

Fracking and Tourism in the Northern Drakensberg: Perspectives of Tourism Business Operators

Zanele Dube-Xaba¹

ORCID iD: <https://orcid.org/0000-0002-5462-4578>

Dumisani Mncube

ORCID iD: <https://orcid.org/0000-0001-5566-2288>

Abstract

This paper assesses the potential impacts of proposed fracking (extraction of shale gas through hydraulic fracturing of rock) on tourism businesses in the Northern Drakensberg. Internationally, fracking has become one of the most debated topics in the media and public spaces because of its economic and environmental impacts. In South Africa, numerous companies have been granted licences for fracking since 2012 to explore large tracts of land for oil and gas in various parts of the country. The Northern Drakensberg will be affected as it falls within an area targeted for fracking. This area is known as one of the top tourism destinations in South Africa with significant natural attractions (such as being a source of fresh uncontaminated water coupled with wilderness and scenic beauty) and cultural value harnessed for tourism (such as the San Rock Art, indigenous community lifestyle). The area boasts a number of tourism businesses which cater for tourists visiting the area. This qualitative paper contributes by reporting on the findings from the interviews with three tourism business operators. The main research finding is that there is a strong objection to fracking by these tourism businesses in the Northern Drakensberg. While there are economic benefits linked to fracking, the

¹ Zanele Dube-Xaba is part of a NIHSS catalytic project (CRP20/ 1098) titled Fracking, Climate Change and Communities.

possible negative impact of fracking on tourism in the Northern Drakensberg cannot be underestimated. The collective findings suggest that the proposed fracking project poses a danger in the deterioration of biodiversity in this area, which is a well-known and popular world heritage tourism destination for both national and international visitors. The study has implications for public participation in economic development.

Keywords: fracking, tourism impact, South Africa, tourism businesses

1 Introduction and Background

Internationally, fracking has become one of the most debated topics in the media and public spaces because of its economic and environmental impacts. Hydraulic fracturing, or fracking, is the extraction of shale gas or oil (fossil fuels) from underground reserves by drilling into rock and pumping, under high pressure, a mixture of water, sand, and other chemicals into the rock to displace the fuel (van Tonder, de Lange, Steyl & Vermeulen 2013). Internationally, this process, commonly known as fracking in public discourse, has become one of the most debated topics in the media and public spaces because of its economic and environmental impacts. In South Africa, formal interest in fracking began in 2008, the potential area of interest being the Karoo. The Karoo is also an area of vast tourism potential for adventure tourism, rich heritage history, festivals, Karoo food, agritourism to name a few. Since then there have been a number of applications for exploration rights from various companies (Netshishivhe 2014). However, the process of exploring was stopped by the public outcry (Maphanga, Shale, Gqomfa & Zungu 2022).

In South Africa's economy, given its high dependency on coal for energy, fracking has been presented as an alternative method for accessing energy sources as. While fracking produces methane, which is a more trapping radiant than carbon dioxide (Meng 2017), the government argued that it results in lower greenhouse gas emissions (South African Department of Energy 2013). Hence, numerous companies have been granted licences for fracking since 2012 to explore large tracts of land for oil and gas in various parts of the country. The large scale and pace of this activity has generated widespread interest about its impacts on the economy and host

communities, including tourism activities (Brown 2014; Kelsey, Partridge & White 2015; Mount, Kelsey & Brasier 2018). The tourism activities, that are part and parcel of the many treasured economic sectors in South Africa, are dependent on the sustainability of the natural environment. The tourism industry is built on the existence of rich natural sceneries such as forests, grasslands, pristine mountainous regions, and clean environmental systems (Fig 2012). To the tourism industry therefore, any proposed hydraulic fracking projects in South Africa are potentially hazardous as they will negatively impact the lush forest and green grassland areas that are main tourism attractions, and these areas will disappear as the land will be utilized for oil and gas exploitation (Carbutt 2019). The Northern Drakensberg, which is part of the Maloti-Drakensberg World Heritage Site previously known as Ukhahlamba-Drakensberg), is rich in biodiversity and scenic beauty and a popular tourist attraction. This park is included in the vast area in KwaZulu-Natal that is earmarked for fracking, and the anticipated danger that this poses to the biodiversity of the region will thus also impact the tourism industry negatively (Rumbach 2011).

Paradoxically, tourism and mining are competing economic objectives globally, yet they are equally significant for any county's economic development. However, environmental issues, such as the impact of fracking, should be considered before economic development is given any priority (Fig 2012). Mining and tourism in South Africa are important sectors yet consistently they end up in conflict (De Klerk & Heath 2015). While Mining has been the main driving force behind the history and development of Africa's most advanced economy, tourism has emerged as one of the top sectors that contributes the most to the GDP. Tourism is an important economic sector globally as it contributes to economic growth, employment opportunities and poverty reduction, especially in developing countries such as South Africa (Manzoor, Wei, Asif, Zia & Rehman 2019; Meyer & Meyer 2015; Pandey & Rogerson 2021). However, there are fears that the tourism industry is constantly under threat from the economic developments that are related to the mining (Maphanga *et al.* 2022; Rasch, Reeves & Sorenson 2018). This could be caused by the view that landscape and other environmental resource should remain untouched once tourism related activities have been developed.

Given that *exploration permits were granted despite the Drakensberg being one of the country's top tourist attractions and a pro-*

claimed World Heritage Site (Tjaša 2015), a broader project that aims to analyse the possible impact of fracking and whether it should be authorised in the Amazizi area in the Northern Drakensberg and in other areas in KwaZulu-Natal was undertaken. The project covers various aspects related to fracking, including its possible impact on the sustainability of local history, businesses, and farming and tourism activities. This paper explored the potential impacts of fracking, if implemented, on tourism activities in the Northern Drakensberg area. Whilst there is literature on the impacts of fracking, there is a significant obscurity in the literature on the potential impacts of fracking in natural and heritage resources and tourism destinations, particularly in South Africa, hence the gap addressed by this study.

2 Literature Review

Fracking

Hydraulic fracturing, commonly known as fracking (as used in this paper), is the process of extracting gas from shale formations is abundant in gas resources and is found deep beneath the surface of the (Sangaramoorthy *et al.* 2016). Recent innovations in extractive technologies have made it possible to develop previously inaccessible natural gas and oil reserves. Fracking, which is combination of advanced high-pressure, high-volume hydraulic fracturing, and often horizontal drilling is one such new technique employed to extract natural gas or oil reserves dispersed within shale formations (Meng 2017).

Fracking has gained popularity as a mining method to extract oil and gas from beneath shale and it has improved these reservoirs' permeability (Healy 2012; Howarth 2015; van Tonder *et al.* 2013). Countries such as the United States (US), China, Argentina, Algeria, Canada, Mexico, Australia, South Africa, Russia, Brazil, and parts of Europe have all embarked upon shale fracking programmes (Cortney 2012). South Africa currently faces an energy demand that currently exceeds supply. This is evident from frequent power reduction 'load shedding' in areas that have electricity while some areas are still without electricity. Extracting shale gas could become one of the solutions for electricity challenges in the country. This would reduce dependency on coal-based electricity, which could lead to lower electricity prices and end frequent load shedding (Vecchiato 2012).

Benefits of Fracking

The basic economic viability of fracking cannot be undervalued. For instance, the availability of shale gas in the United States of America (USA) has lowered the price of gas considerably (Hunt 2015). This has contributed to the assumption that shale gas in South Africa will also be available at low cost (Clark, van Niekerk & Petrie 2020). In addition, the production of shale gas through fracking may potentially improve gas exports as is the case in the USA where this country has shifted from being an importer of gas to potentially becoming the world's largest gas exporter (Murphy 2016). This has led to a demand for labour in the construction phase of the wells. Fracking is said to have a potential substantial and benefiting impact on job creation in a country where the unemployment rate is so high (Willems, Dalvie, London & Rother 2016). For instance, as drilling companies move into a community, population flows in and there is modest increase in jobs outside the extraction industry itself (Tan *et al.* 2022). These could range from transportation, retail, hotels and restaurants, entertainment and services. In addition, there are temporary benefits for local tourism business, through expenditure effects linked to the accommodation and hospitality requirements of a temporary workforce (Mount *et al.* 2018). The increased demand for accommodation may benefit hotel and motel owners and local restaurants.

Dangers and Challenges of Fracking

Internationally, while fracking is motivated by the need to secure energy supplies and achieve economic boom, several studies have reported the increased controversy of using fracking due to its actual or potential impacts on environmental degradation and health (Chisebe 2017; Cotton & Charnley-Parry 2018). Research suggests that tourists prefer to visit rural destinations with natural landscapes that do not contain visible signs of ecosystem degradation (Hall, Scott & Gössling 2020; Rogerson & Rogerson 2021a). Hence researchers have suggested that fracking may result in damage of the natural landscape, which are the main rural attractions. For instance, Willems *et al.* (2016) have raised about the effects that drilling and fracking operations have on the fragile environment. Additionally, fracking may result to earthquakes which could damage buildings and infrastructure. Earthquakes has been reported in other countries, such as British and the United Kingdom where fracking activities are taking place (Tan *et al.* 2022)

Researchers have also noted social impacts such as noise and light pollution (Sangaramoorthy *et al.* 2016; Upadhyay, 2010). Moderate to significant noise pollution has been detected in communities that live near fracking sites. Such noise is due to the construction of the wells, the drilling and fracking processes, as well as the trucks needed to service the wells (Adgate, Goldstein & McKenzie 2014). Such noise is viewed as temporary, and short-term, albeit significant for tourists and residents living near a well pad. For instance, in Pennsylvania many of the journeys made by heavy trucks to and from the well sites are on public roads that were not designed to withstand such volume of heavy traffic. This has made some roads impassable for tourists and local motorists (Cotton & Charnley-Parry 2018). Furthermore, fracking has resulted in industrialisation. In countries such as the USA, fracking process has resulted in industrialisation of rural areas which is a major concern for rural tourism because of its effect on the scenic beauty, small towns and vineyards (Rasch, Reeves & Sorenson 2018).

Whilst there is literature on the impacts of fracking, there is a significant obscurity in the literature on the potential impacts of fracking in natural and heritage resources and tourism destinations, particularly in South Africa. Limited research related to the public's knowledge and risk perceptions of fracking is available, and none whatsoever has been forthcoming from South Africa (Willems *et al.* 2016). Therefore, there was a necessity to undertake this study that focuses on the perspectives of tourism business operators are necessary.

3 Tourism and Community

Tourism is a people-oriented industry and its major functions depend on human resources. Local community can be involved in various ways such as employment in tourism sector, local entrepreneurship, leasing out land for tourism, making partnership agreement with tourism operators, and participation in planning and decision making related to tourism, wildlife, parks and land uses (Nagarjuna 2015); The success of rural tourism development depends on better community leadership, support and participation of local administrative systems. Active participation of local community in tourism development is very important to achieve the goals of sustainability and to improve the welfare of the local community (Ertuna & Kirbas 2012). Community participation in tourism helps to uphold the local culture,

tradition and indigenous knowledge of the local people. It also helps in conservation of the environment and culture of the local community (Breugel 2013). Community has to actively participate in involved working, meaningful decision making and representation in structured communities.

4 Theoretical Framing

This paper adopted Choguill's (1996) theory regarding public participation which focuses specifically on public participation within the context of the underdeveloped countries, of which South Africa is one of them. According to Choguill (1996) public participation affords communities the opportunities to influence decisions in the political arena concerning issues that affect them. Choguill (1996) theory suggests a ladder of public participation which involves, from bottom to top: manipulate; inform; consult; collaborate and empower. With the approaches at the bottom of the ladder, beneficiaries may be consulted or merely informed about the initiative (with no assurance that these concerns will be considered), while approaches at the top of the ladder empower people in important decision-making process and thus offer collaboration with communities. Public participation makes it possible for the governments to engage with communities in order to inform and educate them about proposed developments such as fracking. The public participation process creates an opportunity for socio-economically disadvantaged communities to make contributions to significant social change (Davidson *et al.* 2007). Through public participation, communities are informed about developmental projects in their domains, take active part and also be empowered in the process through training as well as experience (Aule, Jusan, & Ayoosu 2019). Therefore, public participation of tourism business operators could make them be well informed about the feasibility of implementing fracking, and its socio-economic and environmental benefits and costs.

5 Methodological Approach

Study Context

This study is part of a broader project that aims to understand the possible impact of fracking should it be authorised in the Amazizi area in the Northern Drakensberg, KwaZulu-Natal Province in South Africa. The project covers

various aspects related to fracking, including its possible impact on the sustainability of local history, businesses, and farming and tourism activities. The Northern Drakensberg forms part of the Maloti-Drakensberg Park World Heritage Site, which is part of the greatest and highest escarpment within the region bordering South Africa and Lesotho (Van Tonder *et al.* 2013). It is located in the province of KwaZulu-Natal in a small town known as Bergville. This area is largely rural and contains important tourism attractions. The government highlights the importance of rural areas for tourism development and emphasises the fact that rural areas contain market unique tourism products (Department of Tourism 2012). This is the fact with Northern Drakensberg area where tourism is a major source of income.

This study focused on the north of the Drakensberg region which falls under the Amazizi traditional authority. This study area has high tourism potential due to its unique historical significance and scenic beauty and attracts tourists from across the world. The Northern Drakensberg, including Amazizi community will be affected as it falls within an area targeted for fracking. The Northern Drakensberg forms part of the exploration rights (ER) 350 granted to Rhino Oil and Gas to explore the extraction of shale gas. Although the environmental impact assessment on ER 350 does not explicitly demarcate the area where fracking will begin or end, this area lies in the Upper Tugela region of KwaZulu-Natal (SRL Consulting 2020).

This area forms part of the Maloti-Drakensberg Park which was declared as a World Heritage Site and it is known as one of the top tourism destinations in South Africa with significant natural attractions (such as being a source of fresh uncontaminated water coupled with wilderness and scenic beauty and mountain hiking) and cultural value harnessed for tourism (such as the San Rock Art, indigenous community lifestyle). The area is also viewed as strategically important to the provinces' overall tourism offer and there are aspirations to grow the tourism sector and build upon key assets, such as the cableway (Heath 2021). The area boasts a number of tourism businesses which cater for tourists visiting the area. In the Maloti-Drakensberg Park, as in all heritage sites in South Africa, the tourism industry is embedded in rich cultural and natural sceneries such as indigenous forests, grasslands, and clean environmental systems that are enjoyed and appreciated by residents and visitors alike (Fig 2012). Therefore, if a hydraulic fracking project goes ahead in this area, as proposed, there is a real threat that the lush forests and green pastures that are main tourist attractions will disappear as the beautiful, pristine land will be utilized as a resource for

oil and gas exploitation with its accompanying infrastructure (Carbutt 2019).

Sample and Sampling Method

This paper reports on the possible impact of fracking on tourism from the perspective of selected tourism business operators. The selection of the sample was in line with the qualitative research approach that was employed in this study. The sample was selected using purposive sampling. Purposive sampling allows for the identification and selection of information-rich cases related to the phenomenon of interest (Kirchherr & Charles 2018). This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about the phenomenon studied (Creswell & Poth 2018). This approach assisted the researchers to focus on generating in-depth and rich data. In using purposive sampling, we identified three potential participants located within a 20 km radius of the area where fracking has been proposed. Then we asked those participants to identify, and in some cases, recruit other people to participate in the study. Cohen Manion and Morrison (2018) state that snowball sampling assist in identifying an easily accessible small number of knowledgeable people within a short span of time. This paper reports on the perspectives of three tourism business operators. All participants are owners or co-owners of the tourism businesses operating in the area and offer various tourism products ranging from accommodation to tourism activities. All three participants were operating registered tourism businesses.

Data Generation and Analysis

The study was carried out using the semi-structured interviews. The semi-structured interviews, according to Cohen *et al.* (2018) serve as a semi-formal conversation between participants and the researcher. The flexibility of the semi-structured interview helped the researchers to probe deeper where relevant information could only be obtained through further questioning. Semi-structured interviews were conducted with each participant individually and lasted from 1-2 hours. Each interview session was recorded to achieve trustworthiness of data generation to enable greater accuracy of the transcripts (Creswell & Poth 2018). The semi-structured interviews were analysed using thematic analysis. Thematic analysis is a

process of transcribing and reading and re-reading the data to identify and report on patterns (themes) and concepts that are of interest to the research questions (Braun & Clarke 2019). Of particular interest were the views and meanings the participants attached to fracking in the Northern Drakensberg that reflect the context of their realities (Braun & Clarke 2019). By coding the data, the analysis of the interviews provided insight into the relevant ideas reflected upon by the participants. This helped the researchers to identify emerging themes for analysis

6 Findings and Discussions

The tourism business operators in the Northern Drakensberg in the communities of Amazizi are justifiably concerned about the negative impacts fracking could have on tourism and living conditions in the community. While they indicated minimal knowledge of the licence for fracking exploration in the area, they expressed concerns about a range of issues relating to fracking and tourism.

6.1 Knowledge and Awareness of Fracking

Limited Knowledge of Fracking

Participants' levels of knowledge about fracking were relatively low. All three participants revealed that they actually knew very little about this form of gas exploitation and its implementation in the Northern Drakensberg. When asked about the information sources from where they have heard of fracking, they mentioned community forums and tourism business forums where the information was shared:

I heard from the forum for businesses that a certain company was coming to extract gas of some sort in our area but not much was shared.

There was no forum that I know where the issue of fracking was discussed.

I heard from a community group, which is formed of tourism organisations and land owners in the Drakensberg – this was communicated on the WhatsApp group.

According to the participating tourism business operators the consultation process involving public had not yet been met by the government or the company holding the licence. The two participants stated that they have heard of fracking in one or more forum. While, one of the participants revealed no awareness about fracking from any of the forums. This suggests that all participants seemed to have minimal to no engagements with the debates around fracking outside the government or the fracking company. The participants revealed that very few of them were actively participating in community forums. Similarly, low levels of knowledge about fracking were reported by Kelsey *et al.* (2015) in a study conducted in Americans.

Poor Participation by Tourism Business Operators

All participants seemed to have minimal engagements with the debates around fracking. They expressed that they would not permit fracking in the Northern Drakensberg given their fear that it will put an end to some tourism activities. Participants stated:

They informed us that we might object but I am not sure where it ended.

In one of the meetings, that I did not attend I heard that there was a lot of encouragement on us to register our objection as a business community.

I don't know much about it ... emm ... I know it is perceived as a way of getting natural gas but I am also aware that it has environmental drawbacks so I would not encourage it in our area.

The participants reported that there were no transparency and reasonable procedures for tourism business operators in the area to participate in discussions and decisions regarding the exploration of shale-gas. The participants only heard about fracking form platforms that were encouraging objection. Some indicated that they did not even know where the process was at the time of data generation. Baynham-Herd *et al.* (2018) argue that consultation is a very important stage of the fracking programme. However, the participants seemed to have not been consulted which might result to them being recruited to object to fracking.

This finding resonates with previous studies on the knowledge and awareness about fracking by local people and businesses. For instance, Eaton and Day (2020) argue that there is a lack of concrete information on fracking and its impact on the environment, which they find surprising given its contentious nature. Similarly, literature suggest that some development conflicts arise from value clashes or lack of transparency and public consultation, rather than environmental impacts on the ground (Baynham-Herd *et al.* 2018). Given that most of the participants in this study said they have limited to no knowledge of fracking, it is likely that they have formed opinions about the negative impact of fracking based on limited or biased information sources. Ruiz, Marrero, and Hernández (2017) have warned that people tend to have a negative emotional response to oil and gas development based on fear, rather than stemming from empirical evidence of likely impacts.

Study participants were identified as living in the Northern Drakensberg, having spent most of their lives there and with the majority of participants owning property and tourism businesses in the area. Given South Africa's emphasis on public participation in environmental decision making (Thetsane 2019), tourism business operators could be viewed as one of the key stakeholders. Aule *et al.* (2019) argues that public participation may lead to awareness and education in the community. Thus, an awareness and knowledge of the proposed fracking activities is important to ensure fair and transparent decision making. Low levels of public engagement from the companies driving fracking and the government may explain these findings.

6.2 Change in Tourism Businesses

Employment Opportunities

The findings revealed that participants who indicated having some basic knowledge of fracking acknowledged that fracking will be beneficial to the communities and tourism businesses in the Northern Drakensberg. Participants stated:

It will be an amazing employment opportunity even in the tourism industry.

I think we can have high occupancy in our hotels and lodges during the process but not sure how long that could last.

Fracking and Tourism in the Northern Drakensberg

More people coming in for different jobs will translate into increase in occupancy in the accommodation sector and we can employ more people.

According to the participants, fracking might benefit the tourism industry through job creation, as a result of people coming to work in the fracking wells. While some of the participants felt that fracking would have a substantial and benefiting impact on job creation in a country where the unemployment rate, they were concerned about the sustainability of those jobs. It is possible that there would be a short-term economic boom for the region, including the creation of short-term job opportunities and possibly increase in hotel occupancy. Such boom effects have been seen in other countries (Mount *et al.* 2018; Similä & Jokinen 2018). Viewing fracking as an opportunity for mass employment would not be unique to these operators. For instance, in the USA, have noted that on a national scale, fracking in many areas of USA has been welcomed as a source of jobs in a period of long-term economic stagnation (Ayres 2013; Tan, *et al.* 2022).

Industrialisation

While the participants acknowledge the benefits of fracking in creating job opportunities, they also expressed concerns on the possible industrialisation which could be created by fracking for tourism businesses. They expressed concerns about changes which the development of industries may pose to the environment and scenic beauty which are the main tourists' attractions in the area. The participants felt that fracking will affect the nature of the tourism offer in the area and tourists' preferences. Given that landscape and the natural environment are central to the tourism offer in the Northern Drakensberg would expect government to be particularly sensitive to development. The tourism in the Northern Drakensberg is more focused on natural uniqueness as well as cultural experience. Participants stated:

Allowing this fracking might result to the area changing its land scape and have some industries...this might not be good for tourism in the area.

Allowing this fracking proposal to proceed could result to a rush of development which could affect rural settlement of the area.

The landscape might shift from rural to industrial which might not be good for tourism attractions in this area as tourists like to come to an unspoiled natural area.

Participants were concerned that allowing fracking would completely change the social environment from deep rural setting to industrialised setting which may result to sophisticated tourism with minimal unspoiled areas. They further expressed concern about massive infrastructural development which could be informal and uncontrolled in some instances. For, them, such industrialisation could force tourism business operators to change the tourism products they offer. The very presence of well-drilling sites and flares burning gas, will not only disfigure the beauty of the Northern Drakensberg as a tourist destination but could also change the products offered. This could result in substantial damage to the area's brand threatening future growth of tourism in the Northern Drakensberg. They stated:

This is a World Heritage Site declared for natural beauty ... so ... if mining industries are developed, it will make the area less attractive for tourists.

I think fracking is irreversible ... once done it changes the structure and landscape of the area ... we will see more houses ... more businesses ... even shopping malls.

While economic development is good, the development of industries will interfere with the ecosystem where we have been having harmony between the natural environment, animals [which are tourists' attractions] and the tourists themselves as this place is known for natural attractions.

The participants reported deep distress over the transformation of the physical and natural environment contrary to the whole idea behind the natural World Heritage Site. They further express concerns about changes in the landscape and ecosystem which serves as tourists' attractions. Some also felt that fracking could lead to permanent damage to the landscape which would surely ultimately ruin the very attraction the Northern Drakensberg is so renowned for. The above excerpts reveal that the participants understood

substantial economic growth, they did not perceive these benefits to be worth the cost of environmental degradation. They perceive a rush in industrial development and even change in settlement. Such rush has been reported in the literature for instance (Rumbach 2011) who noted that in Pennsylvania its previously rural and forested landscape rapidly being transformed into an industrial landscape and tourism was negatively affected. Rumbach's findings revealed that fracking could have a large cumulative effect on the long-term growth of tourism through damaging the brand of the area. Similarly, the participants in this study were of the view that there is a possibility that fracking would undermine the tourism industry substantially that it would take a very long time to recover and restore its brand, visitor base and image as argued by (Bezzina 2013). As such, Mount *et al.* (2018) concluded that the overall impact of fracking on tourism could be negative given the expected a short-term economic boom (increased occupancy rates for hotels) for the area however predicted a long-term negative impact on the regional tourism brand.

Noise Pollution

In terms of the potential impact on tourism, the findings identified noise as one of the concerns of the participants. The participants revealed that drilling might cause noise which although might be temporary, in some cases but significant for the tourists' experience. The participants expressed concern about possible noise pollution as a potential problem for nearby accommodation establishments and tourists.

May be fracking will happen near our establishment ... Ey ... I can't imagine the noise during the drilling ... might send tourists away.

I am thinking of drilling ... will be all over and the tourists may not like to hear such noise around the clock ... even the trucks transporting goods.

The noise which might result from the process might disturb the ecosystem, especially animals of which tourist might end up not see in the national park.

Participants were concerned about the impact of noise caused by drilling on

tourists visiting the area. Some felt that noise resulting from drilling might have an advert effect not only on the tourists but animals as well. This may result to animals hiding which might reduce tourists sightseeing of the animals in their natural habitat. As such, the noise could undermine the experience of the tourists in the area as highlighted by Upadhyay (2010). Some felt that if fracking is to take place one could expect a dramatic increase in heavy truck traffic along the small roads leading to the Amazizi area. This would make getting to and from the Amazizi area more difficult and might increase infrastructure costs for the province. They felt that the noise resulting from trucks would cause annoyance and disturbance to tourists. This finding agrees with the previous studies there has also been damage to tourism property and activities from fracking operations (Alexeev 2013). Noise resulting from construction can have adverse impact on the tourism activities such as the MICE (meetings, incentives, conferences and events) market.

Threatening Tourism Attractions and Activities

One impact that was strongly anticipated by the participants was the change in tourists' preferences due to the destruction of scenic beauty in the Northern Drakensberg. The participants were of the view that tourist have always been attracted to the Northern Drakensberg because of the scenic beauty, cultural history and tourism activities associated with natural environment. People want to escape the busy life in the city and visit areas boosting nature (Rogerson & Rogerson 2021b). The participants agreed with literature as they stated:

I think if fracking takes place, tourists will not be attracted to the area.

Coming out of COVID, people have realised how much we need to be outdoors – a healing space that nature provides should really be preserved.

People like to come to a natural place that is not spoiled by industrialisation, of which this area is offering so this fracking could make tourists not come here for relaxation anymore.

The participants felt that fracking would destroy the beautiful mountains and

nature that the Northern Drakensberg is known for by tourists. Some were of the view that would fracking occur around tourist attractions, it will result to an unfriendly tourists' experience. From the foregoing, this need for natural environments as a tourism product is evident. This view is evident in literature which reports that tourists prefer to visit rural destinations with natural landscapes that do not contain visible signs of ecosystem degradation (Rogerson & Rogerson 2021a). This attitude has grown during and post COVID-19 pandemic considering the cost of safety and health tourist destinations with natural landscape are becoming a more preferred choice for tourists from most countries abroad (Shafi *et al.* 2021). Hence the proposed fracking could alter the tourists' preference of the Northern Drakensberg.

Should fracking happen in the Northern Drakensberg, the effects on tourism are perceived to be disastrous. However, the proposed hydraulic fracking project that is earmarked for the Northern Drakensberg, poses the danger of the deterioration of the biodiversity in this area, which is part of a well-known World Heritage Site and a popular tourism destination for both national and international visitors. This may mean a change in the tourism offer in this area as oil and gas exploitation may harm the environment and negatively impact the tourism industry which depends on this natural environment and landscape.

7 Conclusion and Implications

The main research finding from our aim is that there is a strong objection to fracking by the tourism businesses in the Northern Drakensberg. While there are economic benefits linked to fracking, the possible negative impact of fracking on tourism in the Northern Drakensberg cannot be underestimated. The collective findings suggest that the proposed hydraulic fracking project that is earmarked for the Drakensberg world heritage site poses a danger in the deterioration of the biodiversity in this area, which is a well-known and popular world heritage tourism destination for both national and international visitors. This may mean the end of the tourism industry in this area as oil and gas exploitation may harm the environment and negatively impact the tourism activities.

What makes tourism so successful in the Northern Drakensberg is the scenery, the outdoor activities, but especially the uniquely beautiful mountain range and the art rock paintings that the area offers. Hence their

objection is justified in the knowledge that sustainable tourism depends on efficient management of both natural and cultural resources of which this area is known. Indeed, it could be argued that tourism, particularly based on natural and cultural attractions is a far more sustainable industry than resource extraction. The study reported that tourism business operators perceive the negative impact of fracking on the Northern Drakensberg environment to supersede the economic benefits. This study poses a question about the potential co-existence or mutual benefit for the two activities which future studies could explore. This study recommends a more focused education about fracking, especially the positive impacts it could have on tourism economy for businesses.

The study revealed that there was limited public participation involving stakeholders such as tourism business operators in the Northern Drakensberg hence they lacked adequate knowledge about fracking. The perceived negative impacts and opposition to exploratory fracking in the Northern Drakensberg appears to correlate with the evidence of a lack of information about fracking. These findings suggest that limited public participation confirms that opposition to the new development could result in greater perceived negative impacts. From the study it became evident that participants were hardly involved during consultation stage which led to the granting of exploration rights. This study recommends the need for transparency and extensive public consultation which could lead to an improved decision-making process on the viability of fracking in the Northern Drakensberg. There needs to be collaboration and a holistic approach from the different stakeholders involved or affected by the fracking process if they are to have their voices heard.

Further studies are needed to obtain a more representative view of the tourism business operators on the perceived impact of fracking related to tourism. Moreover, future research that works towards better understanding tourism operators' perceptions in areas earmarked for fracking has important implications for managing the process of public participation.

References

Adgate, J.L., B.D. Goldstein, L.M. McKenzie 2014. Potential Public Health Hazards, Exposures and Health Effects from Unconventional Natural Gas Development. *Environmental Technology* 48,15: 8307e8320.

- <http://dx.doi.org/10.1021/es404621d>
<https://doi.org/10.1021/es404621d> PMID:24564405
- Alexeev, I. 2013. Shale Project and Gas Fracking in Eastern Europe. *Global Research*. Available at: <http://www.globalresearch.org/ca/> (Accessed on 19 September 2022.)
- Aule, T.T., M. Jusan, M.I. Ayoosu 2019. Outcomes of Community Participation in Housing Development: An Update Review. *International Journal of Scientific Research in Science, Engineering and Technology* 6,6: 208 - 218.
<https://doi.org/10.32628/IJSRSET196642>
- Baynham-Herd, Z., S. Redpath, N. Bunnefeld, T. Molony & A. Keane 2018. Conservation Conflicts: Behavioural Threats, Frames, and Intervention Recommendations. *Biological Conservation* 222: 180 – 188.
<https://doi.org/10.1016/j.biocon.2018.04.012/>
- Breugel, L.V. 2013. *Community-based Tourism: Local Participation and Perceived Impacts a Comparative Study between Two Communities in Thailand*. Master's thesis. Available at: <http://www.google.co.in/url> (Accessed on 5 April 2023)
- Bezzina, E. 2013. *Discussion of the Impact of Hydraulic Fracturing on Tourism*. Available at: <http://nlhfrp.ca/wp-content/uploads/2015/01/FrackingImpactTourism.pdf> (Accessed on 15 June 2021.)
- Brown, J.P. 2014. Production of Natural Gas from Shale in Local Economies: A Resource Blessing or Curse? *Economic Review* 99,1: 119 – 147. Available at:
<https://www.kansascityfed.org/publicat/econrev/pdf> (Accessed on 10 March 2022.)
- Carbutt, C. 2019. The Drakensberg Mountain Centre: A Necessary Revision of Southern Africa's High-elevation Centre of Plant Endemism. *South African Journal of Botany* 35,2: 508-529
<https://sciencedirect.com/science/article/pii/S0254629919300390>
<https://doi.org/10.1016/j.sajb.2019.05.032> (Accessed on 12 September 2022.)
- Chisebe, K.B. 2017. *Exploring Potential Impacts of Hydraulic Fracturing (Fracking) on Groundwater Contamination in the Karoo: Perspectives on Institutional Capabilities in Water Management in South Africa*. Unpublished Thesis. University of Witwatersrand. Available at:

- <http://wiredspace.wits.ac.za/> (Accessed on 20 August 2022.)
- Choguill, M. 1996. A Ladder of Community Participation for Under-developed Countries. *Habitat International* 20,3: 431 - 444.
[https://doi.org/10.1016/0197-3975\(96\)00020-3](https://doi.org/10.1016/0197-3975(96)00020-3)
- Clark, S., J. van Niekerk & J. Petrie 2020. *The Use of Natural Gas to Facilitate the Transition to Renewable Electric Power Generation in South Africa*. Stellenbosch University. Available at:
<https://scholar.sun.ac.za/handle/10019.1/109312>
(Accessed on 1 February 2023.)
- Cohen, L., L. Manion & K. Morrison 2018. *Research Methods*. 8th Edition. London: Routledge. <https://doi.org/10.4324/9781315456539-10>
- Corteny, W. 2012. *A Case Study – The Fracturing Geography: The Case of the Eagle Ford Shale, TX, USA*. Unpublished thesis. Texas State University-San Marcos, San Marcos, Texas. Available at:
<https://digital.library.txstate.edu/> (Accessed on 1 February 2023.)
- Cotton, M.D. & L. Charnley-Parry 2018. Beyond Opposition and Acceptance: Examining Public Perceptions of the Environmental and Health Impacts of Unconventional Oil and Gas Extraction. *The Current Opinion in Environmental Science & Health* 4,3: 2468-5844.
<https://doi.org/10.1016/j.coesh.2018.01.001>
- Creswell, J.W. & C.N. Poth 2018. *Qualitative Inquiry and Research Design: Choosing among Five Approaches*. 4th Edition. London & New Delhi: Sage Publications.
- Davidson, C.H., C. Johnson, G. Lizarralde, N. Dikmena & A. Sliwinskia 2007. Truths and Myths about Community Participation in Post-disaster Housing Projects. *Habitat International* 31: 100–115.
<http://dx.doi.org/10.1016/j.habitatint.2006.08.003>
- De Klerk, A. & E. Heath 2015. Ecotourism Destinations and Mining Developments: Managing Sustainable Relationships. *ATLAS Africa Conference 2015, Tourism and Inclusive Growth in Developing Economies*, Dar es Salaam, Tanzania. 3-5 June, 2015. Extended Abstract Book, pp. 4-7. <http://www.atlas-euro.org/> (Accessed on 5 December 2022.)
- Eaton, E.M. & N.A. Day 2020. Petro-pedagogy: Fossil Interest and the Obstruction of Climate Justice in Public Education. *Environmental Education Research* 26,4: 457 - 473. Available at: <https://eaton.com>
<https://doi.org/10.1080/13504622.2019.1650164>
(Accessed on 10 September 2022.)

- Ertuna, B. & G. Kirbas 2012. Local Community Involvement in Rural Tourism Development: The Case of Kastamonu, Turkey. PASOS. *Revista de Turismo y Patrimonio Cultural* 10,2: 17 - 24. Available at: <https://www.redalyc.org/pdf/881/88123109003/> <https://doi.org/10.25145/j.pasos.2012.10.023> (Accessed on 12 April 2023.)
- Fig, D. 2012. *Fracking and the Democratic Deficit in South Africa*. Available at: <https://tni.org/es/node/2829> (Accessed on 12 September 2022.)
- Hall, C.M., D. Scott & S. Gössling 2020. Pandemics, Transformations and Tourism: Be Careful What you Wish For. *Tourism Geographies* 22,3: 577 - 598. <https://doi.org/10.1080/14616688.2020.1759131>
- Healy, D. 2012. Hydraulic Trajectory or ‘Fracking’. A Short Summary of Current Knowledge and Potential Environmental Impacts: A Small-scale Study for Environmental the Protection Agency (Ireland) under the Science, Technology, Research and Innovation for the Environment (STRIVE) Programme 2007 - 2013. *Environmental Protection Agency*. Available at: http://www.epa.ie/downloads/pubs/research/sss/UniAberdeen_Frackin_gReport.pdf (Accessed on 18 August 2022.)
- Heath, G.E.C. 2021. The Northern Drakensberg Cableway: An Unworkable yet Immortal Development. *African Journal of Hospitality, Tourism and Leisure* 10,5: 1670 - 1682. <https://doi.org/10.46222/ajhtl.19770720-185>
- Howarth, R. 2015. Methane Emissions and Climatic Warming Risk from Hydraulic Fracturing and Shale Gas Development: Implications for Policy. *Energy and Emission Control Technologies* 3: 45 - 54. <https://doi.org/10.2147/EECT.S61539>
- Hunt, L. 2015 Articulating the Time, Cost, and Benefits of a Seismic Processing Project Recorder. *Official Publication of the Canadian Society of Exploration Geophysicists* 1 – 11. Available at: <https://csegrecorder.com/articles/view/articulating-the-time-> (Accessed on 12 September 2022.)
- Kelsey, T., M. Partridge & N. White 2015. *Unconventional Gas and Oil Development in the United States: Economic Experience and Policy Issues*. Available at: https://mpra.ub.uni-muenchen.de/62154/1/MPPA_paper_62154.pdf (Accessed on 19 March 2023.)

- Kirchherr, J. & K. Charles 2018 Enhancing the Sample Diversity of Snowball Samples: Recommendations from a Research Project on Anti-dam Movements in Southeast Asia. *PLoS ONE* 13,8: e0201710. <https://doi.org/10.1371/journal.pone.0201710> PMID:30133457 PMCid:PMC6104950
- Manzoor, F., L. Wei, M. Asif, Zia & H. Rehman 2019. The Contribution of Sustainable Tourism to Economic Growth and Employment in Pakistan. *International Journal of Environmental Research and Public Health* 16: 1-14. <https://doi.org/10.3390/ijerph16193785> PMID:31597376 PMCid:PMC6801594
- Maphanga, T., K. Shale, B. Gqomfa & V.M. Zungu 2022: The State of Public Participation in the EIA Process and its Role in South Africa: A Case of Xolobeni. *South African Geographical Journal*. <https://doi.org/10.1080/03736245.2022.2087726> (Accessed on 1 February 2023.)
- Meng, Q. 2017. The Impacts of Fracking on the Environment: A Total Environmental Study Paradigm. *Science of the Total Environment* 580: 953 – 957. <http://dx.doi.org/10.1016/j.scitotenv.2016.12.045> PMID:27986321
- Meyer, D.F. & N. Meyer 2015. The Role and Impact of Tourism on Local Economic Development: A Comparative Study. *African Journal for Physical, Health Education, Recreation and Dance* 21,1,1: 197-214. <http://dspace.nwu.ac.za/bitstream/handle/10394/19348/ajpherd> (Accessed on 10 November 2022)
- Mount, D.J., T.W. Kelsey & K.J. Brasier 2018. Hotels and Oil/ Gas Development Booms, Busts, and the Future of Hotels in Oil/ Gas Development Areas. *The Journal of Hospitality Financial Management* 26,1: 36-47. <https://doi.org/10.7275/R5RB72T2>
- Mnguni, E.M., O. Mtapuri, A. Giampiccoli 2020. Tourism in Rural Areas: A Case Study of Opportunities in the South Coast of KwaZulu-Natal. *International Journal of Hospitality & Tourism Systems* 13,2: 96-105. <http://www.publishingindia.com/ijhts> (Accessed on 10 November 2022.)
- Mutambara, E. & B. Mthembu 2018. Critical Resources for the Development of Rural Tourism within the Greater Bergville Area of Kwa-Zulu Natal South Africa. *African Journal of Hospitality, Tourism and Leisure* 7,5: 1 - 25. Available at: www.ajhtl.com (Accessed on 10 November 2022.)
- Murphy, T. 2016. US Shale Gas Trends: Economic and Global Implications.

- Journal of Physics: Conference Series* 745. Available at:
<https://doi.org/10.1088/1742-6596/745/2/022004>
- Nagarjuna G. 2015. Local Community Involvement in Tourism: A Content Analysis of Websites of Wildlife Resorts. *Atna, Journal of Tourism Studies* 10,1: 13 - 21. Available at:
<https://core.ac.uk/download/pdf/236434482>
<https://doi.org/10.12727/ajts.13.2> (Accessed on 2 April 2023.)
- Netshishivhe, S. 2014. The Karoo Fracking Scenario: Can Development and Environmental Wellbeing Coexist, or Must One of Them Prevail? *AISA POLICY Brief 109*.
<https://www.africaportal.org/documents/12219/Policy-Brief-1093.pdf>
(Accessed on 19 August 2022.)
- Pandy, W. & C.M. Rogerson 2021. Climate Change Risks and Tourism in South Africa: Projections and Policy. *GeoJournal of Tourism and Geosites* 35,2: 445 - 455.
<https://doi.org/10.30892/gtg.35224-671/>
- Rasch, R., M. Reeves & C. Sorenson 2018. Does Oil and Gas Development Impact Recreation Visits to Public Lands? A Cross-sectional Analysis of Overnight Recreation Site Use at 27 National Forests with Oil and Gas Development. *Journal of Outdoor Recreation and Tourism* 24: 45–51. <https://doi.org/10.1016/j.jort.2018.11.001>
- Rogerson, C.M. & J.M. Rogerson 2021a. COVID-19 and Changing Tourism Demand: Research Review and Policy Implications for South Africa. *African Journal of Hospitality, Tourism and Leisure* 10,1: 1 - 21.
<https://doi.org/10.46222/ajhtl.19770720-83>
- Rogerson, C.M. & J.M. Rogerson 2021b. Climate Therapy and the Development of South Africa as a Health Resort, c1850-1910. *Bulletin of Geography: Socio-Economic Series* 52: 111 - 121.
<https://doi.org/10.2478/bog-2021-0017>
(Accessed on 10 November 2022.)
- Ruiz, C., R. Marrero & B. Hernández 2017. Influence of Emotions on the Acceptance of an Oil Drilling Project. *Environment and Behavior* 50,3: 324 - 349. <https://doi.org/10.1177/0013916517701795>
- Rumbach, A. 2011. *Natural Gas Drilling in the Marcellus Shell: Potential Impacts on the Tourism Economy of the Southern Tier*. Prepared for the Southern Tier Central Regional Planning and Development Board, with Support from the Appalachian Regional Commission. Available at:

- https://www.epa.gov/npdes/pubs/hydrofracking_faq.pdf (Accessed on 13 August 2022.)
- Sangaramoorthy, T., A.M. Jamison, M.D. Boyle, D.C. Payne-Sturges, A. Sapkota, D.K. Milton & S.M. Wilson 2016. Place-based Perceptions of the Impacts of Fracking along the Marcellus Shale. *Social Science & Medicine* 151: 27 – 37.
<https://doi.org/10.1016/j.socscimed.2016.01.002> PMID:26773295
- Shafi, M., J. Liu, D. Jian, I. Rahman, X. Chen 2021. Impact of the COVID-19 Pandemic on Rural Communities: A Cross-sectional Study in the Sichuan Province of China. *BMJ Open* 11: e046745.
<https://doi.org/10.1136/bmjopen-2020-046745>
PMid:34376445 PMCID:PMC8359857
- Similä, J. & M. Jokinen 2018. Governing Conflicts between Mining and Tourism in the Arctic. *Arctic Review on Law and Politics* 9: 148 – 173. <http://dx.doi.org/10.23865/arctic.v9.1068>
- South African Department of Energy 2013. Integrated Energy Plan. Available at: <https://www.energy.gov.za/files/iep/2016/integrated-energy-plan-report.pdf> (Accessed on 10 November 2022.)
- SRL Consulting 2020. *Environmental Impact Assessment Report for an Application for Exploration Right for Petroleum (350 ER)*. Available at: <https://sahris.sahra.org.za/sites/default/files/additionaldocs/> (Accessed 1 March 2022)
- Tan, H., G. Wong-Parodi, D. Zhang & J. Xu 2022. Public Perceptions of Shale Gas Development: A Comprehensive Review. *Energy Research & Social Science* 89.
<https://doi.org/10.1016/j.erss.2022.102548>
- Thetsane, R.M. 2019. Local Community Participation in Tourism Development: The Case of Katse Villages in Lesotho. *Athens Journal of Tourism* 6,2: 123-140. <https://doi.org/10.30958/ajt.6-2-4> (Accessed on 15 November 2022.)
- Vecchiato, P. 2012. Cabinet Lifts Moratorium on Shale Gas Fracking in the Karoo. *Business Day Live*. Available at: <http://www.bdlive.co.za> (Accessed on 12 September 2022.).
- Van Tonder, G., F. de Lange, G. Steyl & D. Vermeulen 2013. *Potential Impacts of Fracking on Groundwater in the Karoo Basin of South Africa*. Bloemfontein: Institute for Groundwater Studies.
<http://gwd.org.za/sites/> (Accessed on 27 March 2022.)

Willems, M.A., M. Dalvie, L. London & H. Rother 2016. Health Risk Perception Related to Fracking in the Karoo, South Africa. *Environmental Reviews and Case Studies* 18,1.

<https://www.tandfonline.com/doi/abs/10.1017/S1466046615000460>

(Accessed on 5 October 2022.)

Zanele Dube-Xaba
University of KwaZulu-Natal
South Africa
Dubez@ukzn.ac.za

Dumisani Mncube
North-West University
South Africa
Dumsani.Mncube@nwu.ac.za