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**EMPLOYMENT OUTCOMES FOR ABORIGINAL
PEOPLE: AN EXPLORATION OF EXPERIENCES
AND CHALLENGES IN THE AUSTRALIAN
MINERALS INDUSTRY**

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EXECUTIVE SUMMARY

There has been a resurgence of interest in Indigenous employment within the Australian minerals industry. This has mainly been driven by legal developments in Indigenous relations, coupled with increased recognition by Governments and leading companies of the need to address persistent poor socio-economic conditions in Aboriginal communities. Particularly in remote areas, the mining industry is often seen as one of the few available avenues to deliver economic and other improvements to Indigenous people living in those areas.

Although the overall rate of Indigenous employment in the mining industry remains relatively low, there are several leading mining operations where Indigenous employees now constitute a significant proportion of the workforce. This trend towards increasing Indigenous involvement in the industry raises important questions about the short and long term consequences of employment, both for the workers themselves and the communities they come from.

The prevailing assumption is that Indigenous people will benefit from increased employment in the mining industry. However, to date little has been done to measure the benefits of mining employment for individuals or communities, or to identify and analyse possible negative impacts. A sustained research effort in this area is needed to inform the design of Indigenous employment programs to help maximise the benefits and minimise the adverse impacts for individuals, families and communities.

Identifying impacts and outcomes

The effects of employment span across several levels from the mine workers themselves through to their families, their 'home' communities and those to which they may relocate. These effects may differ substantially between various communities situated near the one mine and between local and non-local Indigenous people.

Mining employment can impact on individuals and communities across a range of dimensions, including:

- culture
- income and economic activity
- skill development (human capital)
- gender relations
- health.

Effects can be multi-faceted and inter-linked: for example, the impact of mining employment on the customary Aboriginal economy has both a cultural and economic dimension. Effects can also be indirect as well as direct. For example, community members with no relatives employed at a mine may still benefit if mine workers reinvest their income and skills back in their communities. Similarly, they can be affected adversely if changes to community cohesion occur, due to extended periodic absences of miners from their home communities as a result of mine work.

Key research issues

Key issues identified by this review as requiring further investigation and analysis are as follows:

Culture

- determining the extent to which mining employment poses a cultural dilemma for Indigenous people employed in the mining industry and members of their communities
- evaluating the relationships between mining roster patterns, working hours and the ability of Indigenous employees to maintain cultural practices
- assessing the cultural adaptations that have resulted due to mine work

Income

- determining the aspirations and income flows of Indigenous mining employees
- evaluating the impact of mine salary and wages on family relations and power dynamics
- estimating the relative flow-throughs of salary and wages from mine work to other income streams obtained from mines and other sources of income for Aboriginal employees and the communities from which they are drawn
- determining the impact on mobility patterns both during and following employment in the mining industry

Skill development

- identifying the range of skills and attributes that mines can influence (including occupational, general life skills, self-confidence and cross-cultural skills)
- understanding the factors that inhibit or facilitate greater career progression of Aboriginal employees
- determining the extent to which skills developed at a mine are transferable to the family and communities of Indigenous mine workers

Gender relations

- determining the aspirations and occupational distribution of Aboriginal men and women across mining operations
- assessing whether industry employment experiences and practices have influenced existing gender roles in Aboriginal societies (either positively or negatively)
- determining the post-mine employment outcomes for Aboriginal men and women

Health

- accounting for the range of health factors that can be influenced by mine work (including occupation related effects, health & safety awareness and diet)
- determining the overall net effect of employment on the health of Aboriginal mine workers, their families and communities.

The way forward

It is vital that efforts to improve Indigenous employment levels within the industry are coupled with an appropriate research and monitoring framework. Indigenous employees and community members are the ultimate possessors of knowledge about how mine work affects them. This requires the development of culturally appropriate research

frameworks. Strategies to incorporate Aboriginal people into the research process include: the use of Aboriginal perspectives to set research agendas; the involvement of Indigenous researchers; and the application of Indigenous concepts to develop appropriate methods to monitor outcomes.

Where practical, research and monitoring should have a regional focus, rather than just being restricted to individual mines. Aboriginal people and communities in mining regions can be impacted by the presence of several mines of various sizes over time. In these situations, there are obvious benefits to be derived from adopting a regional approach, including the opportunity to:

- share data and coordinate research activities
- contribute to regional planning processes
- compare experiences and outcomes across different communities
- build the capacity of regionally based Indigenous people and organisations to undertake research and monitoring work.

The Australian mining industry is a significant employment contributor in mining regions and is often located near Aboriginal communities or land with Aboriginal interests. The mining industry therefore is ideally placed to develop an inclusive and comprehensive approach to evaluating the outcomes of Indigenous employment initiatives and, in doing so, provide a model for other industries.

List of abbreviations

ALRA	Aboriginal Land Rights Act
ATSIC	Aboriginal and Torres Strait Islander Commission
CDEP	Community Development Employment Program
DET	Department of Employment and Training
CSRM	Centre for Social Responsibility in Mining
FIFO	Fly In Fly Out
GCA	Gulf Communities Agreement
ICMM	International Council on Mining and Minerals
ILUA	Indigenous Land Use Agreement
MCA	Minerals Council of Australia
MMSD	Mining, Minerals and Sustainable Development
MOU	Memorandum of Understanding
OHS	Occupational Health & Safety
SMI	Sustainable Minerals Institute

Definitions

Aboriginal / Indigenous	The words Aboriginal and Indigenous have been used interchangeably in this paper and as a mark of respect they are both capitalised.
Country	The Indigenous concept of ‘country’ denotes Traditional Owner relationships to land and waters (Smyth, 1994). Country can embody spiritual significance, kinship connections and be a source of sustenance (Rose, 1996; Trigger, 2002).
Mining employment	Mine site workers can be employed by the company that owns a mine or by onsite contractors. Areas of employment can include the undertaking of actual mining, the onsite processing of mining materials, administration and onsite services (such as catering, cleaning, engineering and maintenance services).
Mine site / operation	A mine site or operation can be comprised of one or more pits, a shallow extraction area, underground mines or any combination thereof. They can also include onsite processing and transport facilities. In this paper refineries and smelters have not been included as part of this definition.

INTRODUCTION

This paper focuses on the impacts of mining employment on Aboriginal people and the communities from which they are drawn. Issues that require further research are identified and a framework is proposed to carry this research forward.

There has been a resurgence of interest in Indigenous employment in the Australian minerals industry, as indicated by the signing of the Memorandum of Understanding (MOU) between the peak industry body, the Minerals Council of Australia and the Australian Federal Government in June 2005. The MOU commits both parties to deliver improved employment outcomes for Indigenous communities in specific mining regions over five years (Australian Government & MCA, 2006). Several mining companies and government agencies have adopted Indigenous employment policies and programs (Archer, 2005; DEWR, 2005a; DITR, 2005; Fowler, 2005; Hall & Driver, 2002; IMETF, 2003; Lenegan, 2005). Employment and training provisions have also become a common feature of Indigenous Land Use Agreements (ILUAs) between Traditional Owner groups, mining companies and State governments (O’Faircheallaigh, 2002; Quinn, 2005).

Underpinning these initiatives is the assumption that greater Indigenous representation in the mining workforce will promote a greater sharing of benefits between mining companies and Indigenous communities (DEWR, 2005a; Render, 2005). With mineral and energy exports set to rise by 36 per cent to \$93.1 billion in 2005-06 (ABARE, 2006), there are increased expectations and assurances that this will create more Indigenous employment opportunities. For example, recent proposals of several mine related projects were accompanied by announcements that these developments will create better employment prospects for Aboriginal people (ABC, 2006; Brenchley, 2006; Office of Territory Development, 2004; Tanami Gold, 2005).

Mining companies and operations that invest time and resources in Aboriginal employment stand to benefit in several ways. The inclusion of local Aboriginal people in the mining workforce can help to secure local support for an operation, build goodwill to facilitate future land use agreements and address labour shortages in the industry (Archer, 2005; Barker *et al.*, 2005; Harvey & Gawler, 2003; Lenegan, 2005; NCVER & NILS, 2005). For Fly-In, Fly-Out “(FIFO) operations, a local Aboriginal workforce can help to alleviate the negatives associated with long distance commuting, relocation costs and recruitment difficulties from a generally urban based Australian mining workforce” (Barker *et al.*, 2005:1).

The expected benefits of mining employment for Indigenous people are assumed to be the generation of greater personal wealth, development of occupational and personal skills and flow-on benefits to Indigenous communities more generally. However, the assumption that mine work will necessarily produce such outcomes for Aboriginal people requires further investigation. The short and long term consequences of mining employment for Aboriginal employees and the communities from which they are drawn need to be understood to assess the assumptions that are made about the benefits of Indigenous employment in the industry. Gaining an appreciation of the effects of mine work on Indigenous people, will allow for the adaptation of strategies to maximise the beneficial impacts and minimise any negative outcomes associated with increased Indigenous employment in the industry.

Structure of the paper

To provide context to this review, the paper first provides a brief description of past Aboriginal participation in the mining workforce and identifies several drivers to improve Indigenous employment outcomes. This is followed by an outline and discussion of some of the Indigenous employment impacts that have been identified in the literature. This paper concludes by proposing a framework to guide further Indigenous employment research.

Limitations

There are some limitations that need to be stated at the outset. Firstly, although some valuable research reports have been written on Indigenous employment, they largely exclude oral sources of knowledge (the Aboriginal tradition). By mainly drawing on written sources of information, this paper likewise gives an incomplete picture of the situation and may not adequately convey Indigenous perspectives (Nakata, 2004). The paper has been written by a non-Indigenous person trained in the western scientific paradigm and the interpretations presented here are inherent reflections of this.

Secondly, Indigenous employment is a fast moving field and current practice is likely to be ahead of what has been reported. Thirdly, public sources of information have mainly been relied upon: there are other relevant documents, such as employment provisions in Indigenous Land Use Agreements (ILUAs) that remain confidential, as do internal mining company reports. Finally, the broad approach taken in this review limits the opportunity to explore the diverse aspects of such terms as 'Aboriginal', 'Indigenous' and 'communities' (Appo & Hartel, 2003; Sarra, 2000). The internal diversity concealed within these terms could provide clues as to why Indigenous employment programs are successful in one location, at one particular point in time, and not in another.

Past Aboriginal involvement in the minerals industry

Mining has been at the forefront of colonisation and has penetrated deeply within Australia's interior. Aboriginal employment has had a similarly long history in the minerals industry. In the Pilbara region of Western Australia around 300 Aboriginal people were estimated to have worked in the alluvial tin fields 24 years after its discovery in 1882 (Wilson, 1980 cited in Holcombe, 2004). Furthermore, there is evidence that adoption of the traditional yandy dish from its food and child carrying function to one of separating minerals from soil, allowed Aboriginal miners to effectively compete against their European counterparts on these tin fields (Holcombe, 2004; Rogers, 1973). During 1918 to 1940 many small camps, consisting of one or two Aboriginal families, were attached to small-scale tin mines in the upper Annan river area in south-eastern Cape York, Queensland (Anderson, 1983). "Usually the adult males (and sometimes as domestics, the adult females) were working for the European miner there" (Anderson, 1983: 487).

Aboriginal labour has been an instrument of colonisation. Providing labour to resource industries may initially have been a survival coping strategy by Aboriginal people to enable them remain on their country (Aird, 2001) or to adapt to their new surrounds after their forced removal and placement in Aboriginal reserves and missions¹ (Elder, 2003; Holcombe, 2004). Labour in the eyes of the colonisers was considered a valuable, and perhaps the only, asset that Aboriginal people were able to offer which could be harnessed to meet colonisers' needs. This especially appears to have been the case in northern Australia, given the scarcity of non-Indigenous labour (Reynolds, 2003).

Furthermore, the treatment and employment conditions of Aboriginal workers within the resource industries were often substandard to the point of being comparable to those experienced by servants or indentured labourers (Elder, 2003; Kidd, 2003). According to Broome (1982 cited in Gientzotis & Welch, 1997) as recently as 1969 Aboriginal workers at the Weipa mining operation were not eligible for all the employment benefits provided to their non-Aboriginal counterparts, such as bonuses, holiday pay and lodgings. Gientzotis & Welch (1997:10) further characterised "the treatment of Aboriginal workers as a surplus and expendable reserve labour force in the Australian mining industry". It has also been alleged that the rapid expansion of large scale mining operations in the Pilbara region since the mining boom in the 1960s, displaced or excluded Aboriginal workers who were previously employed in smaller-scale mines (Holcombe, 2004; Rogers, 1973).

Aboriginal employment levels in the mining industry have increased only modestly during the past four decades, from a very low base (Cousins & Nieuwenhuysen, 1984; Rogers, 1973). A 1968 survey of 55 mining companies (of which 48 responded) indicated that Indigenous employees accounted for 1.5% of the total workforce across 23 of these companies (Rogers, 1973). Moving forward 33 years, the 2001 National Census identified 1390 Indigenous workers as being employed in the mining industry, which represented only 1.9% of the total mining workforce (ABS, 2001). A survey of 244 Australian mine and petroleum operations (of which 112 responded), conducted in 2002 by the Australian Bureau of Agricultural and Resource Economics (ABARE), provided a higher estimate of 4.6% Indigenous employment (Tedesco *et al.*, 2003). However, this is still not a high level of representation given that many mining operations are located in regions where Aboriginal people comprise a substantial proportion of the population, for example, Indigenous people have been estimated to represent more than 80 per cent of the population in several Gulf of Carpentaria communities (Hall & Driver, 2002), almost half of the resident population in the northern east Kimberley (Taylor, 2003) and more than 16 per cent of the resident population in the Pilbara² (Taylor & Scambray, 2005). Even in the Bowen Basin coal region, Indigenous people accounted for 4.4% of the 2001 population, surpassing the Queensland average of 3.1% (QDLGP, 2005).

¹ "Women were strongly compelled to mine for different reasons, as the alternative was prostitution. It is better to yandy all day, half hungry, than to eat the tin of beef that is the fee of lying on the ground under a whitefella..." (Holcombe, 2004: 15).

² Taylor & Scambray (2005: 13) noted the following in relation to estimates of the Indigenous population in the Pilbara: "...that the 16 per cent global Indigenous share statistic can be misleading as large tracts of the country away from the demographic influence of urban centres and mine sites remain essentially Indigenous domains where Indigenous people and their institutions predominate".

Why the heightened interest in Indigenous employment ?

Although the industry's overall performance in regards to Indigenous employment has been patchy, at best, there are several mining operations where Indigenous employees now constitute a substantial proportion of the mining workforce. Notable examples include Century mine in the Gulf of Carpentaria, Argyle mine in the northern east Kimberley and the Newmont operation in the Tanami region (Argyle Diamonds, 2004; Newmont, 2004; Zinifex, 2005). Some of these operations have achieved Indigenous employment levels in excess of 20% of the workforce.

The resurgence of interest in Indigenous employment within the minerals industry has mainly been driven by legal developments in Indigenous relations, coupled with increased recognition by governments and leading companies of the need to address persistent poor socio-economic conditions in Aboriginal communities. The relevance of these factors to Indigenous employment will be briefly discussed in turn.

Legal recognition of Indigenous rights

Issues at the nexus of resource industries, their labour requirements and Indigenous people have been at the heart of several important protests and legal developments in Australia's contact history, especially during the late 1960s and 70s (Merlan, 2005). However, it was not until the 1990s that the minerals industry noticeably began to change its approach to Aboriginal relations (Howitt, 2001). This was largely in response to the recognition of Indigenous rights to land within the Australian national legal framework. After a ten year land claim struggle, Eddie Mabo made a successful High Court claim on behalf of the Meriam people in 1992. This subsequently led to the Native Title legislation in 1993, which overturned the previous legal assumption of *terra nullius* ('vacant land'). Native Title recognises that 'Indigenous people have a system of law and ownership' that can coexist with other rights to country, as long as Government acts, such as exclusive possession through privately owned freehold title, have not removed it' (NNTT, 2003).

Several developments have occurred since, including:

- The Wik Decision which ruled that Native Title can coexist with pastoral leases although the latter takes precedence when disputes arise;
- The Native Title Amendment Act 1998 which was aimed at streamlining the operation of the Act, reducing delays while also reducing the impact of the Wik decision and raising the eligibility criteria of Native Title claimants.

In addition, numerous reviews and amendments to Indigenous Land Acts in mineral rich States and Territories are proposed or have occurred³. The impacts of the intended reforms are yet to be determined (AGD, 2006; Hewett in Altman *et al.*, 2005).

³ For example, a review of the *Aboriginal Land Act 1991 (Qld)* and the *Torres Strait Islander Land Act 1991 (Qld)* is currently underway in Queensland. The Land Right Legislation Aboriginal Land Rights (Northern Territory) Amendment Bill 2006 was passed by the Federal Government on the 17th August 2006. The final report on the review of the *Land Administration Act 1997* was tabled in the Western Australian parliament on the 31st August 2005.

The recognition of Native Title rights has provided some Aboriginal communities whose traditional lands contain prospective mineral resources with the leverage to negotiate directly with mining companies about mining developments. Numerous Indigenous Land Use Agreements (ILUAs) and Goodwill Agreements between Native Title groups, mining companies and government authorities have been entered into over the last decade⁴. ILUAs are voluntary agreements between negotiating parties that are legally binding once registered (NNTT, 2006). Employment and training provisions have been canvassed as important issues in ILUA guidance documents (Quinn, 2005) and have become a common feature of ILUAs⁵ (O’Faircheallaigh, 2002).

In the midst of these developments, determinations of Indigenous rights to land and sea have continued. In the Northern Territory alone, more than fifty percent (53.7%) of the land is subject to Aboriginal ownership under the Aboriginal Land Rights Act (ALRA), with 44 per cent or 594,000 square kilometres already under Indigenous control (Altman *et al.*, 2005; NTDIPE, 2005). Combined with recent Native Title determinations, it is estimated that Indigenous Australia had more than a 20 per cent recognised ownership, control or management stake in Australia (Altman *et al.*, 2005).

Maintaining good Aboriginal relations will therefore continue to be in the long term interests of mining companies. Gaining and retaining access to Aboriginal land or land with Aboriginal interests is required to ensure uninterrupted supply of ore to mining company’s customers and ultimately their investors. Delivering improved Indigenous employment outcomes in turn, is likely to comprise a prominent component in maintaining these relations.

Persistent poor socio-economic conditions

One of the reasons why Indigenous employment is often placed on the negotiation table is the hope that mining operations, which can be a significant economic driver in remote regions, can improve the socio-economic conditions of Aboriginal people.

More than two decades ago, Charles Perkins noted that:

The Aboriginal “minority is now generally recognised as the most disadvantaged and under-privileged sector of the Australian community, with the highest death rates, highest morbidity rates, the worst health and housing conditions and the lowest educational, occupational, economic, social and legal status of any community within the Australian society” (Perkins, 1982: 154).

Despite some improvements, numerous reports continue to document the high level of disadvantage experienced by Aboriginal people (ADCQ, 2006; Baillie *et al.*, 2002; Fred Hollows Foundation, 2004; O’Donoghue, 2003; RCADC, 1991; SCRGSP, 2005; Trewin & Madden, 2005; Trudgen, 2000). For instance, a recent socio-economic profile of the Pilbara mining region in Western Australia, paints a gloomy picture for its Aboriginal inhabitants (Taylor & Scambary, 2005). Table 1 reproduces the estimates for Indigenous labour exclusion in that region for 2006.

⁴ Refer to the mining and minerals related agreements on the ‘Agreement, Treaties and Negotiated Settlements Project’ database accessible at <http://www.atns.net.au/> for further detail.

⁵ Given the confidential nature of many agreements, it was not possible to obtain accurate data on the number of ILUAs that contain employment and training provisions from either the online NNTT register or the ATNS database (not a comprehensive database).

Table 1. Key Indigenous indicators relating to the scale of labour force exclusion: Pilbara region, 2006.

Population aged 15+	4759
Has no post-school qualification	4200
Has less than Year 10 schooling	1500
Not in the labour force	2190
Hospitalised each year (all Indigenous persons)	2800
Has diabetes (25 years and over)	1020
Has a disability	1020
Arrested each year	1050
In custody / supervision at any one time	310
Achieving Year 7 benchmark literacy (current school attendees)	60%
15 year old males surviving to age 65	<50%

(Source: Taylor & Scambray, 2005: 153).

Coupled with the increasing employment disparity between Indigenous and non-Indigenous Australians (Taylor & Hunter, 1998) is the rapid growth of the Indigenous population. The Indigenous working age population is projected to grow by at least 84,000 people by 2011 (Hunter *et al.*, 2003). Charlie Lenegan, the Managing Director of Rio Tinto has recently noted that:

Our demographic studies tell us that in another decade or so, every second Australian in remote and rural regions above the tropic of Capricorn will be proud to be of Indigenous descent (Lenegan, 2005: 5).

These trends are likely to result in greater pressure for such things as employment, health services, housing and related infrastructure development (Taylor & Hunter, 1998) which is likely to outstrip available government funds (Ridgeway, 2005). According to some commentators, Aboriginal Australia is facing a looming social crisis (Behrendt, 2003; Langton, 2002).

Corporate social responsibility

At the global level, the need to protect the ‘distinct characteristics’ of Indigenous people has been recognised by the International Labour Organisation (ILO). The ILO is a United Nations agency that sets legal standards to improve the living and working conditions of workers worldwide (ILO, 2003). This organisation adopted the first international legal instrument: *the Indigenous and Tribal Populations Convention (No. 107)* back in 1957. According to the revised *ILO Convention No. 169*, Indigenous people’s rights, amongst others, include the right to participate in the benefits of mining activities (ILO, 2003).

The need for mines to maximise employment benefits to the communities surrounding their operations has also more recently, been recognised by industry bodies. Notably, in 2003 the newly established International Council of Mines and Metals (ICMM) released a sustainable development framework which, amongst other things, requires signatories to:

- Uphold fundamental human rights and respect cultures, customs and values in dealing with employees and others who are affected by our activities (principle 3)
- Contribute to the social, economic and institutional development of the communities in which we operate (principle 9). (ICMM, 2003: 1).

At the national level, the Minerals Council of Australia (MCA) released ‘*Enduring Value*’ in 2004, to provide guidance to companies and sites on how to implement the ICMM sustainable development principles (MCA, 2004a). All signatories to the code are required to progressively implement the ICMM principles and elements and to publicly report their performance at site level (MCA, 2004b).

The ‘guidance’ provided to companies to implement ICMM principle 3 include:

- Work with communities to develop employment, education, training and business development and other opportunities
- Recognise and respect the culture and heritage of local communities including the culture and traditions of Indigenous peoples and their relationships with lands and waters
- Educate and train employees in anti-harassment and anti-discrimination policies and practices
(MCA, 2004a: 9-10).

The ‘guidance’ in relation to principal 9 includes:

- Work to realise education and training opportunities for local people to increase their employment options
- Contribute to the professional development of young people in local communities through capacity building and mentoring programs (MCA, 2004a: 23-24).

Company based initiatives to increase Indigenous employment, especially those of larger organisations such as Newmont and Rio Tinto, have also been developed in parallel to – or, in some cases, preceding - these developments at the industry level. For example, Newmont’s five star management system for community and public relations includes an Indigenous employment and business support standard. The purpose of this standard is to ensure that ‘proactive steps are taken to provide employment and business opportunities to local Indigenous stakeholders’ (Newmont, 2006). Several companies have set Indigenous employment targets for specific operations and business units and developed structured training and employment programs to prepare and progress Indigenous applicants through the mining workforce. These can include pre-employment training programs, training programs to develop skills, on the job training through traineeships and apprenticeships, career progression and tertiary education support for Indigenous students.

Government initiatives

The Australian government has become a strong advocate of greater Indigenous involvement in the private sector, especially in the minerals industry. It is important to consider these aspects, albeit briefly, as governments help to shape the agenda in which Indigenous employment in the minerals industry takes place.

Indigenous employment aligns with the practical reconciliation approach adopted by the current Australian Federal government in response to the Council for Aboriginal

Reconciliation report released in 2000⁶. Practical reconciliation emphasises the improvement of Aboriginal socio-economic conditions over legal and cultural considerations. There are numerous government initiatives and programs aimed at increasing Indigenous employment levels within the private sector. At the Federal government level, relevant initiatives include the Working in Partnership program, the Corporate Leadership program, the Structured Training and Employment Project (STEP), programs run by Indigenous Business Australia and the MOU with the Minerals Council of Australia, mentioned previously.

The aim of government programs can include the funding of Indigenous trainees and apprenticeships or workshops to support the development of long-term partnership arrangements between mining companies and communities (DITR, 2005). At the State and Territory level, informal organisations, such as the Indigenous Mining Enterprise Taskforce (IMETF) have received support from the Northern Territory government to increase Aboriginal employment within the industry (IMETF, 2003). State governments are also party to numerous Indigenous Land Use Agreements that contain Indigenous employment and training provisions. For instance, the Gulf Communities Agreement (GCA) obliges the Queensland Department of Employment and Training (DET) to support education and training programs to improve employment outcomes for local Aboriginal people at Century mine (Hall & Driver, 2002).

Other developments in Australian Indigenous Affairs also need to be considered as they will impact on the importance and expectations attached to Indigenous employment initiatives in the minerals industry. Recent changes have included the abolition of the Aboriginal and Torres Strait Islander Commission (ATSIC), in favour of a mainstream or 'whole of government' approach in 2004. In line with this development is the stated commitment from all levels of government to address Indigenous disadvantage through such mediums as the Council of Australian Governments (Australian Government, 2005).

Partially in response to concerns over the negative effects that the welfare economy has had on Aboriginal people (Pearson, 2000), there are now moves to overhaul the Community Development Employment Program (CDEP) (DEWR, 2005c). If drastic changes are made to such programs as CDEP, the pressure for mining operations to supply employment opportunities is likely to increase substantially, especially for those operations within the vicinity of remote Aboriginal communities, where there are few alternative mainstream employment opportunities.

Conclusion

There is increasing pressure being brought to bear from various angles for mining companies to improve their Indigenous employment performance. The mining industry is seen as one of the few available avenues in remote areas to deliver economic and other improvements. There are several leading mining operations where Indigenous employees now constitute a significant proportion of the workforce. This trend towards increasing Indigenous involvement in the industry raises important questions about the consequences of employment, both for the Indigenous workers themselves and the communities they come from. These aspects will be discussed in the next section.

⁶ The scope of the final Council of Aboriginal Reconciliation report is much broader than the practical reconciliation agenda that has been adopted by the current Federal government. The merits of practical reconciliation remain hotly contested. See for example Crough (2001) and Dodson (2004).

EMPLOYMENT OUTCOMES

Determining what consequences mining employment has for Indigenous people is a complex task. The effects of employment span across several levels from mine workers, to their families and their 'home' communities and those to which they may relocate. These effects may differ substantially between various communities situated near the one mine and between local and non-local Indigenous people. Furthermore, mining employment has various indirect effects. For example, community members with no relatives employed at a mine may still benefit if mine workers reinvest their income and skills back in their communities (Aboriginal participant comment in Barker & Brereton, 2005). Similarly, they can be affected adversely if changes to community cohesion occur, due to extended periodic absences of miners from their home communities as a result of mine work.

There are several impact dimensions of mining employment to consider. The effects of mine work are not just solely confined to those associated with greater income levels, but can encompass education, health and crime. The employment related effects considered in this paper include those relating to culture, income, occupational skills, gender and health related dimensions. These again, are not discrete dimensions and there are many ways that these aspects could have been considered. For example, the impacts of mining employment on the customary Aboriginal economy could be considered as both an aspect of the cultural and income dimensions of employment.

Each of the broad dimensions of culture, income, skill development, gender relations and health impacts will be discussed in turn. The status of current research will be summarised, key knowledge gaps identified and questions posed to help guide future investigations about the outcomes for Aboriginal people.

Although not the focus of this paper, it is important to note that Indigenous employees in the minerals industry also affect non-Indigenous employees, western work practices and knowledge bases. Cultural change, including the dispelling of baseless myths about Aboriginal people, can occur due to the exposure of non-Aboriginal people to Aboriginal people at mine sites (Hall & Driver, 2002). Greater knowledge of mining environments is also possible, if Aboriginal ecological knowledge is incorporated into environmental management practices and rehabilitation processes.

CULTURAL CONSEQUENCES

Consideration of the potential cultural impacts of mining appears to have been largely confined to the start-up or expansion phase of mining operations. Cultural concerns may be raised at community forums, anti-mining protests or, more formally, in anthropological and archaeological reports invoked through the social impact and cultural heritage assessment processes. Little follow-through or monitoring of cultural impacts appears to have taken place and if so, this has largely been confined to the protection of delineated cultural sites on or artefacts obtained from mining leases. Very little information is available on the effects that mining employment has had on Australian Indigenous culture.

Culture comprises the value systems and beliefs that form the identity and blueprint of living for people (Rogers *et al.*, 1988). Culture is therefore deeply ingrained, a lived experience and informs all other dimensions of employment. For the purposes of this paper, Aboriginal culture is interpreted as being inclusive of relations to country and family ties - core aspects of most Indigenous groups. There is, however, no 'overarching' Indigenous culture (Appo & Hartel, 2003; Rose, 2005). Each Traditional Owner group can have distinct as well as shared elements of Australian Indigenous culture. For instance, Rose (2005) noted in her work at the Comalco Weipa operation on western Cape York that Indigenous employees themselves have mentioned the importance of realising the diversity and distinctiveness of the various Traditional Owner groups present onsite.

Is mining employment culturally appropriate?

Large-scale extraction of minerals has been viewed by some as an affront to Indigenous cultural values and worldviews. Protests by several Aboriginal people have centred on the incompatibility between mining and Indigenous worldviews (Yvonne Margarula in Banerjee, 2000; John Toby in Dixon, 1990; Ruska, 1997; Wadjularbinna Nulyarimma in Trebeck, 2005; Helen Nunggalurr in Wurm, 1993; Yanner, 2002).

Trigger (2002) recalls the following during the development of Century mine in the Gulf of Carpentaria:

"In 1995 at Century Mine's sample pit site, a quietly spoken Waayni man in his fifties reflected pensively on how the proposed deep open cut pit would surely 'wake up that Rainbow Snake' - from his perspective, this was a danger wherever the mine might be dug in his country, regardless of whether the surface features of topography were particular foci of 'sacred sites'" (Trigger, 2002: 190).

The Indigenous concept of 'country' referred to above denotes Traditional Owner relationships to land and waters (Smyth, 1994). Country can embody spiritual significance, kinship connections and be a source of sustenance (Rose, 1996; Trigger, 2002). Indigenous people who uphold or espouse these worldviews may therefore refrain from work within the mining industry for these legitimate cultural reasons.

This poses some serious questions for Indigenous employment in the mining industry. To what extent and under what circumstances does work that either extracts or supports the extraction of mineral ore, pose a cultural dilemma for Indigenous mine workers? Do dire socio-economic circumstances and lack of alternative mainstream employment opportunities in many Aboriginal communities lead some people to advocate and opt for mine work, despite possible cultural consequences? What are the alternatives? Do responses differ between members of the Traditional Owner groups on whose country mines are located and other Indigenous groups? What are the implications for cultural integrity and cohesion, say between Aboriginal people wishing to pursue more traditional Aboriginal lifestyles at outstations or small remote Aboriginal settlements and those wanting to pursue mainstream lifestyles through mining? Do responses also vary between mine types (underground, open-cut shallow or deep pits), ore types (e.g. coal, diamonds, uranium) and job types (mining operator, cultural heritage officer, administrator)?

How does mining employment shape Indigenous culture?

There is evidence that some Indigenous miners want to retain cultural practices more generally. Several respondents to a survey of local Aboriginal people who voluntarily left work at Century mine in the Gulf of Carpentaria suggested that the adoption of culturally appropriate employment practices would improve the retention of local Aboriginal employees at the mine (Barker & Brereton, 2005). Some of the comments included:

“Help locals get out bush more, so they can keep their cultural ways (fishing, camping, attending ceremony)”

“...Don't get no bush tucker at the mine. The ability to go out for 4 hours or so and go fishing and live off the land is important to keep the harmony. All cooped up in one area, that's the hardest part. Can do this during shift changes; take a morning off with a group of blokes”.

(Aboriginal participant comments in Barker & Brereton, 2005: 20).

Hall and Driver's (2002) observations on Mornington Island substantiate the above. They observed that the 'extended absences required for employment at Century' conflicted with the maintenance of the traditional fishing lifestyle on the island. The need for Aboriginal people in the Gulf of Carpentaria to spend time to properly care for country is documented in Memmott and Channells (2004). The need for flexible working arrangements and support by employers to enable Bininj⁷ employees to attend ceremonial activities (Collins, 2000) has similarly been raised in the Kakadu Regional Social Impact Study.

Further research about Indigenous workers and communities is required to determine the relationship between mining roster patterns, working hours and the ability to maintain Indigenous cultural subsistence practices (O'Faircheallaigh, 1995). To maximise production and contain labour costs, operational mine staff tend to work long hours, including 12 hour shifts and night shifts. Miners work a variety of rosters, including 5/2-4/3, 4/4, 9/5, 10/4, 14/7, 21/7 work to rest day patterns (Beach *et al.*, 2003). To what extent do these different roster patterns constrain or enable the maintenance of traditional cultural activities? Are there differences between FIFO and town based operations? How do the impacts of work patterns in the mining industry compare to those in other industries? What work practices can mining operations adopt that can facilitate the maintenance of such practices whilst also maintaining productivity? O'Faircheallaigh (1995) referred to a Canadian oil company policy example, where First Nations employees could apply for short-term leave during the hunting and fishing season, as long as it did not interfere with their operations.

Another consequence of long rosters and working hours in the industry are the extended absences from family and the impact that this can have on the ability of employees to maintain kinship relations (Lawrence, 2005). The importance of extended families and the obligations that this can entail can be gleaned from a comment made by an Indigenous employee at the Weipa operation:

“Funerals...too many in one year. The Crew Leader sees you going to too many in one year. The Crew Leader should understand that black fellas have a lot of relatives, not like white fellas...” (Indigenous participant comment in Rose, 2005: 63).

⁷ Aboriginal people from the Kakadu region in the Northern Territory (Collins, 2000).

Findings from a survey of local Aboriginal people who voluntarily left work at Century mine indicate that respondents were least happy with living away from home and roster patterns. Both were also contributing factors for leaving the mine (Barker & Brereton, 2005). Reasons for leaving included:

“Wanted to stay with mum. Worked a 3:1 roster. On the one week off there was just enough time to see family in [one community]. Not enough time to see family in [another community]”.

(Aboriginal participant comment in Barker & Brereton, 2005: 12-13).

Extended periodic breaks from family and social networks, especially in smaller communities, where mine workers may fulfil several vital roles, can create disruptions and voids that have ramifications for Indigenous employees, their families and their home communities. Some male Aboriginal workers at the Cape Flattery mine for instance, reported a sense of loneliness and great loss from having missed out on seeing their families grow up (Holden & O’Faircheallaigh, 1995).

On the other hand, the extended family networks, common amongst many Indigenous people, can provide a form of support for mine workers back in their home communities. Knowing that family members are looked after, during their absence or when issues arise, can provide a sense of reassurance and offer a buffer against some of these impacts (O’Faircheallaigh, 1995).

Another finding of the Century mine survey was that employment seemed to have facilitated the movement of people out of the Gulf. “Around 90 per cent of the survey respondents resided in the Gulf when they started work at Century, but by the time the survey was undertaken 40% were living elsewhere” (Barker & Brereton, 2005: 26). Do relocated mine workers have less frequent cultural and family interaction with their home communities, and, if so, then what are the implications for the status of the workers within these networks and the functioning of these networks? What, if any, are the implications for the legal recognition of Traditional Owners’ connections to country if ongoing maintenance of customary practices and ties cannot be maintained as a result of mining employment?

Cultural adaptation does occur. The term ‘circular mobility’ has been used to refer to the movement of Indigenous people to engage in mainstream institutions (such as mining employment) to maintain kin relationships and customary practices (Taylor & Bell, 2004). New forms of relationships can also be created as a result of mining operations. Mines that have reached a ‘critical mass’ of Indigenous employees may provide an environment for the establishment of new networks and, depending upon the composition of the Indigenous workforce, allow for greater interaction between family members. As a participant to the Century survey commented in response to a question about what he liked about working at the mine:

“Family orientated – so many people from the communities...”

(Aboriginal participant comment in Barker & Brereton, 2005: 13).

At Argyle mine in the east Kimberleys, all mine personnel are incorporated into the Aboriginal cultural domain through induction in the manthe ceremony, a form of Indigenous occupational health and safety, and the General Manager has been given a

skin name (Doohan, 2003). This is despite Argyle being most well-known for the destruction of the Barramundi Gap, a significant ceremony site for local Aboriginal people (Howitt, 2001).

Mine sites can be melting pots of Indigenous workers from various communities and regions in Australia with diverse cultural backgrounds, identities and aspirations. On a broader scale, Indigenous miners also interact with an increasingly diverse non-Indigenous mining workforce. This is largely a reflection of the diverse overall Australian population and international recruitment drives to address skill shortages in the industry (NCVER & NILS, 2005). Do Indigenous mine workers re-assess their culture in light of their portrayal in onsite cultural management practices and through the perceptions and interactions with other mine workers? What, if any, are the positive or negative effects on their own sense of identity? Do these impacts differ between mines where Indigenous people are marginally represented and those where they comprise a larger share of the workforce?

Some possible cultural impacts that Indigenous employment has had or can have are outlined above, but this has only touched the surface. Indigenous people, especially in northern Australia, have had contact with cultures that predate European contact (Dymock, 1998; MacKnight, 1976; Reynolds, 2003) and Aboriginal culture has and will continue to evolve after mines close. However, mining is an agent of cultural change and further research is required to determine the pace and direction of change that mines bring to bear. In particular, the role and power that Indigenous miners and communities have in this process requires further investigation.

INCOME GENERATION

Increased income is arguably the most direct impact of mining employment. Several mines have started to report the salary and wages they contribute to their employees, and in some cases, specific to their Indigenous employees. By way of illustration, as at July 2001, Century mine had paid over \$21 million in salaries to local Aboriginal people after just a couple of years of operation (Hall & Driver, 2002). This is a substantial contribution, however, there has been little investigation of the effects of income on Indigenous mining employees, their families and respective communities.

High income levels are a defining feature of the mining industry. In August 2005, the average weekly earnings of persons employed in the industry were one and a half times greater than the national average⁸ (ABS, 2005). The income differential between Indigenous mine workers and others in remote Aboriginal communities can be even more pronounced. According to the ABARE, (2003) survey, the average annual salary and wage of a fulltime Indigenous mine worker in 2002 was \$58,738. This can be compared to the incomes earned by Indigenous people in the Pilbara region of Western Australia. Estimates from 2001 indicate that the average annual Indigenous income for this region derived from mainstream employment was \$34,966 (Taylor & Scambary, 2005) and \$11,000 to \$12,000 for CDEP workers and those classed as unemployed or not in the labour force (Taylor & Scambary, 2005). It is unclear how these income levels derived from the State and market compare to the wealth that can be derived from the

⁸ \$1565.30 for the mining industry, compared to the overall average of \$1023.20.

customary economy, the third element of the 'hybrid' economy that can exist in Aboriginal communities (Altman, 2001).

The chance to earn high income is often used as a recruitment strategy by the industry, especially during periods of skill shortages but the extent to which this is an attractor for Indigenous people is often open to question. Arthur (1994) noted a 'target' work phenomenon amongst Aboriginal workers at a BHP owned zinc/lead mine in the Fitzroy river area of northern Western Australia.

"People tend to 'target work' at the mine, saving enough money for consumer items such as cars, or to clear debts, and they may move in and out of the mine work force several times, as the need arises" (Arthur, 1994: 32-33).

A survey of Aboriginal former employees at Century mine indicated that 40% were employed at the mine for two or more years, that most were satisfied with their pay and that this was not a significant factor in their decision to leave (Barker & Brereton, 2005).

What effects do mine salary and wages have on families and communities?

The circulation of income within Aboriginal society can be a complex phenomenon. An ethnographic study of a remote Aboriginal township in northern Australia revealed that income is subject to various forces, including the maintenance of individual autonomy on the one hand and kinship and social relations on the other (Martin, 1995). The author concluded that:

"...there is an economic arena within contemporary indigenous societies which is linked to that of the mainstream society, but which nonetheless is comprised of distinct values and practices. This indigenous economic realm is one in which social capital, rather than financial or other forms of material resources, is typically given primacy" (Martin, 1995: 20).

The use of mine wages to support immediate and extended family members can have several consequences. Employees may become more valued members and increase their status in family networks. This in turn can spur interest amongst other family members to become miners as well. However, in those cases where few Aboriginal people are employed, greater pressure to share their wages could also be exerted.

At this stage, little is known about the extent to which the income from mining changes pre-existing patterns of wealth distribution or levels of economic activity or how the income derived from mining impacts on family relations and power distributions between mine workers and non-mine workers. For example, how much of the money is spent, invested or saved? Of the money that is spent, how much is kept within the local community and how much flows out to purchase consumer goods such as vehicles?

Wages obtained from the Cape Flattery mine operation were estimated to represent at least 10% of the total wage income in Hope Vale during the late eighties (Holden & O'Faircheallaigh, 1995). Communities with fewer Aboriginal miners will be less affected by the inflow of mining wages than those with greater numbers of Aboriginal miners. Other considerations include sources of alternative incomes in the home communities of Indigenous miners. The contribution of mine wages and salaries must also be weighed

against other sources of income that can be derived from a mine, such as royalty payments and purchases of goods and services from local businesses.

The effects of mine wages and salaries is likely to differ between different mine phases. During the initial phase, the income differential between the mining industry and other industries can create labour shortages in local communities and can lead to wage inflation. Greater mobility of Indigenous miners and possible relocation, during the operational phase and after closure is likely to lead to a substantial proportion of wages being spent outside local communities. Mine closure can result in a downturn in business activity in areas surrounding an operation.

Access to higher, regular forms of income can have significant impacts at numerous levels. These effects will depend on such factors as previous income levels, other sources of income, the number of dependents relying on a single mine income and the aspirations and expenditure patterns of those affected. However, researching the income distribution of Indigenous miners is a sensitive issue. As O’Faircheallaigh (1996: 4) observes: “Indigenous people have a right to privacy in relation to their personal financial affairs, and this sets boundaries to research activity in this area”.

SKILL DEVELOPMENT

Skill development can be another significant outcome of mining employment, although several studies indicate that Indigenous employment continues to be skewed towards entry level positions. Information about the range of skills that are influenced by mine work is scarce. Furthermore, little is known about the extent to which skills acquired by mine workers contribute to the ‘human capital’ of their respective communities.

The type and degree of impact that mine work can have on skill development depends on numerous factors, including: prior education and skill levels, previous work experience, duration of employment within a mine and within the industry and the desire and opportunity of individuals to undertake career development training and progression.

What skills can be developed at a mine?

Several skill sets can be developed at mining operations, including occupational, ‘life’ and cross-cultural skills. Occupational skills can include truck driving, trade, administration and management skills, as well as more general skills such as communication and problem solving. Broader life skills, including income management, health and safety, numeracy and literacy, can also be developed, especially during pre-employment training programs. Improved life skills can, in turn, support the pursuit of other skills, such as cultural practices.

Opportunities to apply and develop different skill sets are presented throughout the mine lifecycle, albeit to different degrees. During the construction or expansion phase of a mine, there are more job opportunities in semi-skilled and skilled trades, such as carpentry and boiler making. The bulk of positions in the operational phase are associated with the extraction process and those within the decommissioning phase are tailored towards demolition and environmental rehabilitation.

Mining training and employment experiences can either add to or diminish personal traits and values of workers, such as self-confidence, positiveness and trustworthiness. For example, Hall & Driver (2002) observed an increase in self-confidence of successful job applicants amongst Aboriginal trainee graduates at Century mine. Conversely, those who were unsuccessful experienced considerable disappointment and de-motivation (Hall & Driver, 2002). Century responded by changing the focus to identified jobs at the mine and thereby increased the success rate of trainees in job placements (Hall & Driver, 2002).

Some of the above aspects are summarised in a comment made by an Aboriginal participant in response to a survey question about what employees liked about work at Century mine:

“Properly understand work and responsibility. I wasn’t just given the job for being GCA [a Gulf Communities Agreement (person)], I did the job. It gave me a bit of value. I learned from other people (value and respect for different cultures). Century showed me a whole lot of job opportunities and showed me you need education to get there”.

(Aboriginal participant comment in Barker & Brereton, 2005: 14).

What occupational skills are being developed?

Recent studies continue to demonstrate that Indigenous employment is skewed towards entry level positions, with the majority occupying truck driver or plant operator roles (Barker & Brereton, 2004; O’Faircheallaigh, 2002; Rose, 2005; Taylor & Scambary, 2005; Tedesco *et al.*, 2003). Very few Indigenous employees occupy management positions (Barker & Brereton, 2004; Holden & O’Faircheallaigh, 1995; Taylor & Scambary, 2005). At the Pilbara Iron operation in mid 2004, just under two-thirds of the 135 Indigenous workers were employed as plant operators, with only two people occupying supervisory or managerial roles (Taylor & Scambary, 2005).

Contributing factors can relate to poor educational levels and the time it can take to progress through the various pathways to employment at a mine. However, a lack of career progression for those with aptitude can be a major source of frustration and has been a source of criticism of the industry in the past (Banerjee, 2001). O’Faircheallaigh (2004) for instance, partially attributed the lack of progression of local Aboriginal employees at the Ranger mine to deficient company employment and training programs. These issues are now being addressed by some mining operations. For example, in the case of Pilbara Iron, there will be increased representation of Indigenous employees within skilled and supervisory positions if the current group of apprentices complete their training and opt to stay at the operation (Taylor & Scambary, 2005). Efforts are also under way to increase the number of Indigenous engineer and geoscience graduates (Katz, 2005).

The integration of Indigenous people across all operational areas of a mine is likely to diversify the types of skills sets that are developed, limit disproportionate layoffs of Indigenous employees during economic downturns and increase the transferability of skill sets beyond the mine.

Do communities benefit from mine skills?

It is likely that different mine phases present different impacts on the level of skill availability in affected communities. A large scale mining operation can leave a skills vacuum or a 'brain drain' in local communities, especially during the start-up phase, as skilled workers leave their jobs in the communities to pursue work at mine sites. This point is illustrated by the following quote from Taylor & Scambary (2005) study of the Pilbara region:

“We got to target the young to do it because this age group now, the ones who are in the 18s are getting lost and dependent. On the other side of the coin, the good go, the educated who want to do something they can go on and do things. They go in the mining companies, or wherever. Then we are left with the ones who aren't fortunate. But where it starts to fall down is that we need workers in the community, and we haven't got the real skilled people in the community. They spend too many hours in the mining industry and have no time for family. We have lost kids here now as a result of that” (Interview segment 12 in Taylor & Scambary, 2005: 61).

This scenario can present an opportunity for up-skilling other local Aboriginal people to fulfil these roles in the communities, if enough planning and adequate training is provided to capable candidates; or it might mean needing to import workers from outside to fill these roles. During the operational phase and especially upon mine closure, there is also a chance that people might leave their communities and move elsewhere to pursue other opportunities including further skill development. Closures of large scale mines that employ substantial numbers of Aboriginal people is yet to occur, so the impacts on the communities are not known. However, experience from other closure events suggests that these impacts will be significant.

Further research is required to determine the type of skill sets that are obtained at mining operations and how mine work affects skill development outside of a mine. Which skills acquired from working at a mine are most transferable, in what contexts and how do they contribute to the Indigenous employee's personal development? Leadership qualities and skills developed in supervisory roles are clearly transferable beyond a mine, whereas some technical skills such as operating a minerals processing plant, may be industry specific. To what extent is it possible to align the skill requirements and commercial imperatives of mining operations with those of Indigenous individuals and the communities? In relation to Century mine, Hall & Driver (2002) recommended that the Queensland Department of Employment and Training support the improvement of economic and social opportunities in the local communities to influence locational decisions. However, this raises further questions about the degree to which local economies can reabsorb Indigenous mine workers in the local economy once a large-scale mine closes. Is retraining and assistance with other job searches required upon approaching closure? How do the skills obtained by Indigenous mining employees compare to those of non-mining Indigenous employees in the region?

GENDER RELATIONS

Levels of employment of Aboriginal women vary over time and within the industry. In the case of early Aboriginal engagement in mining in the Pilbara region of Western Australia, women were valued workers of Pindan's mining division, so much so that a child-camp allowed them to work fulltime at this Aboriginal owned company (Wilson, 1961 in Holcombe, 2004). However, modern mining is a male-dominated industry. According to the 2001 Census, Indigenous women represented only 11% of the Indigenous mining workforce (ABS, 2001). This was slightly below the level of female (14%) representation in the non-Indigenous mining workforce (ABS, 2001) although it should be noted that a large proportion of non-Indigenous females work in corporate offices rather than at mine sites.

The challenges of mining employment appear to be more acute for Aboriginal women than men. The ABARE survey reported that 77 per cent of responding sites did not employ any full-time Indigenous women workers, compared to 40 per cent that did not employ any full-time Indigenous male workers. More recent data from the large-scale Century mine in northwest Queensland indicates that females represented a considerable proportion of the Aboriginal workforce (30 to 40 per cent) between 2001 and 2003 (Barker & Brereton, 2004). Century thereby shows that levels of higher employment of Aboriginal women are achievable, even if this situation is not typical.

O'Faircheallaigh (1996) pointed out a decade ago that little research has been conducted to understand the importance and interplay between the various causal factors that have led to differential employment outcomes for Aboriginal women in mining; this remains true today. A case he refers to is the Cape Flattery mine in north Queensland. At the time of O'Faircheallaigh's study, no Aboriginal women had been employed for 20 years, despite a relatively high level of Aboriginal employment at this operation. O'Faircheallaigh (1996) attributed this to prejudicial company employment policies that existed at the time, as the dominant views of women in the nearby Hopevale community did not prevent them from engaging in mainstream employment. Factors that can impact upon the participation of Aboriginal women in mainstream employment more generally include: family responsibilities, sole parenthood (Hunter & Gray, 1999), lack of adequate maternity leave and pay, male dominated culture and occupations, differential educational levels, dominant views of women in waged employment in Aboriginal communities (O'Faircheallaigh, 1996), and the availability of alternative sources of employment such as traditional hunting and gathering (Hunter & Gray, 1999). Whether the desire to work within a mining workforce is gender determined also requires further investigation.

Little is currently known about the occupational distribution of Aboriginal men and women across operations, such as the extent to which Aboriginal women are represented in traditional female (e.g. administration) versus male dominated (e.g. mining operator) roles. What are the career aspirations of female Aboriginal mine workers and do these differ from their male counterparts?

The type of impact that employment of Aboriginal women within the industry may have in the social sphere also requires further investigation. Have industry employment practices changed or reinforced existing gender divisions in Aboriginal societies? What are the impacts on relationships, family and cultural responsibilities? How do female

miners balance home and work during different life stages (single, partnered/married, child bearing and child raising)? What are some of the coping strategies that have been adopted to allow Aboriginal women to cope with working in a male, non-Aboriginal dominated industry? What benefits has employment in the industry provided them?

The benefits that mining employment brings to Aboriginal women can be hard to determine. For example Aboriginal women may be employed by a mine for a short period of time to gather seeds for mine rehabilitation, but this may be at the price of a lack of access to a mining lease traditionally used to harvest seeds and other sources of non-market production and the possible loss of vitality of these areas upon mine closure. On the other hand, there are also cases where indirect support by a mine appears to have helped pre-existing forms of production. According to Gibbs (2005), the occasional lending of a chainsaw and vehicle to Wongatha women by the Granny Smith mine in Western Australia, has supported them in their harvest of wood, quandong (native peach) and sandalwood seed for their crafts.

HEALTH OUTCOMES

The impact of mining employment on Indigenous health status remains poorly understood and has only relatively recently been incorporated into baseline socio-economic assessments. Health in the broad sense of the word encompasses both mental and physical well-being. Good health is a precursor to obtaining work; it affects the ability to retain work; and could also be an outcome of work. As mentioned previously, the relatively poor health status of Indigenous people is often a barrier to gaining work and affects every facet of life of both the individuals involved and those caring for them (Taylor and Scambary, 2005). Taylor and Scambary (2005) have demonstrated the size of the problem in the Pilbara by estimating that the proportion of Indigenous people who are excluded from employment due to health reasons could be approaching the size of the mainstream Indigenous workforce in that region. Fourteen per cent of respondents to a survey of Aboriginal former employees of Century Mine also cited medical reasons as the main reason for leaving work at the mine (Barker & Breerton, 2005).

If operations aim to improve local Indigenous employment levels, then it is vital to gain an appreciation of the pre-existing health conditions in their local and wider community, to monitor and respond to relevant issues. Chronic health issues in communities can exert heavy pressures on Indigenous employees, such as the need to look after sick relatives, especially in communities that lack appropriate health services and health related infrastructure.

What are the possible health effects of mine work ?

Health can be both positively and negatively impacted by employment in the minerals industry. Historically, the industry has had a deserved reputation for being quite hazardous. Occupational hazards at mines can include the presence of explosives, large pieces of equipment, dust and noise exposure. In 2003-04, the fatal injury frequency rate for the Australian mining industry was about 10 times higher than what is considered to be the 'safe' industry rate (MISHC, 2005). This figure, however, also represents a significant improvement in OHS performance within the last decade (MISHC, 2005). This is largely due to much improved OHS. The Australian minerals industry is now generally known for its stringent health and safety requirements.

Mine emissions or discharges into the environment can be sources of health concerns on a wider scale (Lyle *et al.*, 2006; Supervising Scientist, 2004). In 2005 Indigenous ex-workers and families of the Baryulgil asbestos mine in northern New South Wales, were still seeking compensation for asbestos related illnesses and deaths, thought to be induced by working and living near the mine that closed more than a quarter of a century ago (ABC, 2005). James Hardie, whose subsidiary was a previous mine owner, estimates that around 350 people were employed at the Baryulgil asbestos mine and that the population of the nearby Aboriginal Baryulgil community fluctuated between 100 and 200 people (James Hardie, 2005). These estimates indicate that exposure to asbestos dust could have been quite extensive. Health monitoring strategies, including periodic checks of blood lead levels of workers at lead smelters, are now considered good practice.

Further research is required to determine the overall net effect of employment on the health of Indigenous employees, their families and communities. For instance, how do the potential health hazards at mines compare to those in the communities from which Aboriginal mine workers are drawn? What are the effects of mine shift work on sleeping patterns? Do changes in the availability and nature of food at a mine improve or exacerbate diseases such as diabetes and obesity? Is an increase in income and general socio-economic status of Indigenous employees associated with improved health status and, also, how far does this extend?

At the Century operation there appears to be a range of outcomes. Hall and Driver (2002) observed the positive contribution of the mine mess and the canteen's alcohol consumption rules on personal health management for longer-term Indigenous trainees and employees. However, they also commented that "there is considerable anecdotal evidence that the higher incomes (up to \$70,000 per annum for employees) can be utilised to perpetuate and even exacerbate unhealthy and unsafe lifestyles, especially in terms of enabling increased consumption of alcohol for individuals, nuclear and even extended families" (Hall and Driver, 2002:31).

There is conflicting information as to the extent to which health and safety awareness at Century mine has affected the Gulf communities. On one hand, there are indications that greater awareness has transferred beyond the 'mine gate' and has been applied in the Gulf communities (Trebeck, 2005). On the other, Hall and Driver (2002) observed that there was little evidence that health management skills were being transferred to the wider communities, although they speculated that transfer of health education to family members improved by having more family members in the mining workforce and that transference may be better for families of Aboriginal female trainee participants (Hall & Driver, 2002).

Health effects may be hard to attribute to particular stints of employment and may take a long-time to manifest. Health effects will also depend on such factors as pre-employment health status, individual attitudes towards health, dominant attitudes towards health at a mine site and in communities, the type of ore being mined (i.e. uranium versus mineral sands), the extraction method (i.e. the level of hazard involved), job type (i.e. different levels of exposure between a truck driver versus someone who works in an office environment), workplace health and safety standards and length of employment at the mine.

DISCUSSION

The outcomes of mining industry employment for Indigenous workers, their families and communities cannot be considered solely in terms of the payment of salary/wages and the development of occupational skills. These, and other work dimensions are also impacted on and influenced by Aboriginal socio-cultural relations.

Given the pressing socio-economic circumstances of many Aboriginal communities, employment in the minerals industry is likely to be attractive to a proportion of people living in these communities. However, employment in mining should not equate to a loss of Aboriginal culture if this is not a desired outcome of Indigenous people. If mining is fundamentally contradictory to Aboriginal culture, or if employment practices within the industry prevent the practice of Aboriginal culture, this can result in substantial cultural impacts. As mentioned previously, further research and more sophisticated analytical approaches are required to determine whether this presents a dilemma for Indigenous miners, how they and members of their communities negotiate these and other issues, what the alternative options are, and what these effects are in context of broader changes to Australian Indigenous affairs, land and Native Title rights.

A common theme running through all of the impact dimensions considered in this paper is that benefits to Indigenous mine workers do not necessarily accrue to their families or communities from which they are drawn. Mediating factors can include conditions prior to the development of a mine, the aspirations and decisions of the people affected, mobility patterns, the effects of different mine phases, the level and composition of the Indigenous workforce and the degree of sophistication of Indigenous employment programs and practices being applied at a mine. In order to develop a broader understanding of the outcomes of Indigenous employment, a comprehensive monitoring framework is required. A research approach to inform the development of such a framework is proposed below.

Proposed Indigenous employment research framework

- **Research partnership approach – Indigenous cultural framework is key**

For the reasons stated at the outset of this report, the research agenda for Indigenous employment needs to be developed within an Indigenous cultural framework to provide meaningful outcomes. The MCA's *Enduring Value* framework recommends that signatories:

“undertake social and economic research and assessment in partnership with communities and appropriate organisations to support planning and development of operations with subsequent management review of social and economic effects through the whole cycle” (MCA, 2004a: 23).

Taking this one step further and adding culture to the mix provides an avenue through which to pursue Indigenous employment research. Universities can provide a neutral forum and bring cultural, socio-economic analytical skills to hand; experienced mining industry personnel and relevant government agencies can provide employment management practice know-how, data and the monetary means to undertake the research; and Aboriginal mine workers, organisations and community members can

provide knowledge and perspectives of their experiences and insights into the development of relevant measures to monitor outcomes⁹.

Such an arrangement presents the opportunity to train Indigenous people in social science research techniques. Aboriginal people who are versed in both Aboriginal worldviews and social analytical techniques will be valuable contributors in mining regions. There is also the opportunity to decrease reliance on outside researchers and increase internal capacity to monitor long term Indigenous employment outcomes within these regions.

- **Develop appropriate conceptual frameworks, measures and monitoring procedures**

The incorporation of Indigenous cultural frameworks into Indigenous employment research is integral to developing meaningful explanatory frameworks that adequately convey the interlinking and sometimes, reinforcing aspects of Indigenous employment. Indigenous employees and community members are the ultimate possessors of knowledge about how mine work affects them and this needs to be reflected in any research strategy that is developed. Strategies to incorporate Aboriginal people into the research process include: the use of Aboriginal perspectives to set research agendas; the involvement of Indigenous researchers; and the application of Indigenous concepts to develop appropriate methods to monitor outcomes.

Indigenous employees, community members and researchers themselves are core to this process. What are the key aspects of Indigenous employment that requires research in different contexts and how do they relate? What questions need to be prioritised, which are appropriate to ask and share with wider audiences? It is also important to move beyond the one-directional notion implicit in the term impacts, as Indigenous employees and others can be active agents in the changes that are brought about by mining employment.

The preceding discussion has highlighted the need to develop appropriate measures prior to the start of a mine, during the operation and post-closure. Various opinions about Indigenous employment outcomes are likely to exist amongst stakeholders, so developing a suite of diverse measures that enable divergent views to be tested, can help to build a shared understanding of the impacts.

The adaptation of a standard social and institutional capital survey to the remote Aboriginal community of Wadeye in the Northern Territory is an example of such an approach. The survey revealed that there was strong social capital within Wadeye, but abject poverty in the economic and health domains (Memmott & Meltzer, 2005). Furthermore, the nature of social capital differed substantially from those in the non-Aboriginal domain, with respect, trust, reciprocity and linkages to natural capital featuring strongly and unity less so (Memmott & Meltzer, 2005). The incorporation of Aboriginal input into the development and interpretation of such instruments should be considered and applied at different stages of the mine lifecycle.

⁹ Existing organisations such as the Cape York Institute for Policy and Leadership may be useful avenues through which to pursue these initiatives.

Further consideration also needs to be given to what measures are adopted; specifically, in terms of what their underlying assumptions are and what information they convey. For instance, if skill development of Indigenous employees is of interest, then the completion of training courses alone does not capture this information. The failure to complete a mining training program does not necessarily imply that no skills or knowledge have been imparted. Conversely, the number of Indigenous people employed is unlikely to convey the extent of skill development. Those individuals who have entered the mine workforce less 'work ready' may gain more mine related skills, than those with previous work experience at another mining operation.

Not all of the questions relating to the outcomes of Aboriginal employment in mining can be measured adequately using existing data sources. A multi-cultural and multi-disciplinary research approach can lead to the development of relevant methods to evaluate the outcome of Indigenous employment. Appropriate reporting and information storage procedures also need to be developed to disseminate research findings between parties, including the mine workforce, host communities, Indigenous organisations, relevant government authorities and research organisations.

- **Improve site-level monitoring and reporting**

The development and implementation of appropriate Indigenous employment monitoring and reporting procedures is essential at each mining operation (Tiplady, forthcoming). This paper has focussed on some of the employment outcomes of Indigenous employment at a select number of mining operations, but has not considered other employment opportunities that an operation can create beyond the mine site.

Up to date and accessible information about the contributions of mining operations to Indigenous employment remains scarce. For instance, according to information from industry sources, skill audits have been performed at least at one operation prior to start-up and are periodically undertaken to monitor the impact of local training and employment initiatives in communities around the mine. Granting of awards and public recognition of top performing Indigenous traineeship and apprenticeship graduates are also common practices. However, to assess the overall contributions of mining operations to Indigenous job skill development, skill audit information needs to be readily available in the public arena.

Collection and reporting of Indigenous employment data and regular monitoring needs to be standard across the whole industry, to enable a full and complete picture of Indigenous employment contributions in the Australian mining industry to be provided. Ideally, this should include small-scale operations, exploration companies and mining contractors. Disclosure of this type of information leaves companies open to scrutiny, but provides a crucial indicator of the industry's commitment to Indigenous employment.

- **Collect regional level data**

Aboriginal people and communities in mining regions can be impacted by the presence of several mines of various sizes over time. Examples include the proposed development of the Aurukun bauxite resource by Chalco, the existing Comalco Weipa operation and the Alcan lease on western Cape York, the numerous coal mines in New South Wales's Hunter Valley, the Carpentaria-Mount Isa mineral province in Queensland

and the Pilbara region in Western Australia. In these situations, what is needed is a regional approach, such as the Indigenous baseline profile for the Pilbara region prepared by Taylor & Scambary (2005).

Benefits of a regional approach can include:

- sharing of data (e.g. demographic data) and learnings amongst organisations thereby reducing duplication
 - monitoring of impacts beyond a single mine lifecycle
 - enhanced ability to contribute to regional planning processes
 - greater ability to factor in the diversity of Indigenous experiences (e.g. between different communities)
 - opportunities to build the capacity of regional based Indigenous people and organisations to undertake research and monitoring of Indigenous employment outcomes
 - economies of scale in the resourcing of research projects.
-
- **Undertake comparative work**

Adopting a comparative approach will help provide a clearer understanding of the impacts of mining employment on Indigenous people. For example, how do the outcomes compare with those associated with working in other mainstream industries, the customary Aboriginal economy, and the welfare economy? To what extent and in what ways are the experiences and outcomes different than for non-Aboriginal miners? It is essential that these questions are addressed to determine whether Indigenous employment in the mining industry does provide a net benefit for Aboriginal people and communities, as well as assisting mining companies to meet their business objectives.

CONCLUSION

Indigenous employment in the minerals industry can potentially have wide-ranging outcomes for Aboriginal people. However, to date there has been little research conducted into the nature and scale of these outcomes. Efforts to improve Aboriginal employment levels within the industry need to be coupled with a concurrent research and monitoring program to help inform policies and practice in the area. This should be done within a culturally appropriate research framework and by employing a regional perspective where appropriate. Strategies to incorporate Aboriginal people in this process can include: the use of Aboriginal perspectives to set research agendas; the involvement of Indigenous researchers; and the application of Indigenous concepts to develop appropriate methods to monitor outcomes. The Australian mining industry is a significant employment contributor in mining regions and is often located near Aboriginal communities or land with Aboriginal interests. The mining industry therefore is ideally placed to develop an inclusive approach to evaluating the outcomes of Indigenous employment initiatives and, in doing so, can provide a model for other industries

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