

The Ethics of Space and Time in Mining Projects: Matching Technical Tools with Social Performance

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Abstract Developing a major extractive project requires a long planning horizon from exploration to project development to operation and closure. Calibrating expectations of indigenous communities with such planning horizons can frequently be a challenge for companies and governments. The physical areas where benefits are manifest on indigenous lands versus more indirect benefits that come through the development of the broader tax base or the economy are often not effectively communicated by development planners. This conceptual study will aim to provide guidance on how best to manage expectations in this context through scenarios, geographic information systems techniques, and a more inclusive economic development planning process.

Keywords Indigenous · Aboriginal · Australian · Mining · Agreements · Native Title Act

Introduction

The broader context of harmonizing “corporate social responsibility” as an ethical imperative around mining projects and indigenous people has been widely studied (Ali 2003; Mutti et al. 2012; O’Faircheallaigh and Ali 2008; Gifford et al. 2010). The particularities of mining as inherently obsolescent, the monopolistic and monopsonistic power of companies in remote communities, and concerns of ecological legacy are applicable to some degree in all such projects. However, these factors often need to be further refined and attenuated when the project involves self-

identified indigenous communities. The politics of what constitute indigeneity are also widely contested but for the purposes of this paper, the perspective of the United Nations Permanent Forum on Indigenous Peoples will suffice, as it pertains to self-identification of indigenous identity. We also accept that various legal jurisdictions may still contest self-identification and defer to whatever processes are implemented to recognize indigenous status (Cornstassel 2003).

Indigenous communities are increasingly finding themselves within the ambit of mineral development interests worldwide. As particular norms emerge around business practices involving indigenous communities, there is a need to further operationalize key factors that businesses should consider when operating in such areas. This conceptual paper posits specific parameters for indigenous development of mining projects that can be broadly categorized under rubrics of “space” and “time,” thereby helping to improve corporate-community relations in these areas. Tools which can be used to implement ethical guidelines in this regard are also considered, while recognizing that cultures are not static and any norms that a business may institutionalize must be adaptable over time.

Operationalizing “Time” for Mining Development Plans Involving Indigenous Communities

Chronology of human settlement is a fundamental defining feature of indigenous identity. Who was there first? The response to this basic question constitutes legitimacy of indigenous identity and property rights. However, notions of ownership in various forms are largely handled through legal mechanisms which can be deliberated through political processes. The fairness of any ensuing regulations and law enforcement should be contested within each jurisdictional

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context and subject to court process for decision-making where appropriate. However, there are ways in which companies can give reverence to prior temporal presence of a community on ethical grounds. Respecting traditional ecological knowledge of an area (Wiles et al. 1999) that comes from experience rather than empiricism is one such pathway. Often one finds that traditional knowledge is in synch with scientific observation as an iterative result of evolutionary success of a community and should be considered also on pragmatic grounds as a planning tool or as “indigenous cartographies” (Sletto 2009).

However, beyond this basic notion of time with regard to the presence of the indigenous community in an area, there are specific temporal attributes of the mining project itself which need to be considered with the way indigenous communities conceive time itself. Because of their particular association with circadian cycles and often due to their closer connection to subsistence-oriented lifestyles, indigenous people tend to have a different understanding of time. Janca and Bullen (2003) in their detailed study of Australian Aboriginal mental health issues note that “the Aboriginal view of time differs from the Judeo-Christian linear approach in a number of ways. For Aboriginal people, time is multidimensional and can be described: ‘as a pond you can swim through—up, down, around’ The extraction of time from the environmental system as a whole is a foreign notion to most Aboriginal people, even to those who work and live within mainstream Australian society.”

In other words, it is not always as important when things happen but if they happen. Often such a view gets misinterpreted by non-indigenous communities, particularly from fast-pasted industrialized societies as a mark of indolence. This disjuncture in how time is valued by indigenous versus non-indigenous communities becomes obvious in many mining development agreement negotiations. Mining companies are eager to negotiate quick agreements to take advantage of commodity price increases. Well-intentioned company executives might also be thinking of getting royalties and other income to indigenous communities as fast as possible from an ethical perspective, but indigenous communities are likely to have a longer time horizon for benefit accumulation. Indigenous communities do not consider time to be transactional and setting deadlines for agreement-making can be disruptive and diminish trust. The Australian government’s leading practice handbook on indigenous engagement recognizes this challenge to companies as follows: “There is a basic paradox underpinning the process of agreement-making in that while both parties seek predictability, miners tend to seek certainty in process and timing to ensure a predictable process while indigenous community interests want the sort of certainty that derives from a predictable and reliable relationship that has developed over time” (Australian Government 2009).

Indigenous communities which have an experience with rushed resource agreements in the past are also wary of the inability of communities with a non-monetary economic history to suddenly absorb wealth given its impact on social cohesion on traditionally hunter-gatherer societies. Some of the most successful indigenous agreements between mining companies and indigenous communities have taken several years to negotiate but once in place have provided surety for both parties—investing in time as a corollary for trust. For example, the Raglan agreement in Quebec, Canada or the Red Dog Mine Agreement with NANA Corporation in Alaska which is considered the most resilient agreement with indigenous communities took years to negotiate and had no set start-and-end dates for negotiations per se (Yakovleva 2005). The Voiseys Bay agreement in Labrador, Canada took 8 years to negotiate, and the impact-benefit agreement (IBA) was also put to a referendum, and with this time, investment in place resulted in an 82 % approval by the Inuit community and a 76 % approval by the Innu, who had previously opposed the mine by a wide majority (Pain and Paddon 2008).

The Perils of Discounting the Future

Conventional accounting systems for development projects use “discount rates” to capture risk of losing future benefits—the higher the discount rate, the less the future gets valued compared to the present. This approach is quite rational for a risk-averse society and also where short-term gains and quarterly reports to shareholders are the primary motivation for corporate managers. However, indigenous communities have not had such a risk-averse approach to considering future benefits (Barkin 2006). Even though hunter-gatherer societies were at one level highly short-term focused, their value of future benefits and generational impact was highly long-term. Hence the frequent refrain “seven generations” used across contemporary indigenous discourse as a unifying slogan that was manifest most directly in The Great Binding Law of the Iroquois Nation or *Gayanashagowa* (Snow 1999).

Mining companies who are negotiating indigenous contracts need to consider the discounting rate that is less austere and more accommodating of longer-term benefits realization. Indeed, it may be worth considering that a general timeline for negotiations can be asked of the community beforehand and the extent to which future benefit discounting can be realized by them. Explaining the financial limitations of the company in this context and respecting the temporal difference in “valuing the future” could help to maintain a greater sense of decorum and respect through the negotiation process and in adapting techniques such as net present value (NPV) calculations to

indigenous interests. Rio Tinto's diamond mine in Northern Canada, Diavik did an internal assessment of the agreement-making process and noted that the process of engagement with communities was missed in the financial calculations and thus became a classic externality to corporate managers: "Community issues, local engagement activities, and the Agreements themselves soon were viewed as unproductive costs, and not a necessary cost of doing business. There was no NPV, so operators had difficulty understanding or appreciating the importance of strong agreements and corresponding long-term relationships" (Diavik Diamond Mines 2011).

The emerging field of ecological economics can also provide greater guidance to companies in dealing with a longer time horizon for calculating NPV (Martinez-Alier et al. 1998; Gollier 2010; Muller 2013). Through this mechanism, ecological factors and the qualitative aspects of the resource itself are factored into the calculation of net present value. Minerals have a permanent asset value in the ground as a natural resource that is not subject to the same kind of "seasonal" harvest value that agricultural resources have. If an agricultural or forestry project is delayed by a year, one loses a growing season and the generated value of the crop (given demand conditions). However, since minerals are not "grown," nor do they generate output like a production factory, their net value is determined by the commodity price at the time. Furthermore, they are also durable and can generally be stockpiled. Often companies voluntarily delay a mineral project when prices are too low or keep stockpiles based on demand cycles. The temporal dimension of mineral extraction from a business perspective is thus quite malleable as well.

Mineral project planning which needs to consider indigenous preferences is the planning horizon for a resource projects from exploration to operation to closure with indigenous perspectives on valuing time throughout the process.

Unfortunately, in many indigenous contexts, time pressure continues to be the norm in mineral negotiation processes. At times, the time pressure is not only demanded by the developer but also is mandated by law as in the case of the Australian Native Title reconciliation process. Trigger et al. (2013, p. 11), noting the work of several previous scholars assert that this "'threat of arbitration' after six months of negotiation places clear pressures on parties to reach an agreement, but that this impetus is significantly biased against native title parties as determinations via arbitration have overwhelmingly been in the favour of business." Noting the work of Langton and Palmer (2003), they state that "while businesses may see the arbitral procedure as the most expedient path to development, they also expose themselves to the risk of an ongoing poor relationship with native title parties due to the latter's

dissatisfaction with having to accept an involuntary agreement."

Directly related to this temporal dimension of planning is the way, revenues from resource projects get channeled back to the community and the impact they have. Sudden wealth or "windfall development" revenues (Dalgaard and Olsson 2008) can lead to social disruption in all communities, but their impact on indigenous peoples is particularly acute given the aforementioned characteristics of their valuing of time. Community development funds with clear mandates for holding capital and a due diligence process for slow release of funds as needed is essential. Although many indigenous communities would chafe at some external entity telling them to manage their wealth in a certain way, there is ample indigenous leadership to suggest this is the appropriate path. Several indigenous communities, particularly in North America, have themselves resolved to managing "sovereign wealth funds." The Southern Ute Tribe's professionally managed "growth fund" and the Navajo Permanent Fund in the United States are excellent examples in this regard (Harvard Project on American Indian Economic Development 2014). Suffice it to say, indigenous people temporal valuation throughout the planning process of mineral projects and in their economic dispensation deserves more careful attention by developers and governments alike. Given the identification of indigenous communities through a legacy of past injustices that are widely acknowledged, such attention, even when it may come at the cost of short-term gains, becomes an ethical imperative.

Space and Sovereignty in Indigenous Mineral Development Planning

Much of the spatial discourse on indigenous peoples and mining revolves around property rights, title, and objectifying sovereignty in terms of territory. Although such an approach has its merit for many indigenous communities as an instrumental means to assert self-determination, the delineation process can be highly polarizing since territorial gains are framed as zero-sum games where one party's "win" over property rights is a loss for the other. Often such an exclusionary approach is also contrary to many indigenous traditional views of property as a common asset for the community. However, for mineral resources that can be a means of development for the community, and the constraints of the legal system to gain a revenue stream by asserting such rights, territorial delineation becomes inevitable.

Nevertheless, just as the temporal dimensions of engagement can be indicative of the social performance of mining companies, so too can the spatial process of

engagement. Regardless of the legal decisions on title claims and territorial delineation, the ways in which space is presented to indigenous communities during the negotiation process for mineral licenses deserves far greater nuance and attention. For mines, space is also particularly three-dimensional from the point of view of physical land area as well as subsurface depth of a resource and the downstream impact of pollution. Jurisdictions are also often differentiated by spatial dimensions with subsurface rights for certain minerals belonging to the state versus surface rights to individual or community owners. These various aspects of spatial recognition may be alien to the indigenous spatial worldview. Technology can perhaps provide means of bridging the cognitive spatial gap between cultures and between technical versus social views of the mineral development prospect (Cowan et al. 2012).

The emergence of Geographic Information Systems (GIS) technology which allows various layers of demographic and ecological data to be analyzed cartographically with computers has revolutionized spatial planning. Visual information has greater cognition value for planning decisions and is thus provided for mining companies that are trying to operationalize “Free Prior and Informed Consent” (FPIC), the use of GIS can provide a more transparent and qualitatively “informed” consent framework. The International Council on Mining and Metals (ICMM) changed its guidelines for interacting with indigenous people in May 2013 to include FPIC more directly in a framework whereby communities “can give or withhold their consent to a project.” These processes should strive to be consistent with Indigenous Peoples’ traditional decision-making processes while respecting internationally recognized human rights. However, the revised commitments also note that consent-seeking agreement process should “neither confer veto rights to individuals or sub-groups nor require unanimous support from potentially impacted Indigenous Peoples (unless legally mandated). Consent processes should not require companies to agree to aspects not under their control” (ICMM 2013). The ambiguity created by some of the caveats in this statement can perhaps be tackled through a GIS-participatory approach to incorporating ethical obligations from a spatially informed perspective. By refining data layers and providing a higher degree of analytical nuance, GIS can sharpen the ethical choices which companies and communities need to make on key points of contention such as cultural heritage sites (Marsh 2013) and ecological sustenance and monitoring of particular areas (Luzar et al. 2011; Gorman et al. 2008). Through such a mechanism, GIS can also assist in conflict resolution processes by moving the conversation from “positions” to “principles” and helps the negotiation process perform its function as justice-seeking exercise as noted by Zartman et al. (1996).

GIS can also assist with operationalizing some other intractable tenets of international indigenous law such as Articles 15 and 16 of the International Labour Organization Convention Number 169, which covers indigenous communities and has been adopted by most countries in Latin America—the continent with the largest number of self-identified indigenous communities. As stated within the convention: “The use of term lands in Articles 15 and 16 shall include the concept of territories which covers the total environment of the areas which the peoples concerned occupy or otherwise use.” What constitutes “total environment” in this context can be far better unpacked by GIS analysis since layers of data can be juxtaposed using the methodology to provide a more comprehensive view of the situation. It is also worth noting that the “totality” of information which GIS provides has also been shown to have derivative benefits for indigenous engagement. For example, in a study conducted by Young and Gilmore (2013) of the use of GIS among Maijuna people of Peru, they found that participatory GIS “resulted in many positive, affective, and emotional results outside of the final map product.” Furthermore, GIS analysis can also assist governments in meeting the following mandate of the convention:

- (a) consult the peoples concerned, through appropriate procedures and in particular through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly;
- (b) establish means by which these peoples can freely participate, to at least the same extent as other sectors of the population, at all levels of decision-making in elective institutions and administrative and other bodies responsible for policies and programs which concern them.

In addition to its applicability to ILO Convention 169, the use of GIS can also be helpful in Article 25 and Article 40 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) which continues to challenge implementation mechanisms (Allen and Xanthaki 2011):

- Article 25: “Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard”
- Article 40: “Indigenous peoples have the right to access to and prompt decision through just and fair procedures for the resolution of conflicts and disputes with States or other parties, as well as to effective remedies for all

infringements of their individual and collective rights. Such a decision shall give due consideration to the customs, traditions, rules and legal systems of the indigenous peoples concerned and international human rights.”

In the case of Article 25, GIS provides a clear methodology to articulate these various layers of rights to ecological systems and to see potential contestations more vividly. Article 40 suggests the need for bridging spatial and temporal mechanisms argued for in this paper, and GIS can be combined with some of the temporal valuation methods noted for better decision-making. Scenarios which use different discount rates for valuing future benefits could, for example, be used to generate maps showing different scales of impact based on particular siting and land remediation decisions. Of course, all these issues must be appropriately calibrated to the local context. For example, the contestation of indigeneity in Africa has created particular challenges for operationalizing UNDRIP (Crawhall 2011).

Recognizing the positive role which GIS can play in this regard, the American Bureau of Indian Affairs (BIA) has maintained a Geographic Data Service Center (in partnership with NASA and the US Geological Survey) since 1985, and it is estimated by BIA that 50 of the ~550 tribes use this service.¹ As noted by John Goes-In-Center (n.d.), an Ogalala Lakota GIS entrepreneur based in Colorado: “Native people are spatial reasoners,” and such programs are very helpful in helping them navigate their land rights and engage more effectively in decision-making processes. In Canada, the tribes have themselves formed GIS cooperatives—Six Nations Geo-systems of Ontario is an exemplar in this regard.

Despite its merits and promise for assisting indigenous communities more effectively plan for mining development, there are genuine ethical concerns also raised about its broader usage and the access to data. Three particular areas of concern were noted by Turk (1999) in relation to

- Use by government/companies to identify cultural heritage sites without consent of communities;
- Participation bias of using GIS, given access to technology in remote communities
- Information capacity to process data appropriately within indigenous communities themselves given lack of technical capacity

There are all valid concerns but have more to do with the implementation process rather than with the tool itself. No doubt there must be constant vigilance and ethical protocols for the use of GIS as with any other research

mechanism that has practical applications and impacts communities. Negotiating such processes should be considered within the broader gamut of what (Beier 2009) calls “indigenous diplomacies.” The ways in which indigenous peoples have engaged in recent years with nation-states through the United Nations system is an example of how slowly but surely indigenous communities are gaining prominence, and ensuring resilience against misuse or cooptation. Indeed, indigenous communities are adopting technology and deliberative processes on their own terms which mineral development ventures need to recognize.

Conclusion and Further Research

This paper has attempted to present a conceptual framework for ethical engagement with indigenous communities around mining projects that can be operationalized through technical metrics and tools within the broader rubrics of space and time. A next step in providing further credence to the arguments presented would be to undertake a large-N study comparing the temporal and spatial dimensions of indigenous agreement-making. Correlating the negotiation time and effort invested by companies to negotiate an agreement against its long-term efficacy in improving economic outcomes for the corporation and the community could be one such subsequent study. Other dependent variables of community satisfaction or conflict management could also be measured against time invested in agreement-making. Any outliers and variations found from the Large-N analyses could be studied through in-depth case studies to evaluate more refined causality mechanisms. Similarly, studies that show the use of spatial tools such as GIS analysis in improving the performance of indigenous agreements with concomitant metrics could also be undertaken.

No doubt further research will be needed to evaluate case studies of the use of different discounting metrics and other means for temporal congruence with indigenous communities as well as the use of GIS in deliberative planning. The emerging international consensus on ethical obligations to indigenous communities, particularly in the context of mining can benefit from such an approach. Companies and governments should aspire for a process which is deemed “just” by indigenous communities and conforms to international norms such as the new United Nations Business and Human Rights Framework (Murphy and Vives 2013). This process stipulates a mechanism to “Protect, Respect and Remedy” corporate-community engagement and should also be given priority by scholars and practitioners studying social performance of extractive industries. Finding ways to bring lofty principles and ideals to practical application must remain an ultimate goal lest

¹ Further details on this service can be found at <http://www.bia.gov/WhatWeDo/ServiceOverview/Geospatial/> Accessed, June 10, 2013.

communities get cynical about corporate commitment to ethical practice. The approach suggested here can also address what Howitt et al. (2013) have recently called “intercultural capacity deficits” to allow for peaceful “coexistence” with indigenous communities. As mining companies attempt to meet ethical expectations of communities, finding such means of clearly operationalizing lofty concepts into practice will be important to achieving lasting positive outcomes for corporations and communities alike.

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