

# Planning for successful mine closure – the earlier, the better

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## Abstract

*This paper explores the role of a mining company during the planning process for mine closure in the socio-economic context. Several negative social and economic impacts may come about due to mine closure such as unemployment, emigration, and economic stagnation. Therefore, mining companies are increasingly seeking to address potential impacts before mine closure and decommissioning occurs by refining and executing their corporate social responsibility policies, adhering to government regulation and facilitating community engagement (mining employees, local institutions and civil society). While the dynamic among a mining company, community and government is complex, the case study that has been identified suggests that successful mine closure is possible when the mining company has fostered a continuous relationship between the government (municipal and regional) and the host community since the beginning of the mine's life cycle. Securing a positive relationship from the beginning of a mine's life cycle is essential to build ongoing and long-lasting institutional partnerships and strengthen the social capital that is necessary to prolong a positive legacy of mining such as economic and social development. Furthermore, it is in the interest of the mining company to engage in early mine closure planning in order to better secure a positive reputation, attain the social license to operate, and secure its competitive advantage in an increasingly globalised and competitive marketplace.*

## 1 Introduction

Sustainable development was most notably defined during the Brundtland Commission (IISD, 2010); however, the concept has continued to evolve. The literature indicates that one of the most recent developments has been observed in the evolution of the triple bottom line, wherein the environmental, economic and social aspects are integrated (Elkington, 2004). Since the social aspects have become increasingly a part of sustainable development, this paper explores social responsibility in the mine closure planning process with a particular focus on community development in Brazil. This country is particularly difficult to examine because it largely lacks mine closure regulation (Poveda, 2007). This in turn may have led to the absence of tangible examples and results in mine closure planning (Poveda, 2007). Nonetheless, we were able to identify a case study located in the Northern region of Goiás, which allowed us to explore how the mine closure planning process takes place in Brazil. The mining company involved in the planning process acquired a conceptual mine closure plan, prior to beginning operations in 2011 and has become engaged in several endeavours that foster community development *in loco*. In addition, the same mining company has had mine closure success at a nearby sister mining site which partially closed down in 2004. Although it is partially closed, the community continues to prosper. Therefore, the main question that drives the paper is: why does the mining company behave in a socially responsible manner if mine closure regulation in Brazil is lacking? We suggest that it is due to the company's corporate social responsibility (CSR) policies and initiatives that drive the company to foster, for example, long-term ties with the community by establishing partnerships for community development. Therefore, the next section briefly contextualises mine closure regulation in Brazil, followed by an exploration of the case study in terms of the planning process for mine closure and finally we present a conclusion that may contribute to lessons learned about social responsibility in mine closure.

## 2 Context of the problem – lack of mine closure regulation

Brazil possesses vast amounts of mineral and metal reserves which have increasingly contributed to the country's accelerated economic growth and growing competitiveness in the global marketplace. Nevertheless, national regulations, particularly those pertaining to mine closure, have developed rather

slowly and often, mine closure has been regarded as a simple environmental rehabilitation project (Poveda, 2007). In contrast, countries with a strong mining tradition, primarily those located in the northern hemisphere, have learned to regard mine closure in a manner that emphasises a planning approach throughout the mine's life.

The first mine closure regulation was published in Brazil in 2001 by the National Department of Mineral Production (DNPM, 2001). According to Poveda (2007), Brazilian mining activities, may rely upon “infra-constitutional regulation” which may mention a provision of a mine closure phase in the environmental licensing procedure and hence allude to the respective mine closure planning. However, the regulation fails to detail what the objectives of mine closure are and what guidelines should be followed in order to undertake mine closure successfully. Although the DNPM requires a mine closure plan, which is part of an economic feasibility study, there is no dialogue between the DNPM and the local environmental entity that would potentially be able to oversee mine closure when the time comes (Poveda, 2007). Another weakness is that there is a particular gap in providing guidelines on how to engage stakeholders “*hence, there is an increasing need to harmonise environmental regulation with mining regulation in Brazil by acknowledging that mine closure should be regarded as a phase within the life of mine as well as yet another stage within environmental licensing*” (Poveda, 2007).

In this context, we bring forth the concept of CSR as a possible explanation for why a mining company may behave in a socially responsible manner.

## 2.1 A possible solution to the lack of regulation – CSR

CSR is not a new concept. It was coined in the 1950s by Howard Bowen who suggested that “the obligations of businessmen are to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society” (Carroll, 1999). CSR has evolved continually ([Davis, 1960; Walton, 1967; McGuire, 1963; Johnson, 1971; Steiner, 1971; Manne and Wallich, 1972; Friedman, 1962; Bowman and Hair, 1975] as cited in Carroll, 1999). Dahlsrud (2008) provides a good general definition of CSR and suggests that all definitions of CSR put forward “voluntariness,” where actions are not prescribed by law as a key element. CSR is “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders”.

In order to shed light upon a mining company's socially responsible behaviour in terms of mine closure in Brazil, the next section explores a case study. Due to confidentiality agreements, we will not disclose the exact location(s) of the mining sites nor the mining company's name.

## 3 Case study

### 3.1 Background

The mining company referenced in this paper, has extensive experience in mining worldwide and arrived in the region that the case study is located in the early 2000s. The mine closure has been set for the year 2042.

The mining site of our case study is located in the central region of Brazil in the state of Goiás approximately 185 km away from the country's capital, Brasilia. The municipality's population is of about 8,701 inhabitants of which 6,249 live in the urban centre and 2,452 continue to live in the rural areas. This trend developed since the 1980s when the rural population was significantly higher than the urban population (IBGE, 2010).

The municipality's economy has experienced continuous growth in its gross domestic product (GDP) (IBGE, 2008) largely based upon the services and agriculture sectors. Mining activity has also contributed quite significantly to the municipality's GDP. For instance, the Federal Royalty known as the Brazilian Financial Compensation for Exploiting Mineral Resources (CFEM) (Gurmendi, 2006), in 2009 was R\$ 2,115,597.00 (DNPM, 2010) of which 65% was reverted to the municipality (approximately R\$ 1,375,989,22). Another important contribution is the generation of job opportunities, estimated at 780 positions (Anonymous, 2010).

According to the mining sector outlook for 2011 (Business News Americas, 2010), the mining site of our case study is of substantial importance to the mining sector of both Goiás and Brazil since the mining complex received an estimated investment of US\$ 1.5 billion. The metallurgical site is forecasted to produce

40,000 tonnes (of metal)/year during the first five years and is to begin operations in the first quarter of 2011. In consideration of this large-scale mining site in the context of a rather small municipality (with under 10,000 inhabitants) it is possible to appreciate that the socio-economic profile of the municipality will forever change. Next, we explore the mining company's socially responsible behaviour.

### **3.2 The mining company's socially responsible behaviour at the new mining site**

The mining company engaged in the planning process for mine closure prior to beginning operations and due to its initiatives to engage in community development.

The mining company successfully acquired a conceptual mine closure plan in 2010. This fact at least suggests that the company is engaged in the planning process and seemingly is committed to mine closure. Albeit the mine closure plan is at the conceptual level, it will be reviewed periodically throughout the life of mine and is an essential step that allows one to acknowledge that by doing so, the mining company will be enabled to better plan, design and execute mine closure projects in the future.

Furthermore, in 2009 the mining company concluded a socio-economic profiling initiative by using the company's socio-economic profiling toolkit which seeks to identify stakeholders, stakeholder needs, community issues and learn about how the company may facilitate community development. From the socio-economic profiling initiative a community engagement action plan was created (CEAP): *"The CEAP identifies the main actions that the mining company may collaborate in with the community...in order to maximise the positive impacts the company has on the community, such as development, and helps to identify local partnerships and social projects in the community"* (Anonymous, 2010).

By using the socio-economic profiling toolkit and the CEAP, it becomes possible to better allocate financial and human resources to promote community development. In turn by fostering an environment that is conducive to community development, it becomes plausible that the community may be better prepared to deal with the negative socio-economic impacts when the mine closes. Therefore, the value of this case study lies in the following: although the mining company may not be explicitly engaged at this moment in mine closure planning with the community, by applying its tools such as the socio-economic profiling initiative and CEAP it allows for the mining company to invest resources to incite community development. Hence, the mining company becomes indirectly involved in a process of mine closure planning. This is because the mining company is strengthening the social and economic foundations that the municipality will need in order to survive when the mine closes down. For example, the mining company has a strong commitment to the diversification of the local economy as well as local procurement. The mining company outsourced an international non-government organisation (NGO) to begin a new program in the community in order to facilitate family farming since this is a regional and historical vocation. Furthermore, almost half of the employees hired for the new mining complex are locals (46%). In addition, the mining company is seeking to strengthen its partnership with the local government. This partnership has led to the conclusion of several public works, including paving of town streets, building of the town plaza and local hospital as well as renovating City Hall. The mining company also engaged in financing the creation of the township participatory plan. Financing endeavours included, bringing in experts on participatory planning from a national NGO to facilitate community engagement in the planning process to create the township participatory plan. The plan was concluded in 2010. These examples highlight a commitment to community development in which the positive impacts from this type of financial resource allocation may go well beyond the closure of the mine (strengthening of social and economic pillars). This is why we consider that the mining company is committed to mine closure planning through local community development.

The next section explores the mining company's behaviour at a nearby sister mining site also suggesting that the mining company was engaged in mine closure planning through community development.

### **3.3 The mining company's socially responsible behaviour at the sister mining site**

In 2004, the mining company closed its open pit operations at a sister mining site, which had been in operation since 1982. The mining site is located approximately 90 km away from the aforementioned mining site.

The company first began operating at the sister mining site in the 1980s, which incited development due to its mining operations as well as by engaging in social investment projects such as capacity-development and training in order to better qualify the local population. In addition, the mining company strengthened partnerships with civil society, private and public institutions. There are dozens of examples in which the mining company partook in a partnership both directly and indirectly. For example, a partnership was established in 1993 with a Central Cooperative for Family Farmers, which benefited 617 families. Through a partnership, the mining company was able to provide financial resources to support projects that improve farming techniques and cooperation among family farmers to insert their products into the local marketplace. On a continuous basis, the mining company has supported two local social and economic development institutions as well as the local government by financially supporting projects for tourism, human development, health, and the diversification of the local economy. Another example worth mentioning is that the mining company helped to establish a sewing cooperative alongside national Brazilian partners for vocational training. This facilitated the insertion of 100 local seamstresses into the supply chain whom in turn were able to have access to a national retail clothing company. The mining company also aided to strengthen a local artisan cooperative in 2008, particularly to sell local arts and crafts and typical food stuffs (such as *pequi* jam), supporting a local livelihood as well as preserving local customs and culture.

Although partial mine closure has occurred, the partnerships that the mining company secured with the local government, and civil society since the 1980s are central to providing an environment in which the Municipality continues to prosper. It is at least possible to some degree to acknowledge that the mining company played a role in lessening the negative impacts of mine closure due to their contribution in community development throughout the life of mine. In other words, although the mining company may not have been engaged in an explicit form of planning for mine closure with the community, they were indeed engaged in the planning process by means of community development.

Bringing forth the sister mining site into our analysis, adds value because it is possible to at least consider that community development is a central step to the planning process for mine closure. It may not be an explicit step nor may it be a step that takes place during the final phase of mine closure planning, but community development, through the creation and/or strengthening of partnerships, investment in social capital through capacity-building, for example, is most certainly essential to better prepare and equip a community (socio-economically) to deal with the negative impacts that may come about due to mine closure.

The burning question at this point of our analysis is: If legislation for mine closure planning is weak in Brazil, then why does the mining company behave in a socially responsible manner? This paper suggests that it is in part due to the company's CSR.

#### **4 CSR – helping to explain the mining company's socially responsible behaviour**

The mining company participates in voluntary measures, such as the Global Compact which commends the defence and the promotion of human rights, labour and the environment. The United Nations Global Compact is a global platform that helps bring together companies to support fundamental principles. More information is available at: <http://www.unglobalcompact.org/>. Furthermore, the mining company has developed internal CSR policies on, occupational health and safety, the environment, social issues, and sustainable development. The internal CSR policies also include human rights, HIV/AIDS, business integrity and prevention of corruption performance standards. It is possible to acknowledge that these policies echo the ten principles of the Global Compact.

In terms of acting in a socially responsible manner, it is possible to appreciate that the mining company has designed tools, such as the socio-economic profiling tool and the CEAP which are applied at the community level where their mining operations take place. For example, in one company internal document that referenced the CEAP the following was stated: *“our objective is to promote solid relationships in the communities where we act to increase their capabilities. We seek to regularly dedicate our time and attention to the issues that affect them. Our support in community projects reflects our priority and commitment we have for the community. We seek to evaluate how we contribute to the socio-economic development of the community that may be achieved through our operations”* (Anonymous, 2010).

In our opinion, these tools (such as the CEAP) seek the application of the mining company's CSR policies at ground level and in so doing promote integrity, safety, sustainable development, access to labour, diversification of the local economy, social capital development, environmental education, and community integration.

Therefore, by committing to their CSR policies and initiatives in congruence with international voluntary measures, which seek community development, we consider that the mining company is engaged in mine closure planning.

## 5 Conclusion

The case study presented in this paper was able to shed light upon mine closure planning in Brazil. Firstly, a challenge to appreciate is that mine closure planning in Brazil is incipient if not, inexistent. This may be in part due to the lack of regulation. Secondly, by revisiting the mining company's behaviour through our case study it is possible to appreciate that community development is a key step to mine closure planning. It may not be an explicit step to mine closure planning per se but it may without a doubt better prepare a community to deal with the negative socio-economic impacts of mine closure. Thirdly, we suggest that a driving force in favour of mine closure planning, in regards to the social aspects, is CSR. Therefore, the lessons learned from our case study are:

- There is a weak legal framework for mine closure planning in Brazil; therefore CSR has a role in shaping mine closure planning.
- The standardisation of mine closure planning procedure(s) may be difficult to achieve due to the lack of regulation, however, mining companies have an opportunity to “set the bar” and may promote best practices for mine closure planning.
- Simply because there is not an explicit planning process for mine closure with the community, it does not mean that a mining company is not engaged in a planning process that will benefit mine closure.
- Community development is a necessary step in mine closure planning during the life of mine, since it may lessen the negative impacts of mine closure.
- Planning is essential to mine closure and the earlier we start the better.

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