a documentary called "Gasland", it's al about how the big business are setting up this fracking thing in america and how it poisons the land and the people/animals living on it. People can set fire to the water coming out of their taps! Thats just how bad it can get. This is really bad news for Karoo.
RobinH	Manu: So what! Because all homes cause emissions it is fine to wreck a fragile ecosystem? You ascribe to a very strange logic system, Sir. Very strange. BUT, as you do seem to want to talk irrelevance, have you paused to consider that some people actually sort their garbage and recycle what can be recycled, thereby reducing the garbage output. Humans cause refuse. We all know that. But to damage the environment excessively and unnecessarily certainly does not strike one as all that wise. Even for us Arabic people, lol.
manu.menne	We are talking energy needs of south Africa. We are not talking me and you and juju and Zuma. All for south Africans
manu.menne	Yes we will contaminate to some extend, we need to control it
manu.menne	Mining companies are already contaminating
manu.menne	Banking is already contaminating. Unsecured loans
RobinH	Ag manu, I give up. This is not a discussion. It is simply you expounding your view and refusing to reason with anyone. So there. You may have your flawed view. It's all yours.
manu.menne	@robinh. Goodluck on your ministerial duties @sowetan. I AM so excited about our government's decision. Good one for us. Lots of energy. You may go on and bash on Zuma. He will not be around near future. Maybe if juju wants attention, he should go and ask about who is the major shareholder. We are talking billions here
RobinH	Manu: WHAT? What's your problem? Enjoy your energy. Me, I'll enjoy my weekend and try to use as little of resources as possible. Jeez, there are some seriously crazy people on this site.
MommaC	I am so glad that I won't be around to see Mau.menne's future - unfortunately, my kids will :(
RobinH	MommaC: If one followed his lead, no-one will see a future.
manu.menne	Ejo. Too many personalities but same character. Amazing! It's called multitasking
MommaC	RobinH Sins of the father? What are we leaving as our legacy?
bytheway1	This comes at an interesting time. Wonder how much they get paid under the table for this... surely they (ANC) need funds for electoral expenses and wives.... jets.... 4X4's.... etc.

RobinH	manu: COnspiracy theories abound among paranoid schizophrenics. COnsider getting help.
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ANNEXURE E

Times live

Title: Fracking possible as moratorium on shale gas exploration lifted

[url:http://www.timeslive.co.za/scitech/2012/09/07/fracking-possible-as-moratorium-on-shale-gas-exploration-lifted](http://www.timeslive.co.za/scitech/2012/09/07/fracking-possible-as-moratorium-on-shale-gas-exploration-lifted)

Date comments were retrieved for analysis: 9/11/2012

RSA.RommaCyndi	Are they insane? This is going to be a disaster of monumental proportions. Shell is going to destroy the area whilst a few 'connected' get rich, Then they will leave us with the same devastation that they have left the Niger Delta in.
katrynVBengal	Now the government argues that "South Africa is an energy scarce country". Hello! Our bigger immediate and long term panic should be SA's water scarcity which, in the water scarce Karoo is directly threatened by fracking. South Africa's internal renewable water resource is listed as 50 (cu km) compared to i.e Brazil 8233, India 1907, Namibia 45.5. Saudi Arabia 2.4. Oe the greed of politicians and their fiends. I'd be very interested to know what the Americans' interest in this gas is.
South_One	You're being a bit negative. Fracking could serve to be a great boon for SA. Fracking has been used to recover tight gas for fifty years now and other than a couple of cases of broken casing it has proven to be an environmentally sound source of energy. Far better than our present source – coal. Gas has a multitude of benefits; it can be used in the SASOL plants to increase their petrol and petrol products (like fertilizer) production, when burning it is easy to turn on and off (unlike nuclear and large coal plants) and so it can assist renewables by ensuring there is enough supply to the grid, and it is relatively carbon frugal compared to coal. There was claims of flammable water which unsubstantiated (they could have much easier come from natural decomposition) and there are worries about water contamination. If the casings don't break during the fracking process there will be no water contamination. It is the government's job to properly regulate and make sure that the companies that drill do their work safely and cleanly and South Africa will become a more prosperous country. P.S. The water will come from the sea.
cANCerSurvivor	Amen Momma. The only 'energy problems' that Africa's largest economy has are the dinosaurs making the decisions at Eskom and the cadres at the Department of Energy. What's going to happen when the gas is up and the area is ruined? Shell will take their jobs and profits with them. A few elite cadres will be left holding the kickbacks and the poor will be poorer, sicker and uneducated.
SuiGeneris	A fracking disastrous decision !
mmugabe	whatever the corrupt anc what is fine to me,careless on what they do.
Stirrer	It will make for interesting reading when the names of those in Cabinet who endorsed the lifting of this moratorium, are compared to the names of those who are linked to Royal Dutch Shell's South African BEE partners!
manga2	Supported. We are tired of these so-called environmentalists who were dead quiet when the apartheid government and their close knit capitalists were marauding the earth and OUR resources for the benefit of the few lily whites.
PaulW	As South Africans we should not be supporting any political party and their associated beneficiaries in this matter - we as conscientious citizens should be protecting our environment, our country, and in this case the water for many future generations living in the Karoo instead of just the current generation's fuel needs now!
katrynVBengal	I am quite sure you have not a clue what you are supporting. Ask your lbo brothers in the once beautiful Niger Delta how they feel about Shell's Care for the Community. Many black South Africans walk through life with this wholesale resentment towards lily white (racist dude) people. NB notes 1) My lily white grandfather and father were underground miners and benefited as much from "marauding the earth" as the Marikana miners today 2) The lily white Shell will run away with the money like in Nigeria and their hand-full of glutinous black partners will make more money than you or they can calculate 4) People of the Karoo will be left with irreparable environmental and water damage and finally just a little personal advise to you 5) resentment is drinking poison hoping another person dies

RSA.Mommacyndi	You would support your own family being skinned alive if the government told you to. Maybe if you check up to see who owns Shell, you may even change your mind. Even a racist reason to be against this would be good (in this instance)
MsLee	I'm devastated to hear about this. I feel that, as a nation, we'll live to regret this decision deeply ...
Moonbeam_ElevenCroc	What insanity is this?? the cost of polluting the Karoo cannot be left for future generations to bear. In an area where sunshine is abundant and water is scarce, these greedy, heartless, careless polluters will squeeze the earth, and pollute the aquifers. Say No to Shell and Sasol, boycott these monsters. No fracking on earth. The ministers need to be audited, this moratorium was lifted and someones bank balance grew.
tiredofuselessness	HEAR HEAR!! Monitor those involved in this insanity. I cannot believe how shortsighted this useless and excuse of a government is.
Loggenberg	This might be good for SA in order for us to have "our own " cheap energy. But, even Sasol increase fuel prices when oil prices goes up and coal prices goes down. But we should continue with this exploration as we need to prepare when everyone will do their part to remove the ANC from the Union buildings. We need to be prepared. O Happy day. It seems like Limpopo folks at last came to their senses about the ANC. They call the ANC " Die Sleg Mense". They realised that you cannot get a crab to walk straight.
Spitfire	Dear me, such hysteria without any facts or foundation. The USA has been extracting shale gas for over 40 years and despite many "emotional claims" there has been no pollution. Shale gas has seen electricity prices almost halved in many states with more benefits to follow - like gas powered vehicles. Even the UK, one of the most ecologically responsible countries in the world has released a joint report from the Royal Society and Royal Academy of Engineering that shows the technique is safe if firms follow best practice and rules are enforced and now, exploratory fracking is being mooted in at least seven sites around the UK. The report was commissioned by the government's chief scientist, Sir John Beddington. "Our main conclusions are that the environmental risks of hydraulic fracturing for shale can be safely managed provided there is best practice observed and provided it's enforced through strong regulation", said the report's chair, Prof Robert Mair from Cambridge University. "The UK regulatory system is up to the job for the present very small scale exploration activities, but there would need to be strengthening of the regulators if the government decides to proceed with more shale gas extraction, particularly at the production stage," he The report contains 10 top-line recommendations for strengthening regulations, including: · Comprehensive monitoring of methane in water and the atmosphere before, during and after operations · Use of an independent well examiner empowered to carry out onsite inspections on demand · Better co-ordination between the various government agencies involved Fracking, or hydraulic fracturing, involves drilling down into shale formations and fracturing the rock using explosives or hydraulic pressure. Water is pumped in containing sand particles that prop open the cracks in the shale, allowing the gas out, and a tiny amount of chemicals. The report recommends more monitoring, but says fracking should be safe if done properly In the US, concerns have been raised that the gas or the chemicals can enter drinking water supplies. However, the report concludes that gas contamination should not be a problem - the risk is very low - because fracking takes place at a depth of many hundreds of metres, a long way below the level of aquifers. Each well is lined with layers of steel and cement; and if this, the scientists conclude, will prevent gas leakage. South Africa needs cheaper energy to make our industries more competitive - whilst more and more vehicle manufacturers are looking at gas powered cars that will release us from the strangle hold that the criminals who run OPEC have us in. Pipled gas will also provide low cost heating and cooking for millions of homes as well as creating thousands of jobs in allied industries. It is time for emotional greenies to get real and work together with government to ensure that all their concerns are addressed. Simply screaming "no" is idiotic in the extreme.
Loggenberg	Thanks for spitting fire onto my post and bringing it to life. People's post speaks of distrust in our current government; rightfully so. But we need to do everything to make SA energy independent and depend less on foreign energy imports. Shale gas would be a start after Mossgas failure

RSA.Mommacyndi	<p>Reminds me of those deep studies on tobacco where the universities and legislature found no link between cancer and smoking. Or those lovely studies which showed that margarine was so much healthier than butter as the mono saturated fats were not harmful.</p> <p>He that pays the piper gets to call the tune.</p>
Spitfire	<p>RSA.MommaCyndi - Please name the so called "studies" you are referring to if you are to have any credibility instead of being one of the chattering classes talking nonsense. The Royal Society and the Royal Academy of Engineering have impeccable credentials and are beyond reproach, moreover, over 40 years of shale gas recovery in the USA have shown no increase in levels of pollution in ground water. Instead of silly emotional outbursts about cigarettes and margarine - rather deal with the FACTS of shale gas recovery - something which seems to be beyond you.</p>
Dawin_Rules	<p>Even the UK, one of the most ecologically responsible countries in the world has released a joint report from the Royal Society and Royal Academy of Engineering that shows the technique is safe if firms follow best practice and rules are enforced" Please do not confuse theory with reality. Reading this report will probably give you a better insight into what is actually happening. "Assessing the Real and Perceived Consequences of Shale Gas Development"</p>