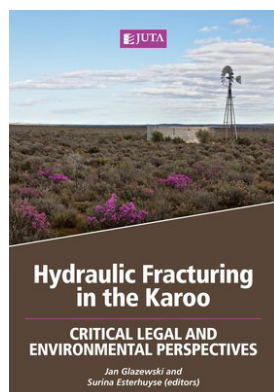


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## Critical questions (and some answers) in debates on shale gas

The level of dialogue and readiness in terms of regulatory and governance systems in South Africa has come a long way since 2011, when applications for shale gas exploration were first submitted for large parts of the Karoo Basin. Various statutory and administrative measures have been instituted since then; in addition, a Strategic Environmental Assessment for shale gas development in the Karoo and a Technical Readiness Study were completed to support policy reform. While more information has become available over the years, many answers are still to be provided. This book assists by posing critical questions and factors that must be taken into account.

Part 1 of the book deals with the relevant legislative and governance context and provides a summary of the key statutes that will regulate shale gas development. It further highlights cooperative governance across the three spheres of government as a Constitutional principle and one of the biggest governance challenges. The authors advocate a precautionary approach to safeguard the environmental right of the public. Interestingly, one of the views expressed in the book was vindicated by a High Court decision (*Stern NO and Others v Minister of Mineral Resources* (5762/2015) [2017] ZACGHC 109) issued on 17 October 2017, which set aside the fracking regulations because the environmental content should have been promulgated in terms of environmental legislation by the Minister of Environmental Affairs.

In Part 2, South Africa's energy context is discussed, to establish whether there is a case for fracking. It examines South Africa's historical and current energy mix, its plans for meeting future energy demand and the potential contribution from shale gas, and also assesses shale gas in relation to other energy sources. The conclusion is that a proper evaluation of shale gas in South Africa's energy mix will require more detailed information, as well as a coherent, rational and sustainable national energy policy, which is lacking at present.

Regarding the economics of shale gas, the potential cost and impact of shale gas production is unknown. The authors argue that the South African experience is more likely to mirror that of countries like China and the United Kingdom, and they draw on the North American experience where much of the international evidence lies. They caution that an independent investigation of the claimed economic benefits and environmental externalities of fracking is required for government to make informed decisions on fracking and the future of shale gas.

The chapter on revenue and tax policy considerations looks at striking an appropriate balance between risk and reward for both government and investor(s). It concludes that shale gas projects have peculiarities that are best harnessed with fiscal regimes that have been employed in other jurisdictions like Poland and Norway, and that corporate income tax rates and/or royalty tax for the shale gas industry should be looked at afresh.

Part 3 of the book deals with geohydrology, water, biodiversity, and archaeology and palaeontology. Waste management and air quality, in particular, would have benefitted from a more in-depth discussion, beyond just a mere mention thereof in the discussion on regulatory context. The various chapters provide sound scientific information to contextualise the debates and concerns for the reader. Most prominent amongst these is the concern about the life-supporting surface and subsurface water resources of the Karoo. The lack of knowledge about the subsurface environment is highlighted and the authors call for the application of the precautionary principle. The book highlights that globally, and even more so in South Africa, there is a lack of information and understanding of the ecological implications of shale gas development, hence the need for baseline assessments and continued monitoring. The chapter on archaeology and palaeontology illustrates why these resources are internationally recognised and of socio-economic value. It emphasises the need for increased research and appropriate legal protection measures.

Part 4 looks at public health, sociology and humanities. The chapter on public health highlights why a precautionary approach is advocated, based on experiences in other parts of the world. The chapter dealing with social fabric, local livelihoods and social psyche highlights particular socio-economic vulnerabilities in the communities of the Karoo, and that great care must be taken to ensure that those most in need do not reap a disproportionate share of the disadvantages brought about by shale gas development. The chapter on evidence-based research in decision-making, as well as the one on the rhetoric of fracking in South Africa, brings to the fore the fundamental importance of appropriate framing and how important it is to ask the right questions. The insights gained from this chapter are so fundamental to the framing of issues on shale gas development and the content of the book, that it is strongly recommended that this chapter be read after the introduction. The chapters on sense of place and planning perspectives – which deal with values, ethics and responsibility – are closely linked and serve as a reminder that decisions on shale gas development must not only be procedurally and legally compliant, but also justifiable in light of broader imperatives, values and ethical considerations.

Part 5 is the conclusion to the book; in this regard, we believe that ultimately a decision on shale gas will have to meet the substantive test of having to secure *ecological sustainable* development while promoting *justifiable* economic and social development. The book highlights the complexity of the issues involved in getting to such a decision. We are of the opinion that it is important to differentiate between potential negative consequences requiring more certainty, and those that present fatal flaws, as well as between the need for avoidance on the one hand and better management on the other. This should be facilitated by a phased approach towards decision-making, that is, first allow only conventional exploration then, based on the findings thereof, allow for unconventional exploration (i.e. fracking) and then, based on the findings from the latter, allow for shale gas production, where appropriate.

This book should be read by everyone involved with, or interested in, shale gas development. Its value lies in pulling together the best available legal and environmental information, to inform the critical questions that must be considered in debates on shale gas development.