



## Original article

## Risks and vulnerability in uranium mining: A synthesis of local perspectives in the Great Karoo region of South Africa



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## ARTICLE INFO

## Keywords:

Uranium

Mining

Risks and vulnerabilities

Local communities

## ABSTRACT

The exploration and exploitation of uranium deposits in South Africa dates back to the 1970s. At the time, uranium was mined as a derivative of gold and diamonds. However, due to international opposition to the Apartheid regime's nuclear weapons programme, along with the boycott and divestment from South Africa movement of the 1980s, the development of large scale uranium mining was halted. Since the emergence of the new democratic state, however, there has been renewed interest in the large-scale exploration and exploitation of uranium deposits, especially in the Great Karoo. The economic viability of uranium mining in the Great Karoo was established in 2006, following the completion of an exploration phase. While this was welcomed by the government and interested mining companies, other stakeholders, such as farmers and environmental groups, hold different views on the project. How do different stakeholders view the risk and vulnerability associated with the uranium mining project in the Great Karoo? What are the specific narratives of each of the stakeholders, and how do these narratives resonate with the 'sustainability/economic growth' debate? These are the questions that this study attempts to answer. The analysis is anchored in the cultural theory of risk perception.

## 1. Introduction

In 2015, Tasman RSA, a joint venture involving Tasman Pacific Minerals Limited and Lukisa JV Company (Pty) Ltd., submitted applications for mining rights to commence exploitation of uranium in the Great Karoo of South Africa. The company had initially secured prospecting rights for the exploration of uranium, but was later limited to the areas within the original Eastern and Quaggasfontein Blocks in the Great Karoo region of central South Africa. These areas cover about 73,000 ha, most of which are farmlands. However, this proposed resource development has triggered debates and contestations among key stakeholders regarding the risks and opportunities it poses. These contestations mirror a broader discourse on the intersection of land-ownership and mineral resource exploitation in South Africa (see e.g. Cousins, 2005; Capps, 2010; Mnwana, 2014; Claassens and Matlala, 2014).

One of the major reasons adduced by the state for this project is that the exploitation of uranium in this area will be a major 'game-changer', a welcome change given that the central Karoo has been affected heavily by poverty and unemployment, the result of Actionaid (2008) and Karoo Hoogland Municipality (2016) reduced agricultural production brought about by desert encroachment and other factors.<sup>1</sup> This

view is also shared by some sections of the central Karoo region. According to the Municipal Economic Review and Outlook (2014), demand for skilled and semi-skilled labour declined by an average rate of 2.7 percent between 2011 and 2014. The hope is that when the uranium mining commences, this trend will be reversed: the activity, it is believed, will generate employment for many residents of the Central Karoo region and beyond.

However, some sections of the region, as well as environmental advocacy groups (such as the Southern African Faith Communities' Environmental Institute and the Indigenous People's Association for Community Economic Development of South Africa), have highlighted the implications of the project for the local economy as well as for the pristine environment of the central Karoo region. They argue that black farmers, who are currently on the municipal commonage and other municipal lands, will be most affected by the project. Grobler (2009) opined that sheep farming, which represents the most important land use in the region, will be disrupted. The experiences of Ga-Puka and Ga-Sekhaolelo villages in the Limpopo province of South Africa are clear evidence of the impact of mining on local communities. During research conducted by Action Aid in 2008 in the platinum belt of the Limpopo province, a resident of one of the affected villages stated that:

Hundreds of hectares of community farming and animal grazing

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lands were fenced off in early 2006 by Anglo Platinum. The community used to grow maize, meal, water melons, pumpkins and other fruits and vegetables. The whole village now has much less land to grow food on. There is no other job. Since the land was fenced off, more and more people are getting ill, since there is less food. [Interview with ActionAid official, October 2008]

From the preceding narrative, it becomes clear that different stakeholders see landownership and mining rights in their own way. For instance, while the state insists on having the dominant role in the ownership and allocation of usufruct<sup>2</sup> on land and minerals, local communities want to play more active roles in owning and determining how the resources in their communities are exploited (Umejesi, 2015; Akpan, 2009; Abuya, 2016). This conflictual relationship is not limited to the state and local communities (Umejesi and Thompson, 2015; De Castro et al., 2016). In major debates on mining and resource exploitation, stakeholders such as mining companies and environmental advocacy groups also play active roles in the policy space. The place of these stakeholders, their views on land use and the uranium project in the Great Karoo, and how their views intersect will be examined in this paper.

This is crucial to understanding the critical issues that underpin the “state–community conflict” in resource-rich communities in South Africa. The present study was guided by three overarching questions, namely:

- 1 How do the different stakeholders view the risk and vulnerability associated with the uranium mining project in the Great Karoo?
- 2 What are the specific narratives of each of the stakeholders?
- 3 How do these narratives resonate with the ‘sustainability/economic growth’ debate?

## 2. Theoretical framework: using cultural theory to explain risk perceptions

This study uses cultural theory to contextualise risk perception in the study location. This theory was developed by Douglas (1978) and Douglas and Wildavsky (1982), and refined by Thompson et al. (1990). This theory explored whether cultural adherence and social learning can explain how people perceive and understand risk, and did so by deploying a fourfold typology of orientations or ‘myths of nature’ (Gross and Rayner, 1985). These ‘myths’ are hypothetical explanations of the ways in which different groups or institutional forms in social systems (such as the state, communities, mining companies and environmental advocacy groups) perceive risks, and whether their perceptions of risks influence their responses to others (Umejesi, 2015). These orientations of the actors are: (i) Individualism; (ii) Hierarchism; (iii) Egalitarianism; and (iv) Fatalism. Each of these orientations is explained below in terms of mineral resource exploitation.

- (i) Individualists hold the orientation that nature or the environment is benign and resilient. This implies that nature has the inherent capacity to recover quickly after disturbances such as mineral resource exploitation. Mining companies, which tend to commodify nature, are typical examples of individualists.
- (ii) To the hierarchists, nature is perverse and tolerant. In other words, while nature is destructible, it is also controllable through sound environmental laws that regulate any adverse environmental use. According to this theory, government often holds this orientation.

- (iii) For the egalitarian orientation, nature is delicate and ephemeral. Consequently, nature must be circumspectly handled (Thompson et al., 1990; Umejesi, 2015). This orientation is often held by environmental advocacy groups.
- (iv) Fatalists hold that nature is capricious, and that justness in land ownership and mineral resource exploitation may be unattainable, because of their perceived exclusion in environmental governance. Marginalized ordinary people in communities are more likely to hold this view. They are fatalists because they are alienated from policy legislation on the environment.

Contextually, the cultural theory of risk perception is relevant in this study because it enables us to identify the key stakeholders in the proposed uranium mining in the Great Karoo (Berger, 1985; Chambers and Chambers, 2001; McNeeley, 2009; McNeeley, 2012; McNeeley and Lazrus, 2014). Essentially, since the commencement of exploration of uranium in the Great Karoo in 2006–2007, various actors or stakeholders have expressed different opinions regarding the proposed mining project. These opinions range from support to downright rejection of the proposed mining operations. The narratives from these stakeholders emanate from their perceptions of the risk and vulnerability content of the proposed project.

This study identifies four actors or stakeholders in the debate on uranium mining in the Great Karoo: the state, the mining company, the environmental advocacy groups, and the members of the communities in the Great Karoo where the proposed mining operations are to be situated. Although the theory is not explicit in its explanation of why certain communities resist mining on their land, it helps in the identification of the key stakeholders, the conceptualization of each of their orientations, and the stakeholders’ framings of support or resistance to mineral resource exploitation (Christenson et al., 2011; Sanderson et al., 2012; Umejesi and Thompson, 2015).

## 3. Methods

The study community, Beaufort West, is the largest town in the Great Karoo<sup>3</sup> region of South Africa (Nell, 2008), and is often referred to as the ‘capital of the Karoo’. It was the first town to be created in the central Karoo (Nell, 2008), and was established in 1818 initially as Beaufort. In 1869, it was renamed Beaufort West, so that it would not be confused with Port Beaufort in the Western Cape or Fort Beaufort in the Eastern Cape. It became a municipality on 3rd February 1837, making it the first town to become a municipality in South Africa. Politically, it is one of the more prominent towns in the Western Cape province of South Africa. In 2011, it formed part of the Beaufort West Local Municipality with 34,085 inhabitants (Population Census South Africa, 2011), and is situated on the N1 national road. Its total land area is 56.5 km<sup>2</sup> (21.8 sq mi).

The town is racially and linguistically diverse. Its racial composition is Black (18.2%), Coloured (72.7%), Indian/Asian (0.4%), White (8.1%), and other (0.6%). With regard to linguistic composition, Afrikaans speakers constitute 81.1% of the population, Xhosa speakers 13.6%, English speakers 2.6% and others 2.7%. The major occupations are sheep farming and tourism. Most importantly, Beaufort West has one of the largest uranium reserves in South Africa, with estimated reserves of 23 million tonnes of ore grading 0.08% uranium (WISE Uranium Project, 2012). For this reason, this community was chosen for this study because plans are under way to commence exploitation of uranium in this area of the Great Karoo.

This study adopted a qualitative research design. According to Merriam (2009:13), “qualitative researchers are interested in

<sup>2</sup> *Usufruct* is a limited real right found in civil law and mixed jurisdictions that unite the two property interests of *usus* and *fructus*. *Usus* (user) is the right to use or enjoy a property possessed, while *fructus* (which in the figurative sense means fruit) is the right to derive profit from a thing possessed. The holder of a usufruct is known as a *usufructuary*. The *usufructuary* has the right to use (*usus*) the property and enjoy its fruits (*fructus*) (Leviticus, 19:9–10, 23:22).

<sup>3</sup> The name ‘Karoo’ was probably derived from a Khoikhoi (the indigenous people of the Karoo) word, *garo*, which means ‘desert’. The Karoo is a semi-desert natural region of central South Africa.

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