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# Indigenous engagement in Australian mine water management: The alignment of corporate strategies with national water reform objectives

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## ABSTRACT

In the mineral rich but arid Pilbara region of Western Australia, managing water constraints represents a significant challenge to the mining sector where local depletion is a growing problem. Conversely, the expansion of pit dewatering is creating surface water excess in localised areas of potentially high social and ecological significance. Indigenous people are by far the longest term residents of the Pilbara region and express a range of strong concerns about past, current and future water-related developments in the area. They also have proprietary interests in water recognised by the common law and protected by federal native title legislation. Rio Tinto Iron Ore (RTIO), commissioned the authors to undertake research to improve corporate understanding of Indigenous interests in water and to provide advice on its consultation processes. We argue here that a more sophisticated account of Indigenous water values is a necessary but, on its own, insufficient measure to achieve RTIO's desired long-term goals. We suggest an equivalent process of understanding and documenting corporate water values and interests, actions to improve trust and credibility in the relationship between the parties, and leadership in wider catchment management as necessary complementary actions. These actions follow logically from internal corporate commitments regarding water and Indigenous people and from recognition of their property rights, but also align directly with major trends in the National Water Initiative, the key water policy framework for Australia. Therefore significant synergies exist between internal corporate aspirations, the evolving legal regime, and wider governance agendas for a key limiting resource. Our analysis is relevant to a range of CSR and water resource contexts across the wider mining sector.

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## Introduction

Business strategies for achieving Corporate Social Responsibility (CSR) and 'triple bottom line' (Elkington, 1998; Richards, 2009) outcomes which enhance the 'social license to operate' (Richards, 2009) are now an established aspect of the corporate landscape (Luning, *In press*). Although the terms used can vary and both they and their consequences are subject to critique (Vanclay, 2002; Hutchins, Walck et al., 2005; Langton and Mazel, 2008; Crowson, 2009; Idemudia, 2009; Campbell, *In press*; Mutti, Yakovleva et al., *In press*; Slack, *In press*; Warnars, *In press*), such strategies are designed to provide both guidance and impetus to company activities that enhance corporate outcomes and entitle companies to a social license to operate. In their external engagements, resource companies (like many other companies) have historically tended to identify the community in a simplistic and undifferentiated way (Jenkins 2004 cited in Hutchins, Walck et al., 2005), but effective triple bottom line and/or CSR strategies increasingly require corporations to understand the differences between

stakeholders and the kinds of engagement strategies which are considered appropriate (Luning, *In press*). For mining companies, successful dialogue requires going beyond the conventional limits of mining practice and discourse to include issues such as environmental sustainability, cultural diversity, economic equity and social justice (Solomon, Katz et al., 2008). The Australian mining sector has adopted CSR policies and aspirations and it operates in areas containing high numbers of Indigenous Australians. Many initiatives emerging from those aspirations have focused on Indigenous people, including employment targets and programs as well as the recognition of the interests of Indigenous landowners (Godden, Langton et al., 2008). Mining companies such as RTIO, which are seeking best practice operations, are continuing the process of Indigenous engagement<sup>1</sup> and the aspiration to better understand Indigenous water values forms part of that recent engagement effort.

<sup>1</sup> Recently, corporate Indigenous engagement strategies within RTIO have resulted in binding commercial agreements between resource companies and native title holders, significantly strengthening obligations on both sides beyond the more common voluntary 'good neighbour' community programs or internal corporate CSR policies. The agreements represent a further step away from the conventional distinction between legal obligations and voluntary CSR (Velsquez, *In press*).

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In jurisdictions such as Western Australia which has not formally recognised Indigenous land rights, the recognition of native title by the Australian High Court in 1992<sup>2</sup> provided a legal framework within which the resource sector could address Indigenous resource rights and interests (O'Fairchellaigh, 2004), including rights to water. The High Court's *Mabo* decision and the *Native Title Act (NTA) 1993* made possible some recognition of Indigenous rights to inland waters under Australian law (Jackson and Altman, 2009). In general terms, native title is capable of legal recognition in limited circumstances in Australia: namely, where there has been no extinguishment of native title (by, for example, a grant of freehold title), it can be proven by an Indigenous claimant group or agreed by government that native title exists, and the particular native title or native title rights sought to be established are regarded by the courts as consistent with the common law principles<sup>3</sup> (O'Donnell, 2011).

Under the NTA, rights to hunt, gather and fish for the purposes of satisfying the personal, domestic or non-commercial needs of native title holders can be exercised free from water licensing or permit restrictions that otherwise apply to such activities. Typically, as recent commentators have observed (Godden and Gunther, 2010), native title rights in relation to water where recognised are not interpreted on the evidence as conferring an interest akin to a fee simple, that is beneficial (private) property right, but rather a '*right to water as ancillary to the exercise of native title rights*'. This narrow interpretation has been used to preclude Indigenous people from accessing commercially viable volumes of water and it limits the extent to which native title holders can control access to water and make decisions about how the waters are used (see O'Donnell, 2011 for a full discussion of these matters).

Godden and Gunther (2010) argue that in light of the acknowledged limitations of judicial interpretations of native title over the post-*Mabo* era,<sup>4</sup> negotiated outcomes and agreement making have been the preferred strategy of increasing numbers of Indigenous people over pursuing claims through the litigation process. This trend is evident in the Australian resource sector, where there is now widespread support for agreement making as the preferred method by which to address issues surrounding the recognition of native title (O'Fairchellaigh, 2004). Following a period of internal 'cultural change' in the company (Harvey, 2004), RTIO has been at the forefront of native title agreement-making in Australia and RTIO has recently negotiated a number of regional agreements as part of the settlement of native title claims to land and waters in the Pilbara (Cleary, 2011). Mutually satisfying native title outcomes are crucial to relationships between mining corporations and Indigenous land owners, but despite the importance of water on both sides, there is little published evidence that Indigenous proprietary rights in water and mine water management has been a major topic of discussion. The absence of evidence may be attributed to the fact that there is yet to be a thorough analysis of outcomes from Australian agreements with mining corporations. Although the implications of some of our data for such an analysis are clear, we do not further analyse the legal and/or native title framework in this paper (but for a fuller description of the general status of Indigenous rights and interests in water, see (Tan, 1997; Bartlett, 2004; Behrendt and Thompson, 2004; Jackson and Altman, 2009; Godden and Gunther, 2010). Instead we explore

some implications of internally generated corporate aspirations for both Indigenous engagement and water management, and demonstrate how these implications align with key aspects of national water reform policy. In this sense, we identify processes and actions which are complementary to the basic recognition of Indigenous proprietary rights required of corporate actors by native title legislation, noting how those processes and actions position corporate actors well for emerging wider water governance regimes.

In considering Indigenous water values and their relevance to the Australian mining sector, we fill a gap in the literature on resources policy. The literature acknowledges that the impacts on water quality and quantity are among the most socially contentious aspects of mining projects (Bebbington and Williams, 2008; Velásquez, *In press*). But consistent with the above observation about the undifferentiated way in which community engagement is undertaken, the existing literature does not give sufficient attention to the distinct rights, values and interests of Indigenous people with respect to water and its management. Reconceptualising an undifferentiated 'community' as a series of 'stakeholders' is an improvement, but the stakeholder model still tends to reduce the unique rights, deep cultural connections, and extended residence times characteristic of Indigenous people to those of other 'stakeholders' with usually very different relationships to the locations and resources being discussed. In the Pilbara, considerable frustrations exist within the Indigenous community about past water resource developments (Rijavec, 1993; Rumley and Barber, 2004; Olive, 2007; Barber and Jackson, 2011a) and mining issues (Holcombe, 2005, 2006; Olive, 2007). These influence current Indigenous attitudes to water and mining developments associated with the recent economic boom. Historical experiences also influence Indigenous attitudes to mining consultation processes such as the one described here.<sup>5</sup> RTIO staff were aware of these frustrations at the commencement of the study reported here and wished to both better understand Indigenous perspectives and improve corporate performance in the area, hence the decision to commission the work on which this paper is based.

In detailing the research outcomes, our paper provides an overview of the major water issues raised by Indigenous people participating in the study, particularly those relating to mine impacts. However our analysis of these issues suggests that successfully presenting a comprehensive descriptive account of Indigenous values in line with RTIO's request would only partly address overall corporate aspirations. Indeed, despite RTIO's leadership in the sector, we argue that such an account cannot be properly provided without some important preliminary steps to establish better communication flow, equivalence, and trust in the relationship between the corporation and local Indigenous people, and that these steps are applicable well beyond the specific circumstances of this study. We conclude by noting the alignment between these steps in Indigenous engagement, corporate leadership in catchment management, and major national water policy trends.

## Case study region and methods

### Case study region

The Pilbara bioregion in north-western Australia covers an area of 178,500 km<sup>2</sup> and the larger government demarcated Pilbara planning region covers 507,896 km<sup>2</sup>. There are three distinct geographic zones- the eastern desert area, the inland uplands of Hamersley and

<sup>2</sup> Referred to as the *Mabo* decision.

<sup>3</sup> O'Donnell (2011 p 55) observes that the last condition has had particular application to native title and water. In the case of a sea rights claim in the Northern Territory (*Commonwealth v Yarmirr*), the High Court concluded that 'an asserted native title right of exclusive possession was fundamentally inconsistent with common law public rights of fishing and navigation and the international right of ships to innocent passage through the territorial seas of a nation state'.

<sup>4</sup> In 1998, native title holders lost the short-lived right to negotiate over water resource developments.

<sup>5</sup> A leader of a major Indigenous group in the area refused to take part in the research outlined here, citing the lack of impact of previous reports on mining company attitudes and behaviour. Understanding this response in the light of company aspirations and previous CSR actions was a major motivation for the current analysis.

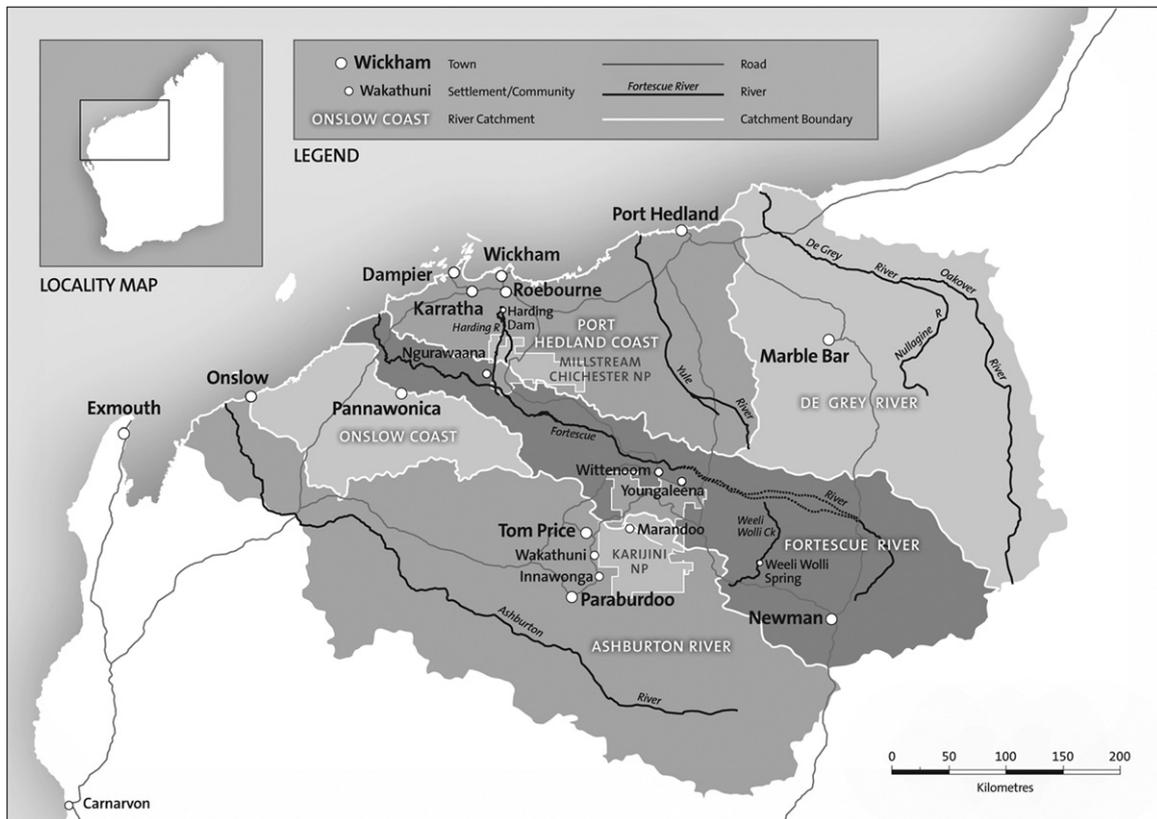


Fig. 1. Pilbara region and river catchments.

Chichester Range, and the western coastal sandplain- and five significant river catchments (see Fig. 1). The area is heavily reliant on perennial groundwater recharged by infrequent tropical lows and surface expression of this groundwater creates important water features; springs, perennial pools along the dry river beds, and extensive wetlands in and around the Millstream-Chichester National Park (Department of Water, 2010a). Some areas are internationally significant in biodiversity terms and the landscape is archaeologically rich as well as of much contemporary cultural and economic significance to Indigenous people (Daniel, 1990; Rijavec, 1993; Rumley and Barber, 2004; Barber and Jackson, 2011a).

Western Australia has experienced a series of mining booms that have generated significant wealth during the past hundred and thirty years. The Pilbara has the second largest supply of iron ore in the world (Rathbone, 2006) and in 2005 alone, iron ore exports from Western Australia increased by over 84% to over \$11.1 billion (Ye, 2006). Along with BHP-Billiton and Fortescue Metals Group, RTIO dominates current ore production in the Pilbara and the growth in demand is placing the region's limited and variable water resources under extreme pressure. In 2007 it was estimated that the mining sector accounted for 72% of total Pilbara water use (35% for mining operations, 30% for mine dewatering and 7% for ports) but this figure is expected to treble in the next 25 years, and the mining sector proportion will itself increase to an estimated 87% (Bessen Consulting Services, 2007). Although these estimates are affected by changing conditions (such as the impact of the Global Financial Crisis), current water supply schemes need augmentation to meet the projected demand growth and to improve security of supply.

The majority of the Pilbara's population of 45,000 lives in major towns and settlements, predominantly located near the coast. Rapid population growth has occurred, but has been offset by increasing mechanisation requiring fewer permanent on-site workers and by fly-in fly-out work arrangements. The Indigenous

population of approximately 6500 is young, relatively under-educated, and under-employed (Taylor and Scambray, 2006). It is internally differentiated into language and/or territorial groupings, and although intermarriage and the impacts of colonisation mean that there is substantial overlap and contestation between groups, the recent processes of determining native title have required (and sometimes forced) some of this contemporary internal organisation to be more clearly articulated. Indigenous people are by far the most consistent long-term residents of the area, and they bring this perspective to engagements with other more recent and/or more transient residents. The rapid growth and low education levels amongst Indigenous people present ongoing challenges for establishing effective consultation and decision-making processes that effectively account for Indigenous collective rights, interests, and aspirations with regard to ongoing commercial and resource development. Yet such processes are a growing feature of legal and regulatory requirements as well as of broader corporate objectives and aspirations.

The above circumstances provide the context for the current study; very rapid regional economic development, very high sectoral water use, critical water shortages along the coast, a substantial increase in dewatering at inland mines, Indigenous proprietary interests in water, a history of largely negative interactions between Indigenous people and either the mining industry or water resource developers, and recent corporate aspirations for improved relationships.

#### Methods

Fieldwork interviews with key Indigenous people and organisations, as well as with relevant non-Indigenous stakeholders, were conducted in June and July 2010 and May 2011. Thirteen Indigenous agencies or organisations were contacted about the research and twenty Indigenous people were interviewed. Guidance about

appropriate people to interview was sought from initial contact with Pilbara Indigenous representative associations and also from the people being interviewed once the fieldwork commenced- the 'snowball' method (Patton, 1990). The criteria used to identify potential interviewees included seniority, group identity, knowledge, place and duration of residence, recent profile in speaking about water issues, and expected availability for interview. The study area was deliberately kept broad, incorporating sites where the mining company is currently highly active, but also locations where the effect of company operations may be far more indirect and the water issues arising would be of a more general nature. A semi-structured interview process was followed which enabled a range of key pre-determined issues to be discussed, whilst still providing some flexibility to raise other issues. As the research represented an initial scoping exercise, no attempt was made to cover all of the issues in a particular geographic location, or to achieve a particular statistical or demographic coverage of the interviewee population. The emphasis was upon relevant people occupying critical sociocultural and institutional positions, and on identifying particular examples which reflected themes or issues important at a broader level. The research was conducted with the free, prior, and informed consent from the individuals involved and in accordance with CSIRO organisational human ethics research protocols. Individuals were able to choose how they were identified, ranging from full anonymity to having personal names recorded. Further information on interview research procedures and methods is available in Barber and Jackson (2011a). The interview material was augmented by relevant archival and multimedia sources to provide further context.

## Results

Full results from this research are presented across more than one source (Barber and Jackson, 2011a; Barber and Jackson, 2011b). The data presented here is restricted to key water management issues relevant to the current analysis. In particular, comments about four areas are noted: (1) sustainability of groundwater use (2) mine dewatering (3) water quality issues and (4) the history of water resource developments in the Pilbara. However before turning to these specific issues we provide some brief comments about the general significance of water to Pilbara Indigenous communities. Views expressed by interviewees during the fieldwork and found in the existing literature (Ieramugadu Group Incorporated and Rijavec, 1995; Rumley and Barber, 2004) were consistent with meanings generated by Indigenous groups in a number of Australian regions (Strang, 2002; Barber, 2005; Toussaint, Sullivan et al., 2005; Langton, 2006; Cooper and Jackson, 2008). Our study found that in Indigenous belief systems water is perceived as an elemental part of the broader cultural landscape, held and managed under customary systems of law (Barber and Jackson, 2011a). Water sources are derived from the actions of mythic beings during the Dreaming and are regarded as among the most important features in the landscape. Given current rates of mineral expansion, the water resources of the Pilbara are of particular concern to the region's Indigenous people because they are vital to Indigenous identities, beliefs, environmental philosophies and livelihoods:

*All our river systems should be looked after, our water should be respected and treated as the most sacred and precious resource. When all our rivers are dead everything else will also be gone. Mining companies treat all their mines as theirs for all the wealth, for traditional owners it is our homes, our heritage, our spirit and our souls. It is our essence of being.*

Marnmu Smyth

Indigenous people interviewed raised a number of water management issues, including drying of country, obstruction of water flow, over-extraction, inappropriate discharge from dewatering, and access restrictions. The social and cultural consequences of these water management issues show the depth and complexity of Indigenous water management responsibilities under customary law (Barber and Jackson, 2011a). Sustaining and protecting water-based features, including the relationships traditional owners have with particular water places, was found to be a primary cultural obligation for people interviewed for the study. The following sections provide further demonstrations of this overall sense of obligation.

### *Sustainability of groundwater use*

Mine activities potentially have a range of impacts on groundwater features, but the lowering of the water table, drying springs and sinkhole formation associated with water extractions were the primary sources of concern, as the following comments indicate:

*They drain the water out, whether for mining, towns and communities. We know we have a big water table but the mining has already destroyed that. They make those big drains to move the water around the country and they don't think about Aboriginal people.*

Dawn Hicks

*There are lots of waterholes there [at Paraburdoo] which have dried up or finished. We travel right through that country, even in the rain time, it's all dry. Sometime in the 1980s was the last time I saw Mud Springs full. Now it's dry as a bone. They must be pumping into a dam on the minesite, that's what must be happening. Old people said it's never dried up [before]. They feel no good. They feel what's happening to their country. I'm also worried about Marandoo and about how any pumping might affect all of the gorges and the National Park. Minthi Springs is the main one.*

Banyjima/Yinhawangka Tribal Elder

*These two springs have gone dry since the Channar mine started operations. The mining is sucking away all of the waters from these natural springs. The springs were never properly protected from the cattle and this made the springs dirty. But the cattle will be finished now it's dry, because there is no water.*

Peter Stephens in Olive (1997: 76–77)

*The southern Fortescue borefields have all of these sink holes from pumping water to Tom Price. The sink holes were there before Marandoo was approved – there were sinkholes there before at Marandoo, but now there are more. You can tell because where the pipeline was laid down, it was before a sinkhole was there but now there are sinkholes underneath the pipeline. They have formed afterwards.*

Slim Parker

### *Mining impacts: dewatering*

The water extractions associated with mines can be for use on site, but also increasingly it is to enable ore extraction below the water table. The extraction and disposal of water has a range of impacts. Although dewatering is not yet widespread, the possibility of the drying out of existing water sites and the impact of the extracted water on outfall locations both represent areas of concern:

*The top springs in my area are O.K., but the lower springs are in trouble. Minthi Springs never go dry, but what happens if they*

*pump out Marandoo mine? What if it's dry? How are they going to fix that?*

David Cox

*... from the initial discussion we had last year with Hope Downs and Rio, in regards to it all they told us, they gave us figures of gegalitres of water that is going to be pumped out and that, etc, but looking at it now, the discharge here [at Weeli Wolli creek] is enormous, and if that is going to continue for the life of the mine up there, its going to be staggering the amount of water that is basically going to go out of this discharge and down the river then. Maitland Parker in (Anonymous, 2008)*

*That water is important for us. The water in Weeli Wolli [spring], that's our important water. But everything there is running, before we could say something, before we could stop it. The water's been run too far [downstream]. They had a limit but we went and saw it and said that water's gone too far. It's mixed up with Yandi [water coming from another adjacent mine site]... If they pump too much water they will choke the plants in the stream, kill them. The animals need water too. How long the mine is going to go? How long is it going to stay there?*

Niyiyaparli elder

Corporate awareness of the increased scale of dewatering in the Pilbara in coming years was a major impetus for RTIO to initiate the current research. The increased dewatering rates and the associated off-site impacts represent major issues for the region as a whole and for its Indigenous inhabitants in particular. Water pumped out of mines sites can be disposed of in a number of ways and a number of steps will be required to enable Indigenous people to properly engage with one another and with non-Indigenous stakeholders about the technical, environmental, sociocultural, and economic issues associated with future dewatering in the Pilbara.

#### *Mining impacts: water quality*

Another concern about mining impacts relates to water quality. This included the water quality associated with dewatering, but also the general issue of on-site activities causing pollutants to flow into the groundwater:

*The water at Weeli Wolli looks clean, but if you look at the [nearby] springs, there are lots of fish and turtles, but there is no fish in the water coming off the mine. Something must be in the water to stop the fish living there. Perhaps no oxygen. There's also too much water in the river. It's killing all the trees.*

Banyjima/Yinhawangka Tribal Elder

*I've seen the mines, all the rubbish and diesel gets washed down. These days they should have oil tanks taking all that out. What I see with the big mining companies, they bury everything. The only thing they ship out is the cooking oil. All the other stuff like chemicals from washing vehicles seems to just flow off the concrete slab and end up in our creeks.*

Member of the Puutu Kuntj Kurrama and Pinikura

RTIO and other corporations may disagree with the factual basis of some Indigenous concerns, including some reported in this article. Potential inaccuracies may exist for a range of reasons, but the existence of differing perspectives on major issues does suggest problems in current modes of communication and comprehension between the respective parties. This issue will be a main focus in the "Discussion," but one last aspect of current concerns is important to raise before moving on. This is the impacts of direct water resource development occurring alongside the water-related impacts of mining activity.

#### *Water resource development impacts*

The history of water resource development in the Pilbara has a substantial effect on Indigenous attitudes to current and future impacts, and on the level of trust people have in non-Indigenous planners and corporate decision makers. Two regions of major importance to Indigenous people have been impacted by developments in recent decades. Lockyer's Gorge was flooded by the Harding Dam in 1983 and the Millstream wetlands area has been affected by borefield extractions since 1993:

*... those trees have gone [from Lockyer's Gorge]. They insulted this ground! Finish! They've broken it up. Finish! This one here, they break this one too. That's the place we used to camp here. Everything's busted up. We used to walk down there up the river. Can't do nothing now! Finished! They put water in it [Lockyer's Gorge]. Bad! There was a sacred tree there that is not allowed to be cut down. I don't know if he is there now. The 'Tree in the Moon', is he still standing? Nothing, he's under the water. They cut that down. They're not allowed to do that! God put that tree there! Not supposed to do that!*

Lilla Snowball in Rijavec (1993)

*It was then that our Holy Land [Millstream] started dying around the edges. Government bores began sucking still more water out for the mining towns. The paperbarks with their shallow roots have been dying and falling over ever since.*

Roger Solomon (Rijavec, 1993).

*The date palms all dropped dead when they over-pumped Millstream and took the water table below the tree roots. There were only 1000 people in Karratha when they built the Harding Dam, and now that population is so much bigger.*

Cyril Lockyer

The Western Australian Department of Water has initiated Indigenous consultation and communication processes as part of its recent water planning initiatives (Department of Water, 2010a), processes which the Department hopes will alleviate some of the concerns that exist about current and future plans. Some research participants knew about and acknowledged these efforts, but it was clear to both RTIO representatives and the researchers that despite substantial efforts made in recent years by both corporate and government actors in the Pilbara, a range of serious information and communication issues remain. The lack of comprehension of and/or engagement with these existing communication efforts by Pilbara Indigenous residents suggests the need for additional resources, but before these are directed, it would also be valuable to assess the underlying philosophy behind the relevant communication strategies and whether that needs to be reconfigured or reformulated. The remainder of our analysis relates to this question and its wider implications for CSR and water strategies in the mining sector more generally.

## **Discussion**

### *Water values as a strategy for communication and decision-making*

Pilbara Indigenous people have experienced several decades of mining, much of it prior to the advent of formal consultation and negotiation processes under the *Native Title Act 1994* (Edmunds, 1989). For this study the authors were asked to provide an account of Indigenous water values and interests, as RTIO wished to incorporate a better understanding of such values and interests into its management strategy. At face value this is a constructive and progressive response to the current circumstances, and indeed a better understanding of Indigenous values is crucial to

the improvement process. However, several factors that significantly influence the effectiveness of this strategy can be noted.

The first factor is that such a statement of values is generated at a particular place and time and is ultimately likely to be produced as a written document. The strategy of producing a collective written statement of Indigenous values and interests in water has been adopted several times recently by Indigenous people both internationally (Various, 2003; Various, 2008) and nationally (Various, 2009). However whilst statements of values may have considerable strategic and political worth, such statements are static and generalised; they imply continuity through time which may or may not be justified, and they may not be easily applicable to the specific circumstance that may arise. Incorporating them into a management strategy devised and implemented by a corporation effectively requires that corporation to predict how such values should be applied in a particular circumstance, and such prediction and/or associated interpretation entails a level of risk; an incorrect interpretation can lead to significant financial costs, time delays on development, and/or damage to the corporate license to operate. The likelihood of an interpretation being incorrect is itself increased by the lack of involvement of Indigenous people in generating it – if people are not involved in creating the specific response, they have far less ownership over the outcome, and are far more likely to be critical of those responsible for it.

The above points would suggest that Indigenous people need to be involved in not just the preparation of an account of their values and interests, but also in the ongoing application of those generalised values in specific situations. Providing on-going opportunities will contribute to overcoming a critical barrier to Indigenous participation in environmental management around mine sites previously identified (O'Faircheallaigh and Corbett, 2005): that the vast majority of avenues for Indigenous participation do not extend beyond the project approval phase. Creating and resourcing processes which enable this therefore becomes another necessary step in improved corporate practices. However such processes may struggle to be effective in their goal of improved engagement between Indigenous people and corporate personnel. Despite an improved account of Indigenous values underlying them, interactions may be characterised by a lack of precision in the terms of the discussion and a lack of equivalence between the parties; one has a detailed statement of values and the other does not. Furthermore, one is operating with an understanding of the limitations of such static statements of value in characterising their own relationship to the matter at hand, and the other does not. In order to make such ongoing engagements precise, equivalent, and containing the requisite degree of self-awareness, it seems crucial that corporate entities generate an equivalent account of their own water values and interests. This should encompass consideration of everything from the role of water in critical industrial processes through to the qualitative amenity it gives to casual employees. The complex nature of Indigenous cosmologies and understandings of the world initially suggests that generating an account of Indigenous values and interests in water is likely to be the more resource-intensive exercise, but the synthesizing across the sheer scale and diversity of operations within a large corporation such as RTIO also makes any authentic and comprehensive account of corporate water values a potentially substantial task. However undertaking it will provide both heightened awareness of the importance of water to the business and deeper understanding of the worth and the limitations of generating codified or formalised statements of values and interests. Such awareness is crucial if ongoing engagements between Indigenous people and corporate representatives are to be undertaken in a precise, equivalent, and self-aware manner that leads to constructive outcomes.

### *Trust and credibility in corporate engagement about water*

Generating statements of both Indigenous and corporate water values and creating processes which enable Indigenous people themselves to provide the linkages with specific circumstances are crucial steps. However such actions are impossible without establishing a baseline of trust and credibility in the relationship. Particularly in relation to an account of Indigenous values, the interview data suggested that at present Indigenous people in the Pilbara are not willing to share their deeper values and interests in detail because they believe that the companies are withholding valuable information about the state of current water resources and impacts as well as about their future plans. The level of trust is not sufficient for the conversation to proceed, even via intermediaries. From an Indigenous perspective, corporate requests for a better explication of their values represent an extractive one-way process with unclear consequences, rather than a constructive two-way process of knowledge sharing. The lack of corporate knowledge sharing also undermines people's sense of confidence in the decisions they do take when consulted, as they feel that such decisions are based on inadequate or incomplete information. A crucial aspect of strengthening corporate engagement and meeting corporate aspirations involves the development of this kind of trust – the awareness that knowledge and information is being shared in forms that are appropriate and comprehensible.

In this regard, one specific recommendation with respect to the current study was that RTIO undertake a comprehensive review of the confidentiality provisions and/or information provision protocols and strategies associated with its Pilbara operations, and the value of any non-disclosure policies and procedures to the business. A number of people interviewed believed that corporate confidentiality issues were restricting the flow of information to Indigenous people or between different Indigenous groups. Importantly, current perceptions of high levels of secrecy need to be addressed by not just making information publicly available in a technical sense. Rather what is required is to establish processes for communicating the availability of that material and to make it available in forms that are comprehensible to the non-specialist but nevertheless sufficient for participation in co-operative decision making. The danger of an over-reaction to the perception of secrecy should also be acknowledged, as an oversupply of excess and/or uninterpretable information is likely to have a similarly negative effect on perceptions of trust. As a corporation, RTIO currently aspires to best-practice operation in a relatively progressive regulatory and political environment that also has considerable potential for investigation and commentary from independent media. These conditions, combined with Indigenous perceptions of withheld information and excessive secrecy, suggest that careful evaluation of how information about water-related mine activities is collated, stored, and distributed is worthwhile. Whilst it may be customary and necessary for companies to withhold information likely to directly benefit competitors, much significant information regarding sources of current and immediate future concern to community groups such as Indigenous people is unlikely to fall into this category.

As well as issues of trust, consultation and engagement processes are affected by the related assessment made by each party of the credibility of statements made by other parties. The credibility assigned to Indigenous statements is discussed elsewhere (Barber and Jackson, 2011a) but a significant credibility gap was evident within the Pilbara Indigenous community regarding the way water is valued and managed by mining companies. A number of research participants indicated that they understood the need for water to be used on-site, particularly for dust suppression and other occupational health and safety

reasons, but a more substantial proportion raised concerns about on-site mine water usage. Comparatively heavy water use on mine sites, both for ore processing and dust suppression, was seen as evidence that companies do not value water sufficiently and as a consequence waste large amounts of water. RTIO has had a publicly available water strategy for a number of years, and currently provides detailed information about its water use to the WA state government and to the Minerals Council of Australia. Other companies may have water efficiency and management strategies to minimise wastage, but if these exist they are not widely known, understood, and/or accepted within Pilbara Indigenous communities. This situation substantially affects the reliability people assign to corporate assurances about water management. However, even if Indigenous people in the Pilbara are aware of the technical availability of water strategies and usage data, this does not mean the data is easily accessible to, or interpretable by, those with limited formal education who are living in remote areas. High visibility and/or high volume water use by the company needs to be carefully examined and where it is deemed unavoidable, it is crucial that the reasons for this decision and its alignment with corporate water strategies and plans are clearly explained to other interested parties in the area.

Similarly, where excess water needs to be disposed of, it is important that the process of deciding on the best available alternative is clear, transparent and responsive to Indigenous perspectives. In the current study, concern about current and future dewatering was widespread, but there were widely varying levels of awareness and understanding of the general characteristics of mine water use, the probable expansion of mine dewatering, the impacts of dewatering, management options for impact mitigation, and the potential livelihood opportunities that might come from temporarily increased water availability. A substantial improvement in the baseline understanding of the Pilbara Indigenous population regarding dewatering issues is required for genuinely informed consent and decision making to be achieved.

Negative perceptions of mine water use mean that greater resourcing of research and innovation in this area, particularly processing and dust suppression, could reap substantial corporate benefits alongside the financial and technical benefits of innovation, as they will directly affect community assessments of the credibility of mine operations. Innovations may include modified management strategies as well as technical measures. Fostering social/behavioural innovations at the company level may be at least as significant as technical ones, both in terms of water management and community relations. For such measures to be fully effective in CSR terms they will need to be developed through an ongoing process of dialogue with Indigenous people about the nature, impacts, and effectiveness of these new arrangements or technologies.

In the Pilbara, the perception amongst Indigenous people that mining companies themselves waste or misuse substantial amounts of water directly affects the credibility ascribed to company aspirations for more effective water management and for better consultations about water issues. Alongside a clearly articulated and communicated strategy of water values and the sharing of available information, addressing this problem requires a multifaceted strategy: clear and accessible explanations of existing water management plans and strategies, improved availability of usage data, explanations for high visibility and/or high volume water use and its relationship to water strategy, improved information about dewatering issues, impacts, and options, and a commitment to ongoing technical and behavioural innovations in water conservation and efficiency. These actions support, and are supported by, the actions related to the statement of values described in 5.1.

#### *Downstream and cumulative water impacts: Indigenous holism and integrated catchment management*

Indigenous people are highly sensitive to the way water flows across landscapes, relating people and places in complex ways (Strang, 2002; Toussaint, Sullivan et al., 2005; Morphy and Morphy, 2006; Barber and Jackson, 2011b). The social impacts of resource development on Indigenous people are often conceptualised in terms of the effects of resource extraction, processing and transportation on identified 'sacred sites' – although there are important exceptions (Howitt, Connell et al., 1996). There is some value in the 'sacred site' conceptualisation, but it is more accurate to describe the entire land and waterscape as 'sacred' in the sense that it is understood by Indigenous people as the product of actions by ancestral figures in the creative period. Particular features or locations in that landscape (including water features) may be identified as the places where discrete actions by ancestors took place and on that basis have additional significance. But the country is understood as one interconnected and created whole, rather than a series of discrete sacred sites. One of the major consequences of this for Indigenous attitudes to water-related mine impacts is the concern for downstream impacts (Barber and Jackson, 2011b). Corporate powers to monitor and manage impacts and, to a lesser degree corporate responsibilities for impacts, decrease once outside the lease boundary, yet cadastral boundaries usually have minimal relevance either to Indigenous group boundaries and responsibilities, or to ecological and hydrological units. Indigenous responses to water-development proposals and water-related impacts are likely to place considerable weight on the wider scale effects of such developments, both off the lease in general and downstream in particular. Such impacts may be difficult to measure and are often not adequately accounted for in heritage assessment processes, particularly where impacts on water bodies distant from the source of impact are concerned. The cumulative dimension of multiple impacts and the difficulty in proving causation where trans-boundary water impacts are concerned account for this lack of consideration (Jackson and Morrison, 2007). In a review of the protection given to sacred water sites in heritage legislation across north Australia, O'Donnell (2011: 154) sees a 'reluctance in some cases to address the full consequences of seeking to protect in a holistic manner the Indigenous relationship to, knowledge of and understanding of water'. These extensive impacts may be highly significant in socio-cultural terms, as traditional food-gathering and residential patterns produced strong relationships between groups and individuals up and down river systems. A landscape perspective that seeks to consider the wider impacts of human activities on a mobile resource correlates well with growing trends in water and mine management to consider off-lease impacts.

Concerns about downstream impacts are closely related to the question of cumulative impacts. The Pilbara is an extremely dynamic socio-cultural, biophysical, and economic region, with multiple developments proceeding rapidly and simultaneously without significant examination or analysis of how those developments and their impacts might interact with one another. Commercial considerations and complex political and jurisdictional boundaries have constrained effective information flows, communication, and holistic planning. In some respects, Indigenous people are uniquely placed to assess the levels of fragmentation in planning and decision making with respect to current developments, as very basic Indigenous consultation processes are now a requirement for so many administrative and development processes. However, although people may be made superficially aware of multiple and often competing developments, they are rarely given detailed information about the potential

impacts, rarely possess the necessary information and technical training to fully assess and evaluate cumulative impacts, and are almost never in the position of being able to halt or effect major changes to a development proposal based on concerns about cumulative impacts.

Downstream impacts from individual developments and cumulative land and waterscape impacts from multiple developments are significant issues in the Pilbara, and the priority that Indigenous people ascribe to this wider holistic assessment of impacts aligns closely with emerging best-practice trends in both the mining sector and government regulatory environments. Efforts are being made by the Western Australian Department of Water to assess the cumulative effects of Pilbara mining. However the extent of Indigenous participation in this process appears to be low.

#### *Mining sector leadership in catchment management: local necessities and national trends*

Public media is now reporting that water allocations to new developments in the Pilbara are approaching environmental limits (Taylor, 2010) and climate changes and development pressures suggest that water use seems likely to be an increasing business cost and a potential risk to the sector's social licence to the operate in the future. Given the water-scarcity and the economic dominance of mining in the Pilbara, it would seem to be a region where proactive sectoral leadership is both appropriate and fundamentally necessary to achieve individual corporate and wider regional sustainability. Catchment scale processes are already under way, as the recent creation of the Pilbara Water Plan (Department of Water, 2010a) demonstrates, but they lag well behind overall rates of development, placing additional responsibilities on large corporate actors with aspirations for environmentally and socially sustainable operations in the region. In such a context, it is important that such corporate actors maintain resourcing levels sufficient to provide catchment management leadership rather than merely participation—local necessity and indeed long-term corporate strategic interest demands it.

Catchment management frameworks within an overall regional water plan are currently the most effective structures for dealing with issues such as the barriers to information flow, the evaluation of water use by site and sector, and mitigation of cumulative impacts of resource development. They also offer opportunities for social learning within and between water using groups and water resource managers. Large mining companies occupy an unusual and important position with respect to a catchment management framework; they have a detailed knowledge of their own developments, areas of operation, and impacts, but often far less knowledge about other operators, and/or about the impacts of their own operations beyond the boundaries of the mining lease. Yet in the Pilbara the major mining companies are by far the heaviest water users (the iron ore sector accounting for 56% of licensed allocations) and the most powerful corporate actors. The limitations on their roles are not as striking or evident as their individual and collective ability to act swiftly and effectively when necessary. All of the major companies intend to have a long term presence in the region, and on that basis any over-allocation of water resources, underestimates of available supplies, or miscalculation of cumulative impacts may directly affect their operations over an extended period. This would result in substantial additional costs to the business, poor public perception and community relationships, and therefore risks to the overall sector's licence to operate.

Alongside corporate strategic interest, in relation to Indigenous people and other community stakeholders, it would be valuable for corporate actors to consider how wider catchment level

discussions affect and articulate with their own corporate-specific consultation and stakeholder decision making processes. Corporations and other parties such as Indigenous people may share goals and aspirations at the catchment level even if positions differ substantially at local scales. Corporate resourcing of consultation processes at one level may have both direct and indirect benefits for processes at other levels; increased confidence in catchment management processes can support more localised decision making processes, and vice versa. Skills and relationships developed in negotiating outcomes in a two-way interaction regarding mine site development may also be highly useful in multi-stakeholder contexts at the catchment level. The academic literature describes proactive corporate responses to meeting catchment community information needs, through for example, transparent monitoring plans, and integrated approaches to managing upstream and downstream impacts within a catchment (Bebbington and Williams, 2008). Other authors (Salmon and van Zyl, 1999) describe how large coal mining companies agreed to water management activities to address pollution within a catchment in the province of Kwa Zulu Natal during a period in which water management institutions were experiencing rapid change. The critical point to note here is that an aspiration to understand Indigenous values in water emerging from CSR strategies leads to greater corporate involvement in and leadership of catchment management processes. This follows logically from the analysis of the existing circumstances, but equally importantly, the progression from improved Indigenous engagement to wider sectoral involvement in catchment management reflects major trends in the wider Australian regulatory regime relating to water allocation and management.

#### *National Water reforms and the mining sector*

The National Water Initiative (NWI), signed by the Commonwealth, State and Territory governments in 2004, is the overarching policy framework guiding Australian water management in dealing with the current national water crisis. The objectives of the NWI include providing for sustainable use of water, increasing the security of water access entitlements and ensuring the economically efficient use of water. These are to be achieved principally by strengthening environmental flow provisions, removing barriers to markets in water, and providing for public benefit outcomes through water planning mechanisms. The NWI incorporates integrated catchment management, tradeable water rights, full accounting of resources and use, regional water planning, and an environmental allocation. Regional water planning is the critical process and consultation and community involvement (particularly emphasising heretofore under-represented Indigenous engagement) is required. Parties to the NWI have also agreed that water access entitlements and planning frameworks should recognise Indigenous needs in relation to access and management, and many of the new bodies established to undertake water and catchment planning have Indigenous representatives, as encouraged by the NWI.

According to the National Water Commission (Sinclair Knight Mertz, 2010), mining uses a relatively small proportion of water resources on a national basis, but this use has been increasing rapidly in the last decade and mining is the primary consumer of water in a number of regions, including the Pilbara. The Commission has identified a set of water management challenges facing this sector:

- a lack of integration of mine planning and operations in regional water planning processes
- absence of water markets in some mining areas and barriers to trading where markets are established

- uncertainty and insecurity in water supply arrangements
- differences between the mining industry's sectoral regulatory regime and the water sector's regulatory regime, including regulatory changes resulting from the national water reform agenda
- increasing community concerns regarding the cumulative impacts of mining on water resources (Sinclair Knight Mertz, 2010).

Clause 34 of the NWI states that the minerals and petroleum sectors may require policies and measures outside of the scope of the NWI to address special circumstances (ibid. viii), but the Commission recently noted that the conditions for which these special circumstances should apply have not been defined and identified in a consistent and transparent manner, and “as a consequence, there has been little integration of those industries with broader water markets and water planning processes, despite the potential for considerable benefits in many cases” (ibid: viii). The Water Commission has recently released a position statement on mining and the National Water Initiative in which it states that Clause 34 should only operate in exceptional circumstances and that an explanation should be required when it is invoked (National Water Commission, 2010). The Commission also indicates that NWI-consistent water access entitlements should be made available to mining activities wherever possible; that mining companies should operate under the rules set for other water users; that they should be actively engaged and encouraged to participate in water planning processes; that mining project approval processes need to reflect water management objectives and regulatory regimes; and that water-related data held by mining companies and mining agencies should be made publicly available to enable assessment of cumulative effects (Sinclair Knight Mertz, 2010).

Clearly the impetus behind the reforms associated with the NWI is to bring all water users, including the mining sector, into a broader integrated process of water management undertaken at the catchment scale. This is to ensure the appropriate management of cumulative impacts and the long term sustainable management of the resource across ecological boundaries. In the Pilbara, the Regional Water Plan Statement of Response (Department of Water, 2010b) notes that new legislation to guide water allocation planning is still being developed and the research undertaken for this study made clear that the region does not have a long established regional natural resource agency or permanent catchment management group driving the generation of integrated water plans. In other parts of Australia these groups have typically had a role in water resource planning and, in an increasing number of jurisdictions, such groups are supported by an Aboriginal or Indigenous reference group (Jackson, Tan et al., in press). In the Pilbara, some interviewees from the current research commented that Indigenous people have not been well engaged in this emerging dialogue about water planning. Better engagements between mining companies and Indigenous people about mine-specific water issues may provide an important pathway to better engagement by Indigenous people in wider catchment management processes. The conclusion to draw here is that the implications of following through on corporate aspirations with respect to local Indigenous water values complement the wider developments in water and catchment management currently occurring.<sup>6</sup> Such complementarity suggests an

important role for the mining sector and its corporations in catchment management.

## Conclusion

The research process outlined here was a preliminary scoping exercise intended to identify key Indigenous water values and interests, to provide additional expertise and ideas regarding Indigenous perspectives on water management, and to make preliminary recommendations and suggestions for further action. The process was undertaken at the request of one company operating in a single region, albeit a highly significant company in an extremely valuable mining region facing significant water management issues. However despite the limitations of the research scope, our analysis reveals the linkages between some important characteristics of Indigenous water values, potential company actions such as native title negotiations and processes to improve corporate engagement with those values, and the wider implications of that activity for water management at the site specific, catchment, regional, and national scales. Our analysis is intended to complement analyses focusing on the direct implications of Indigenous proprietary rights in water – we are identifying additional bases for corporate action flowing from pre-existing CSR commitments and from strategic corporate positioning with respect to impending changes in water regulation and governance. RTIO's corporate strategies regarding negotiated agreements over land access, benefit sharing and heritage management have brought the parties together but they had not resulted in a clear corporate understanding of Indigenous water values and of Indigenous perspectives of mining impacts on water resources. Creating an atmosphere of reciprocity in which Indigenous values can be shared requires the company to articulate its own values and interests in Pilbara water supplies. That process in turn should lead to an understanding of the limitations of generic statements of values when they are not complemented by an ongoing process of engagement with the holders of those values, particularly when the focus is on decisions about major developments and infrastructure. The process of building trust and improving communication flow to enable the articulation and sharing of values also requires a range of simultaneous actions, including a re-evaluation of the necessity for information restrictions, attempts to widen the reach and circulation of existing publicly available information, clearly articulating existing water strategies and plans, and supporting technical and behavioural innovation in water efficiency across the business.

These suggested activities are consequences of following through on internal corporate aspirations for understanding Indigenous water values and on the explicit recognition of Indigenous rights in land and water, but they also align directly with external trends in national water planning. The NWI requires increased community consultation in general and increased Indigenous engagement in particular. Actions required to facilitate Indigenous consultation processes with respect to water also provide large mining companies with opportunities to provide leadership rather than participation in catchment management processes, particularly in areas such as the Pilbara which are both water-scarce and heavily dominated by mining activity. This implication for the catchment scale also aligns directly with another emerging trend in national water management – the aspirations to integrate the mining sector and its water needs into the wider water planning and management process. Our analysis demonstrates that a serious attempt to understand Indigenous water values and interests emerging primarily from internal corporate aspirations potentially leads to a transformation in the way that companies are positioned with respect to water

<sup>6</sup> Although the point cannot be explored further here, it should also be noted that such activity is consistent with philosophy expressed in the International Principles for Social Impact Assessment Esteves and Vanclay (2009). “Social development needs analysis as a tool for SIA to guide corporate-community investment: Applications in the minerals industry.” *Environmental Impact Assessment Review* 29: 137–145.

resources and water management issues. Undertaking this transformation would benefit local and regional Indigenous people and the immediate operational environment, but it also positions companies well to effectively engage with significant contemporary developments in national water management.

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