Editorial
Bless or Ban it: Current Caveats on Climate Change and Fracking[1]

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Introduction

Energy insecurity across the world has been acknowledged through its inclusion in the Sustainable development goals (SDG) as SDG 7 (UN 2023). It has been a global concern for a few decades and resource extraction is perceived as a response by numerous countries (US, Canada, UK) to achieve energy security. Unconventional oil and gas (UOG) is being advanced as a solution to the energy crisis paralysing many economies[2]. It has been described in multiple ways: 'fool's gold' (Murtazashvili & Piano 2019), both 'a blessing and a curse' (Meng 2017: 953) and the 'newest extreme' energy option because it is an 'extractive energy' alternative (Brock 2020:102246) which comes with numerous risks. Brock (2020:102246) described UOG as an 'energy frontier' as it departs from the manner in which conventional oil and gas are extracted. UOG extraction involves horizontal drilling and

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[2] After Russia's invasion of the Ukraine, global political decision making about the war has led to spiraling gas prices and the UK lifted its ban on fracking in September 2022, in a bid to produce its own gas cheaply and become more self-sufficient.

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hydraulic fracturing (of the rock), commonly referred to as fracking. The latter involves deep penetration into the earth and the injection of various chemicals (some toxic) to split the rock structure in order to extract the needed oil and gas (Meng 2017; Brock 2020). Parfitt (2017: 07) maintains that fracking has been around since the early 2000's but only in the past decade has it taken on the current 'brute force fossil fuel extraction' character.

As a result of the risks in the extraction when compared to conventional oil and gas, UOG extraction through fracking has become a contested phenomenon. Meng (2017) highlighted the numerous impacts of hydraulic fracturing on the anthroposphere, biosphere, atmosphere, hydrosphere and lithosphere. This uncertainty about shale gas development (Murtazashvili & Piano 2019) as a clean energy option lies in it being clouded by a multitude of negative impacts for both the environment and mankind with very few positive impacts. As such, it is met with extreme responses by countries either promoting it as a blessing or banning it. Cotton and Charnley- Parry (2018: 08) state that "aside from the USA, countries such as China, Argentina, Algeria, Canada, Mexico, Australia, South Africa, Russia and Brazil (in descending order of resource magnitude) have all embarked upon shale development programmes whilst there are smaller reserves in Europe (e.g. Denmark, the UK and Poland)". They also note that some countries such as Scotland, Ireland and Germany and few regional/sub-federal administrations for example, New York, Maryland in the USA and Victoria in Australia have banned fracking stemming from documented evidence of environmental and health impacts. New South Wales in Australia has an existing moratorium. The United Kingdom recently lifted its ban which was accompanied by protests, in September 2022, amidst the Russian-Ukranian war which has led to escalating gas prices.

Energy for Thought: A Rapidly Changing Climate, Weather Patterns and Human Activities

As a planet, we are on the brink of a climate catastrophe after having just survived the onslaught of the global pandemic, COVID-19. Anthropogenic influences on the climate from human activities are evident with countries experiencing repeated natural disasters (IPCC 2022). Local and global debates and discussions abound on ocean governance, a green economy,

resilient ecological systems, biodiversity conservation, water security, clean energy, waste management, vulnerability and the need to build resilience (Costanza *et al*. 2021; Esterhuyse *et al*. 2022; IUCN 2022). We are now embattled in crisis talks on climate change (for example the international Conference of the Parties- COP) and what can and should be done to avert an impending disaster and yet there is no certainty that as a planet, we will make it out of the red zone. The latest IPCC report (2023) notes that if the goal of countries limiting the warming of the planet to 1,5 degrees is to be reached, then emissions globally have to be halved by 2030. Currently, the planet has warmed by more than 1.2 degrees celcius and fossil fuels have been named as the culprit in increasing global warming. The report highlights a shocking statistic that in 2019, 79% of greenhouse gas (GHG) emissions emanated from energy, industry, transport and buildings with a mere 22% from agriculture, forestry and other land use. This statistic in itself sounds the alarm that the focus on mitigating GHG should be targeting activities in the realm of energy, industry, transport and buildings.

Extreme weather events are predicted to create added stresses for food and water security in countries. With the ending of weather pattern La Nina and its cooling effects, El Nino will develop, thereby increasing global temperatures. Harvey (2023) reports on the UN revelation that we are heading into "uncharted territory" and there is a high probability (66%) that temperatures near the Earth's surface, within the next five years (2023-2027) will experience soaring temperatures. It is envisaged that this will exceed the 1.5 degree celcius threshold above pre industrial temperature levels as agreed to by countries at the 2015 Paris Climate agreement. It is important to bear in mind that previously, the world has not exceeded a 1,28 degrees celcius increase, so ahead lies unprecedented times for all forms of life and livelihoods on planet Earth. 'Biophysical worries' (Preston and Carr 2018: 309) such as droughts, floods, rising sea levels etc. plague current discussions on climate change. As such it is easy to understand that internationally there are climate protection endeavours which are growing: there is a new EU regulation which speaks to deforestation-free supply chains and projects that promote forest landscape restoration (Human Rights Watch 2023; IUCN 2022). These endeavours speak to the need reduce GHG and should be a warning to SA to make smart energy choices that don't result in escalating GHG emissions, exacerbating climate change. Whilst coal has taken centre stage for its high carbon footprint, methane, not considered clean energy

(Howarth *et al.* 2011) is emitted in UOG extraction with a far worse influence for climate change.

Hijacking of the Climate Change Agenda

Globally

There are penetrations of what constitutes a green economy with the promotion of clean energy from renewables amidst talks of achieving carbon neutrality. Immersed in this, however, are political manipulations, corruption and articulations that are confusing and hijacking the climate change agenda. For example, Brock (2021: 08) highlighted how the UK government controlled the discourse on fracking, and used propaganda to promote shale gas extraction suppressing its own report for over three years, a report which revealed the risks and dangers of fracking.

It is also somewhat incomprehensible that oil conglomerates are now in powerful positions leading world discussions on climate change targets as is evident with the upcoming COP 28 at the end of 2023. Van Diemen (2023) reports on how, 100 European Union parliamentarians and 33 United States politicians signed a letter wherein they make a call for the "withdrawal of the president designate of COP 28" who happens to be the chief executive of one of the world's biggest oil and gas companies. This call precedes the United Nations Framework Convention on Climate Change's (UNFCC) Conference of the parties (COP 28) in the UAE. There is a fear that UNFCC processes will be 'greenwashed' with polluting energy companies delaying climate negotiations and marginalising scientists. The signatories to this letter also mentioned the high number of oil and gas industry lobbyists at last year's meeting and how their presence could thwart attempts to further climate action.

Locally, in South Africa

In the case of South Africa, the tide has also turned: there was an initial ban on hydraulic fracturing in April 2011. This ban was lifted in 2012. Jacklin (2021) raises an interesting argument about how energy company Sasol's presence in neighbouring Mozambique created the conditions for what she calls 'a gas grab' in South Africa. Numerous energy companies from abroad were granted licences by Petroleum Agency South Africa (PASA) to explore

large tracts of land for oil and gas[3]. Rhino Oil and Gas, an American company, has licencing applications that are approved to undertake exploration in several sites where there are several ecosystem services already in place. A sensitive environment, the Karoo, (Willems *et al.* 2016) which is prone to droughts and also the home of indigenous communities was earmarked as one. The company proposed fracking of the Karoo in 2013. In October 2015, Rhino Oil and Gas also further proposed exploring the gas potential in the Matatiele region, an area extending more than 120,000 ha with more than 200 farms (Environmental Justice Atlas 2020). Protest action relating to both sites with campaigns such as that led by 'Frack Free South Africa' created a stumbling block for fracking. Currently, they have also been granted ER 350 in the northern Natal which allows them to explore across the Drakensberg (an ecologically fragile area which is also a UNESCO world heritage site) in KwaZulu-Natal, province into the Free State Province (Rhino Oil and Gas 2020). Whilst the environmental assessment by consulting company SLR notes that it will avoid sensitive areas, the map which accompanies the document fails to detail the specific points that will be excluded, thus this heritage site is at risk of being affected. The area earmarked for fracking, is more than 10 000sqm and it covers 5 000 farms, 3 major dams and three national parks[4]. Environmentalists such as Judy Bell are of the view that court rulings will temporarily slow oil companies down but will not stop them for long (Environmental Justice Atlas 2020). PASA was also accused of fast tracking the awarding of exploratory licences (Groundwork 2021). Jacklin from Groundwork, an energy and climate justice group, commented on how the COVID-19 pandemic was used to 'fast track development'

[3] Offshore fracking licences were also granted in ecologically sensitive areas such as the Wild coast to energy company, Shell. Wide spread coastal protests and litigation have temporarily paused offshore fracking whilst the courts decide on the merits of the case presented by NGOs and affected fisher communities.

[4] On the 17 March 2021, The climate and energy justice campaign manager of Groundwork (an NGO which was acting on behalf of several NGOS and community organisations), lodged an appeal to set aside authorisation granted to Rhino Oil and Gas (12/3/350 exploration right) by PASA. The appeal was directed to the minister (Barbara Creecy) of Environment, forestry and Fisheries, citing Section 43(2) of the National Environmental Management Act 106 of 1998.

around fracking without adequate grassroots consultations with residents and other stakeholders. Sadly, there are mixed signals for society on which energy pathway/s are 'clean' energy options to be supported. Statistics show that SA in absolute terms, was the highest emitter of carbon dioxide in Africa (Sasu 2023). UOG development through hydraulic fracturing is being touted as a legitimate development pathway (due to its low carbon footprint) away from harmful fossil fuels in transition towards renewable energy and it is promoted by the Minister of Minerals and Energy despite the methane gas leaks with severe climate change impacts. In contrast, The Presidential Climate Commission is clear that renewables such as wind and solar must be pursued (Naidoo 2023). The latter is captured in governments 'Just Energy Transition' project which secured R 131 billion of investment at COP 26 in Scotland (Henning 2021). Natural gas is relegated to less than half a page in the JET document however, The Minister of Minerals and Energy (Gwede Mantashe) referencing UOG extraction in SA, recently claimed (May 2023) that local environmental non-governmental organisations are being funded by overseas lobbyists and obstructing development (Makinana 2023). However, he failed to provide any evidence to support his contention. Another Minister (Pravin Gordhan) has called on government to adjust its JET plan given the current crisis in energy (Nyathi 2023): daily experiences of hours without power ('loadshedding') in SA.

Many of the debates on fracking are captured in academic contributions in this special edition of *Alter*nation titled, **Fracking: A Clear and Present Danger for South Africa**, by local and overseas research experts (in an attempt to unpack fracking in the context of South Africa with greater clarity and perspectives) with different epistemological foundations, linking their arguments to caveats of climate change, forms of environmental destruction and degradation, economics, social justice, lives and livelihoods of the poor amongst others. It is broadly situated in an attempt to contribute to global literature on fracking and more locally to a growing body of literature on fracking and place-based struggles (Spiegel 2021), seeking to promote inclusive, sustainable development within a country plagued by what is becoming a severe energy crisis (with the threat of grid failure) with climate change threatening the lives and livelihoods of millions of people. There is a

greater emphasis on onshore fracking due to many of the papers emanating from an NIHSS funded project in KwaZulu-Natal. This special edition also marks a north-south co-operation in multiple ways with some articles comprising researchers and post graduate students in the north and south collaborating[5] to undertake research and publish in niche areas.

The first paper written by renowned SA fracking researcher, Esterhuyse, presents an empirical and chronological database of important scientific fracking studies in the context of SA, with their environmental policy implications. This can serve as a foundation document to guide government policy development and for researchers to consult and distil valuable current debates on fracking.

The second paper is by political researcher, Bond. He embeds his argument in socio- economics, mining deep into the costs and benefits of both on and off shore fracking, tracing some of the key debates locally and the court outcomes. He highlights the resistance to fracking locally by poor Black communities who are at risk and he details the leveraging of local communities and civil society organisations to take on the SA government, contesting policy and decisions at macro level.

The third paper by Solomon uses a decolonial ecofeminist justice framing and it is creative in its methodological orientation. It sifts data from two documentaries on offshore oil and gas to reveal significant caveats in the off-shore sector debate. A key finding is the blatant disregard for local poor communities' livelihoods along the SA coastline. She also draws attention to government's lack of consultation with poor fisher, and indigenous coastal communities on the possible impacts of offshore operations on their lively-hoods.

The fourth paper by Koros *et al*. continues the alarm bells around UOG extraction by delving deep into the significance of water for fracking. It takes a nuanced approach to water management and distils the associated risks. The authors highlight the risks allied with the demand for water and the high probability of surface and underground contamination of water. They contend that such risks have serious consequences for local communities, habitats and biodiversity. They further suggest the need to

[5] The article by Koros *et al.* is supported by SANORD funding granted to Tampere University, Finland and the University of Kwa-Zulu-Natal, South Africa. The article by Mlalazi and Eidsvik is supported by UTFORSK funding from Norway.

pursue procedural justice and an integrated water management process recommending that citizens' interests should take priority in deliberations and policy.

The fifth paper by Tarisayi, takes a precautionary lens to fracking by undertaking an analysis of media articles published in a three- month window period. His findings illuminate media attention directed at a cost- benefit analysis and the risks related to food and water security for a country already prone to droughts. He recommends that South Africa look to international environmental policy for guidance.

The next three papers form a group as they are directly linked to a two- year project on Climate Change, Communities and fracking. The case study site is the northern Drakensberg in KwaZulu-Natal province of South Africa where exploration right 350 to frack was granted to Rhino Oil and Gas, an American company. The three papers reference several ecosystem services evident in the area which will come under threat if fracking unfolds. Additionally, the Drakensberg is of intrinsic value to the local indigenous community and social justice concerns are raised.

The sixth paper by Sibanda *et al*., is framed within environmental justice concerns and the authors present their findings of an absence of recognitional and procedural justice on behalf of the amaZizi. They are an indigenous population living at the foothills of the Drakensberg and unaware of an exploratory fracking licence being granted which crosses the Drakensberg into the Free State.

The following paper by Muchopa *et al*. is couched in conservation and indigenous lives drawing on the local habitat and livelihoods of the amaZizi community. The authors use multiple qualitative data generation tools and report on the potential for loss of habitat and livelihoods. They argue that fracking will result in the end of indigenous livelihoods of the local amaZizi , some of whom are dependent on the unique natural resources.

The next paper by Dube-Xaba and Mncube, is positioned from a tourism perspective and it has value for tourism's contribution to the SA economy which has been developing post the COVID-19 pandemic. The article is based on a qualitative study using interviews with tourism business owners. The findings highlight the value of the Drakensberg for tourism businesses based close to a world heritage site which are dependent on the unique biodiversity and cultural artefacts which attract domestic and international tourists.

The penultimate paper, by Mlalazi and Eidsvik presents the Polish

case study of fracking and embeds the German construct of Bildung (which has been appropriated by several European countries), to reveal discrepancies and unhappiness amongst Polish communities affected by fracking. The authors provide recommendations on what can be learned from abroad to strengthen dialogue in SA on fracking.

The final paper by Manik and Ekelund, argues for the need for an ecosystem services assessment prior to granting any fracking licences in SA. The authors present the operational aspects of onshore fracking demonstrating a feedback loop: how the fracking process can negatively impact the achievement of climate change targets and several SDGs under the guise of providing energy security for citizens. They present a litany of recommendations motivating for government to return to the drawing board and revisit UOG due to a multiplicity of risks.

Conclusion

This edition offers up an opportunity and platform for rigorous academic debates based on current and seminal literature, expert views and empirical evidence that can catalyse sincere engagement by all stakeholders and initiate a position away from the current aggressive anti-democratic stance in SA. This is particularly valuable for the previously unheard voices of stakeholders who feature through their participation in the studies which are included in this special edition. Given the realities of climate change coupled with energy insecurity, there should be purposeful intent by countries when decisions are made to choose developmental pathways on energy supply that mitigate the impacts of climate change. There are questions which arise from South Africa's decision to embark on unconventional oil and gas development when investment ought to have been firmly lodged in renewable energy sources.

This publication has resonance with an argument presented at a different platform on 'safeguards to prevent environmental harm' by Dr Nanthikesan (the lead evaluation officer for the UN's Independent office of evaluation of IFAD) in his article (2021, p. 22) arguing for the importance of mainstreaming environmental and social considerations into programmes. His title reads: "Averting a train wreck: Taking stock of environmental consequences of development interventions". The warning in the title of his article has value for application to fracking, an energy development inter-

vention, being seemingly force fed to SA citizens without the environmental and health consequences being assessed and properly unpacked.

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