



The expected impacts of mining: Stakeholder perceptions of a proposed mineral sands mine in rural Australia



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ABSTRACT

The form and evolution of stakeholder perceptions toward renewable energy (RE) developments continue to be investigated, but there has been little similar research regarding mines. Responses of community members and other stakeholders cannot be expected to evolve the same way between different resource and infrastructure projects. We ask what the various expectations of planned mines are among community members, and what factors impact these expectations. We perform a case study of a planned, large-scale, mineral sands mine in rural Victoria, Australia (2013–2015). Using a closed-question questionnaire ($n=32$) and semi-structured interviews ($n=25$), individual and community experiences of the planning process were examined. We explore stakeholder perceptions of the mining company and development process to date, as well as future expectations. Despite the recognition of mining as a normalised part of modern Australian economy and culture, the results revealed a community with low-trust in the mining company, and accompanying negative perceptions of their own involvement thus far. These perceptions translated into negative future expectations. Many factors influential in the formation of RE opinions were also significant here, these include: background factors; visual and environmental impacts; and, the actions of the company to date. Other factors are not so prevalent in RE literature and may be specific to mines, these include issues surrounding the rehabilitation of the land and the history of the mining company.

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1. Introduction

Individual and community perceptions can fundamentally impact infrastructural developments (Jobert et al., 2007). It is therefore critical for communities, policy makers, and developers to understand factors that provoke or reinforce opposition and acceptance. In the renewable energy (RE) field, the formation of perceptions towards renewable infrastructure is well studied (Devine-Wright, 2007; Jobert et al., 2007). The role of place attachment (Cass and Walker, 2009; Devine-Wright, 2009), background conditions (Devine-Wright, 2007; Jobert et al., 2007), trust (Siegrist and Cvetkovich, 2000; Tokushige, et al., 2007; Bronfman et al., 2012), communication (Jobert et al., 2007; Dütschke, 2011), and participation have all been investigated with respect to their influence on community perceptions (Corscadden et al., 2012). Applying these findings to mining developments may occasionally prove effective, but mines are distinct in character to other infrastructural developments, with a vastly different range of impacts and life cycles. Efforts have been made to

understand the economic, social and environmental impacts of mines (Petkova et al., 2009), along with the concept of social license to operate (Paragreen and Woodley, 2013; Dare et al., 2014). Previous research on community-mine relations has largely focused on community experiences of functioning mines, rather than exploring the factors which shape perceptions towards proposed mines. Since the demand for mineral resources will persist for the foreseeable future, and interactions with local communities are likely to continue, it is crucial that community-mine relations continue to be explored. This research provides new insights by focusing on community and individual expectations of the impacts of a proposed mine. This research is relevant to stakeholders such as developers and government agencies who can use these findings to develop sustainable planning and development approaches, as well as mitigation strategies that are informed by both community knowledge and needs.

1.1. Perceptions of mining developments

Not In My Back Yard (NIMBY) was once a popular explanation for local resistance to infrastructure projects such as mines and wind farms; however, it is now considered a problematic

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oversimplification of local concerns (Michaud et al., 2008; Wol-sink, 2012). More recently, disruptions to place attachments, defined as an emotional bond that individuals hold to places, are increasingly cited to explain public opposition, rather than protectionist self-serving NIMBY explanations (Cass and Walker, 2009; Devine-Wright and Howes, 2010). Moreover, the perceived negative local impacts associated with large infrastructure projects such as wind farms, are often seen as a form of threat to individual and collective community identities, an effect quite distinct from NIMBY sentiments (Devine-Wright, 2009).

Community-mine relations and local attitudes are shaped by complex interactions of positive and negative factors, influenced by both mining company and government attempts at sustainable development and relations-building. As Petkova et al. (2009) reports, mining development can affect almost all branches of the community; not just those stakeholders directly impacted by the mine. Potential environmental impacts, such as effects on terrestrial and aquatic systems, play a key role in shaping negative community perceptions towards mining projects, with community benefits and impacts on lifestyle exerting less influence (Charlier, 2002; Mason et al., 2014; Zhang and Moffatt, 2015). Recent research reveals that communities almost always view landscape and environmental impacts as negative (Miller and Sinclair, 2012). This is especially true with respect to open-cut mining (Cheney et al., 2001). Further negative consequences include undesired demographic and social changes (Esteves, 2008; Petkova et al., 2009). Perceived positive impacts are also reported in the literature and encompass demographic change through diversification, the provision of additional services, job creation, community development, and increased income (Mason et al., 2014; Petkova et al., 2009; Zhang and Moffatt, 2015).

It is generally accepted that mines in higher income countries, such as Australia, need a “social licence to operate” i.e. companies must illustrate that they are accounting for the environmental and social impacts, and implementing mitigation strategies (Dare et al., 2014; Paragreen and Woodley, 2013). In this vein, Prno (2013) identified five key actions that mining companies can take to establish a social license, namely: local benefits provision; the building of relationships; an awareness of context; increased focus on the sustainability of operations; and, the ability to adapt. There is also an understanding that meaningful community participation in the planning and development process is likely to enhance transparency and trust, and thereby acceptance (Brereton and Forbes, 2004; Walker et al., 2010).

Recent mining research has continued to investigate both the wide range of impacts associated with mines and the social license concept, with researchers advocating different, and often diverging, approaches to sustainable mining (Dare et al., 2014; Owen and Kemp, 2013). For example, Owen and Kemp (2013) recommend setting a collaborative developmental agenda for industry with a focus on stakeholder engagement, while Dare et al. (2014) conclude that community engagement has a limited influence on achieving a social license. This research adds to the existing mining literature by focusing on community and individual expectations of the impacts of a planned mine, as opposed to solely their experiences of it.

1.2. Mining: a global and Australian perspective

Despite recent reductions in global mineral prices, mining remains a pivotal industry in many nations worldwide, including; the United States, China, and Australia. This paper focuses on Australia as mining is both a critical sector of the economy and a divisive political and social issue. In the early 2000s, the minerals industry has played a key role in the economic boom experienced by Australia and represents a key indicator of the health of the

economy (Hajkowicz et al., 2011; McKenzie et al., 2014; Measham et al., 2013). Mineral resources continue to contribute to economic growth and represent the largest export sector in 2014 (ABS, 2014, 2015). Historically, mining has also played an important role, as mine developments and closures have decided the fate of townships, for better and worse.

Research on expectations and perceptions of future mining impacts, both locally and nationally, have been largely overlooked in the literature in favour of studies exploring community attitudes towards functioning mines. This paper offers insights on the key stakeholder concerns and the factors that shape community perceptions of proposed projects in Australia. Such data is critical in the development of best-practice approaches for community engagement in mining, which in the case of Australia, is notably lacking. Our research is guided by two questions:

1. What is the range of expected community impacts of a mining project, and how do these perceptions differ between groups of stakeholders?
2. Which factors influence perceptions between, and within, groups of anticipated impacts, and which are most significant?

2. Study area and methodology

2.1. Study area

The research site was a proposed, large-scale, long-term (55–160 years), mineral sands mine located in a rural area of Western Victoria, Australia (see Fig. 1). The planned mine was chosen for investigation because of the area's combination of mineral, agricultural and aesthetic values. The area is well-accustomed to mining developments, with prior proposals for a similar mineral sands mine in the 1980–1990s, a long gold mining history around Stawell (an account of this local history is available in Murray and White (1983)), and the more recent development of the Iluka mineral sands mine near Douglas. However, the proposed mine, targeting a 12,850 ha deposit of mineral sands, would be much larger than any previous mines in the area. The region encompasses many parks and areas of natural beauty, including: The Grampians National Park; Little Desert National Park; and, the Black Ranges State Park. Agriculture is the largest economic sector, providing 9.6% of the direct regional jobs, with further indirect employment through support services (ABS, 2011).

During the research period (2013–2015), the mine was in the proposal phase and developers were engaging with the community as a part of the Environmental Effects Statement procedure (EES) as per the ministerial guidelines of the state of Victoria. The mining company released a Stakeholder Consultation Plan to the public, developed a website, and placed various advertisements in local news sources. Engagement with the community included information sessions, meetings with local government and other authorities, and private meetings with directly affected landholders. This stage of the planning and development process offers a crucial opportunity for community participation to have a tangible effect on the parameters of the project and is therefore key to understanding the construction of individual and community perceptions.

2.2. Methodology

This study took a mixed methods approach, combining the distribution of 97 questionnaires with 25 semi-structured interviews. Mixed methods approaches move beyond the qualitative-quantitative division to take advantage of the strengths of both (Johnson and Onwuegbuzie, 2004). The questionnaires and

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