

CSR, Sustainability, Ethics & Governance

Series Editors: Samuel O. Idowu · René Schmidpeter

Martin Brueckner

Angela Durey

Robyn Mayes

Christof Pforr *Editors*

# Resource Curse or Cure ?

On the Sustainability of Development in  
Western Australia

 Springer

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## *Series Editors*

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Martin Brueckner • Angela Durey •  
Robyn Mayes • Christof Pforr  
Editors

# Resource Curse or Cure ?

On the Sustainability of Development in  
Western Australia

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# Foreword

*People do not simply look out over a landscape and say 'this belongs to me'. They say, 'I belong to this'. Concern for familiar topography, for the places one knows, is not about the loss of a commodity, but about the loss of **identity**. People belong in the world: it gives them a home.*

(Jacobs 1995: 109, original emphasis)

This comprehensive collection of essays on the social and economic impacts of contemporary resource exploitation in Australia is a welcome contribution to a much-needed public debate. I will leave to others the task of assessing the probable ratio of curse to cure; my focus is on the continued neglect in our political discourse of the long-term impact of mining on our place, our heritage, generally understood, and particularly on our Indigenous heritage.

In my home state of Western Australia, government and commerce alike are still built on the expectation that minerals and fossil fuels are infinitely available and their development universally beneficial. To demur from this narrative, to point out cumulative harms or to suggest the need for a more diversified economic base less reliant on the unpredictable trajectory of resource prices is to invite severe censure and accusations of unrealistic thinking. Despite the history of regular (and often destructive) booms and busts, the official line still gives priority to resource exploitation over other values which are important to the community—the conversation, as this volume confirms, is almost always cast in terms of the need for continued economic growth and the economic losses which will be incurred if we act to protect our cultural and environmental heritage; economic imperatives almost invariably prevail when contests about land use emerge.

Perhaps part of the explanation for this fixation lies in the rich spoils from the first mining boom in WA's Goldfields. In his *Australian dictionary of biography* entry, Cowley observes that "The Forrest government was extraordinarily lucky. While the eastern colonies were suffering from droughts, depression, unemployment, financial crises and bank crashes, one new goldfield after another was discovered in Western Australia, especially after the discovery of Coolgardie (1892) and Kalgoorlie (1893). Hundreds of companies were formed in the eastern

colonies and in London to exploit the gold deposits and much capital flowed in for investment in mines, business and property”.

This is a familiar Western Australian story and one which successive governments have sought to replicate—including in grabbing the glory. But these are different times as this volume attests. What our forebears saw was a land of promise and plenty with no apparent limit to what the feats of human ingenuity could achieve in pursuit of economic growth. What we have inherited, alongside material prosperity, are serious problems such as resource insecurity, income inequality as wide as that in Portugal, a rising cost of living burden on the least well off, pressures on families imposed by a fly-in/fly-out lifestyle, environmental degradation and the destruction of Indigenous heritage: there is a downside to mining. In this timely and wide-ranging collection, these downsides are given thoughtful attention.

Some of the most difficult conversations to have in Australia are those which seek to explore the heritage value of our places and landscapes. It appears that our governments generally underestimate the importance of place to our well-being. They appear to ignore the reality that our shared sense of belonging is rooted in the heritage places and landscapes to which we attach meaning and significance; the destruction and neglect of important places scars us deeply. We do not simply *exist* in an environment; we also derive meaning and succour from it. And these meanings are not just individual ones but are part of the shared fabric of the broader culture and social structure within which we live.

A growing research literature in the social sciences underlines the importance of a sense of place and feelings of attachment to a place or neighbourhood in shaping our identity, our sense of belonging and our well-being. Conversely, it shows that rootlessness and alienation result when cherished places, spaces and settings are destroyed or irrevocably changed beyond our control; most of us experience a sense of loss and grief. Most people have robust emotional bonds to their places and the communities in them, although these links may be eroding as people become increasingly mobile. This is a particular problem for us in the fly-in/fly-out state—people simply don’t know enough to see the changes, the degradation and the loss.

This has profound implications for Indigenous heritage, which is often damaged by resource development. Part of the problem is that the nature and extent of Indigenous cultural heritage is unknown to much of the community, with the result that we do not really know what is being destroyed. In fact, surveys and assessments of Indigenous heritage are often funded and undertaken in response to specific threats from development projects. Record—then destroy.

We know that Australia’s Indigenous people view their world as an interconnected whole: they make no intrinsic distinction between the lands, waters, the plants and animals and the culturally significant sites and objects linked to the traditional knowledge, which lie at the heart of Indigenous culture and identity handed down through the generations. Such traditional knowledge can only be kept alive through use and application in the country to which it is tied. Protecting land and places and promoting cultural practices (especially languages and creative expression) are both crucial for the maintenance of traditional knowledge. Where

such use and application are disrupted, as is often the case with resource extractive industries, cultural heritage in the broadest sense is under threat. Activities carried out by the mining and gas industries may result in the removal or degradation of features which form an important part of Indigenous heritage and of our heritage more generally—landscapes, habitats, rock art, ancient story lines and geological formations. In the rush to feed and fire, the steel mills of China we barely stop to consider the loss that this represents.

Anyone who's been paying attention to Australian public debate over the last few years can't have failed to notice that there's been a lot of talk about values. Heritage, of course, is about values—or more precisely, what we value from our past, what we are prepared to protect and conserve and to pass on to future generations. The chapters in this volume trace the ways that complex environmental, social and community heritages and values are being trampled by the rush to feed the resource boom. The sites, landscapes and places which we can be galvanised to protect are, in some ways, an indication of what matters to us and what we think of ourselves. Our actions speak louder than words.

Perth, Australia  
2 October 2013

Carmen Lawrence

## Reference

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# Foreword

More than three decades ago, at the end of the premiership of Sir Charles Court, a group of social scientists in Perth conducted a wide-ranging and critical assessment of the rapid mineral resource development that was transforming the economic, social and environmental fabric of Western Australia. The collected essays (*State, Capital and Resources in the North and West of Australia*, eds E. Harman and B.W. Head, 1982) demonstrated the growing strength of a developmentalist ideology in Western Australia linked to mineral wealth extraction, close links between state ministers and large foreign corporations, use of special legislation to give statutory force to major project agreements, displacement of Indigenous stakeholders and little concern for environmental values. Similar processes were also occurring in Queensland and the Northern Territory, and the resources boom clearly had national consequences. Federal/state tensions were increasingly evident in terms of disputes about export controls and the distribution of benefits from mineral revenues. There were also conflicts emerging between mining interests and those of farming, tourism and manufacturing. In the wake of an earlier export boom, the ‘Gregory thesis’ had already drawn attention to trade-related distortions arising from a higher dollar, with negative impacts on import-competing manufacturing and services. Finally, a handful of voices were calling for the establishment of a public fund (as in Alberta or Norway) to help moderate the effects of the boom-and-bust cycle and to protect the interests of future generations as natural resources inevitably became depleted.

More than 30 years later, the publication *Resource curse or cure? On the sustainability of development in Western Australia*, edited by Martin Brueckner, Angela Durey, Robyn Mayes and Christof Pforr, has come at a very timely moment. This excellent new collection of essays provides a detailed and comprehensive analysis of the uneven development associated with recent stages of the resources boom in Western Australia. Resource development—as an ideology and as a set of developmental practices—has continued to be supported by all major political parties, because mining investment has generated wealth for investors, revenues for government and incomes for many workers and suppliers linked to the minerals industry. Some factors, as is evident from the contributions to this volume, have

inevitably changed since the 1970s; the mix of commodities being mined, their modes of extraction and transportation, their key locations, methods for housing employees in remote mining centres, the fly-in/fly-out workforce and their patterns of interaction with established urban services. Native title legislation in the 1990s provided new frameworks for direct negotiation with traditional owners concerning access and benefit-sharing. However, the recent intensification of minerals development has been transformational in embedding resource development as the growth engine of the Western Australian economy.

While private investment is the driver of resource development, the role of government, as highlighted throughout the book, remains very significant in shaping regional strategies, providing social and community services and planning the physical infrastructure essential for economic growth. Governments since the 1980s have espoused a mix of goals and policies that embrace ‘sustainable’ development across a range of dimensions: social, economic, environmental and locational. These are very often in tension. One of the great strengths of this book is to document and assess these tensions and inconsistencies in the growth path charted by the government and business consortia that have been transforming Western Australia.

Brisbane, Australia  
30 October 2013

Brian Head

# Preface

In June 2011, the Sustainable Regions and Communities Working Group at Curtin University, Western Australia (WA), held a workshop examining the challenges and opportunities for sustainable wealth creation in Western Australia. Unsurprisingly, with WA being one of the world's largest resource provinces, much discussion centred around mining and its economic contributions as well as its social and environmental costs. The presentations and stimulating discussions on the day gave rise to this book's 'resource curse or cure?' theme. This edited collection continues the conversation begun over three decades ago in *State, capital and resources in the north and west of Australia* by Elizabeth Harman and Brian Head. We hope this volume will contribute to, and expand, the much-needed debate on resource-led development in the state. While this is a book about WA, the issues addressed in this volume speak to the broader development and globalisation effects experienced nationally and indeed internationally. The contributions show WA's embeddedness within global markets and its local effects. This volume highlights the centrality of the periphery that is WA.

Perth, Australia  
6 November 2013

Martin Brueckner  
Angela Durey  
Robyn Mayes  
Christof Pforr



# Acknowledgements

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Perth, Australia  
6 November 2013

Martin Brueckner  
Angela Durey  
Robyn Mayes  
Christof Pforr



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**Diana MacCallum** is a lecturer in Urban and Regional Planning at Curtin University, Perth, Western Australia. Her main research interests are centred on the social and political aspects of urban and regional development: governance discourses and practices, politics, grassroots action and community development, particularly in the context of global change and uncertainty. She is the author of *Discourse dynamics in participatory planning: Opening the bureaucracy to strangers* (Ashgate 2009) and co-editor of two books on social innovation: *Social innovation and territorial development* (with Frank Moulaert, Jean Hillier and Serena Vicari-Haddock; Ashgate 2009) and *The international handbook on social innovation* (with Frank Moulaert, Abid Mehmood and Abdelillah Hamdouch, Elgar 2013).

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**David Newsome** works in the School of Environmental Science at Murdoch University. His teaching and research interests span natural area tourism including wildlife tourism, the biophysical impacts of recreation in protected areas, evaluation of the quality of ecotourism operations, sustainable trail management and geotourism. David has coordinated research projects for the Australian Government funded Sustainable Tourism Cooperative Research Centre related to understanding the importance of wildlife icons, investigating the nature of impact creep and the development of a wildlife tourism auditing framework. He is a member of the Conservation Commission of Western Australia and chairs the Commission's National Park Management Planning Committee. David is on the Editorial Boards of the *Journal of Ecotourism* and *Tourism in Marine Environments*.

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**Kim Scott** grew up on the south coast of Western Australia and is proud to be one among those who call themselves Noongar. He is an academic and novelist. His most recent novel is the multiple award-winning *That Deadman Dance*. Kim lives in Coolbellup, Western Australia and is currently employed at Curtin University.

**Anthea Wesley** is a doctoral student nearing completion at Curtin University. Her research focus is situated under the broad scope of industry–political–community relations across the resource and tourism industries. Her research interest has necessarily become multidisciplinary exploring literatures in business, geography, public policy and philosophy, such as corporate social responsibility, governmentality, spatiality and discursive power.

# Part I

## Resource Curse or Cure? Framing the Debate

Western Australia has a proud history of resource development, and extractive industries have long played a critical and formative role in the economic, social and political evolution of the state. Today, more than ever before, the resource sector is axiomatic for the economic advancement of the state and seen as pivotal for its long-term economic future.

In light of the centrality of resource extraction to Western Australia's economy, the question of 'resource curse or cure?' this volume addresses might strike as heretical; after all much of the state's financial wealth is derived from the exploitation of its natural assets. Nonetheless, the curse or cure theme resonates strongly due to the persistence and recurrence of discussions about the costs and benefits of resource-led development in the state and the manner in which the growth of the resource sector is pursued at the levels of government and industry. As identified by Harman and Head (1982) in their compendium of works on resource development in the north and west of Australia these discussions centre around the economic, social, cultural and environmental consequences of mining and the way in which the interests of the resource sector are balanced against competing interests in the political economy. It is these pervasive issues that raise questions about the quality of development, the means and ends of Western Australia's economic endeavours and ultimately their long-term sustainability.

This volume seeks to continue, and contribute to, these discussions, which now occur with the added impetus from Western Australia's most recent resource boom. The combine of the individual contributions to this book provide a multi-disciplinary meta-narrative of resource-based development in the West and offer critical insights into its drivers and consequences. In doing so, it is hoped that this book can be platform for an ongoing informed debate on the sustainability of development in

Western Australia, help challenge entrenched orthodoxies, and aid the articulation of alternative development narratives that can overcome some of the problems that define the resource curse thesis.

## **Reference**

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# Chapter 1

## Confronting the ‘Resource Curse or Cure’ Binary

Martin Brueckner, Angela Durey, Robyn Mayes, and Christof Pforr

**Abstract** The use of the curse or cure dichotomy to frame a discussion around the impacts of mining is an oversimplification, not least in the emphasis on one or the other (as opposed to curse *and* cure). It is, however, a potent trope for engaging critically with the consequences of mining not only in narrow economic terms but also in regard to political, social and environmental costs and benefits. Further, as Goodman and Worth (2008: 201) point out, to engage with the resource curse or cure question is to also engage more broadly with “the internal contradictions of capitalist development” as evident, for example, in divisions “between those who benefit from and those who bear the costs of accumulation” and the many conflicts—political, social, economic, environmental—attending resource extraction. It is in this sense that this volume mobilises the ‘resource curse or cure?’ motif.

### Introduction

This book engages with a conversation that began over 30 years ago. The edited volume by Elizabeth Harman and Brian Head (1982) provided a critical analysis of the state of resource development in the north of Western Australia (WA) and in the

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Northern Territory. In their introduction, Harman and Head raised a series of questions that continue to resonate strongly in contemporary analysis of mining in WA. Their work warned of the potentially adverse impacts of resource development as they relate to matters such as equity, Indigenous rights and environmental decline, which still feature prominently in ongoing discussions about the pros and cons of resource development in the state. Arguably, the last 30 years of resource development in WA for increasingly globalised world markets have brought these issues into even sharper relief. It is for these reasons that this volume seeks to reconnect with Harman and Head's analysis and continue the needed conversation about resource development and its concomitant effects.

Central to any discussion on the curse or cure binary is the question of social, ecological and economic sustainability of development. The sustainability focus taken here is in response to the ideology of 'developmentalism' (Kellow and Niemeyer 1999), which has long characterised resource extraction and been underpinning more broadly approaches to (economic) prosperity in WA. At issue here is the impact of the state's current development trajectory on people and place and whether it leads to improved living conditions and a better quality of life, economic prosperity and good environmental quality for all Western Australians. As questions such as these are at the very heart of the curse or cure debate, the sustainability concept serves as an analytical lens for the synthesis and discussion presented in Chap. 18 on resource-based development in WA. It is also the central theme of a number of contributions to this volume that gauge the performance of both the resource sector and the state as a whole from within the sustainability perspective (see, for example, Chaps. 3, 13, 14 and 16). Importantly, the various chapters brought together here provide a multidisciplinary perspective, which is key to arriving at a richer understanding of resource extraction.

Given the interlinked objectives and themes pursued in this book, this introductory chapter is organised into three parts. Section 1.2 provides a brief overview of the literature on the resource curse and sustainability as it pertains to mining to articulate the analytical lenses adopted for the purposes of this volume. Section 1.3 provides a snapshot of the economic contribution of WA's resource sector as a reference point for other contributions in this volume. The section also points to the less visible side of the resource boom, introducing counter-narratives and subordinate discourses of life in the shadows of the resource boom, some of which individual chapters in this volume will explore further. Finally, Sect. 1.4 offers an outline of the book's structure.

## **Resource Curse vs. Sustainable Resource Development**

### ***The Resource Curse or Cure Thesis***

Prior to the late 1980s, the presence of abundant mineral stores was generally hailed as a boon, in particular for developing countries (Rosser 2006). The resource curse



thesis came to the fore in the aftermath of the global resource boom of the 1970s when many countries showed low rates of economic growth despite acquiring substantial rents from resource extraction (Goodman and Worth 2008).

The understanding that mineral extraction offers a cure derives from a tendency “in developing countries with significant resource endowments” to see foreign direct investment in resource extraction as a means to “set in motion a virtuous cycle of socio-economic change” (Bridge 2004: 225). Put simply, mining is seen to be “the key that converts dormant mineral wealth into schools, homes, ports, and other forms of capital that directly contribute to economic development” (Davis and Tilton 2005: 233). Eloquently termed the “treasure chest theory of resource-based economic development” (Bridge 2004: 225), this understanding of mining’s benefits for Australia is justified in terms of the potential to use the wealth generated from resource exploitation to pay for imports; and the potential or ‘hope’ (see Harman and Head 1982: 12) to develop ‘downstream processing capacity’ as the means to achieve local industrialisation.

Somewhat paradoxically, arguing that mineral wealth associated with mining booms impedes economic performance implies that the extractive sector absorbs financial and human resources so that what remains is insufficient to develop or even maintain competitive non-extractive sectors; state mining revenues can hide economic weaknesses and/or mask the need for reform; and, consequently, facilitate the rise of factional or predatory states with insufficient autonomy to develop coherent economic policies and social welfare agendas (see Bridge 2004). In addition mineral booms can lead to inflation and higher exchange rates, which undermine the viability of non-mineral export sectors, also known as ‘Dutch Disease’<sup>1</sup> (Goodman and Worth 2008; Bridge 2004). These inflationary pressures may be “managed through deflationary policies, including the culling of government social programs” (Goodman and Worth 2008: 205). The finding that “mineral-rich countries perform less well” than those that are resource poor has been widely demonstrated in historical experiences of economic growth and wealth distribution (Bridge 2004: 228 in reference to Auty and Warhurst 1993; Davis and Tilton 2005); the weight of evidence is seen to support the curse hypothesis (Rosser 2006; Goodman and Worth 2008).

However, as Bridge (2004: 229) found in his critical review of a substantial body of literature published in the 1990s and early 2000s, and encompassing a number of developing and developed countries, the debate over whether mining booms present a cure or curse is ongoing (see also Davis and Tilton 2005, particularly in regards to economic development in developing countries). Specifically, the contours of the debate have shifted. Contemporary questions centre on the legitimacy of interpreting connections between limited growth and mineral extraction as causal

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<sup>1</sup> Dutch Disease describes a form of deindustrialization as occurred in the Netherlands in the 1960s following a boom in natural gas production and resultant reduction of manufacturing exports (Bridge 2004; and see Corden 2012 for detail in relation to Australia). Dutch Disease is seen to be one aspect of the broader resource curse phenomenon (Goodman and Worth 2008).

as opposed to “a correlation that masks the operation of other factors (such as weak government and/or degree of ethnic diversity)” (Bridge 2004: 229). Larsen’s (2003) work on the Norwegian experience of rapid growth in the oil industry tested the hypothesis that the resource curse is confined to poor countries, emphasising highly specific local factors in avoiding the resource curse along with a temporal dimension. An ability to develop technological know-how, the particularities of Norwegian political and economic institutions including “strong social norms of equality and solidarity” leading to “patient” and “modest” development, and the reinvestment of oil profits in further development of know-how and technology are cited as the fundamental and possibly unique reasons for what appears to be a temporary avoidance of the resource curse (Larsen 2003: 18). As Larsen (2003: 19) concludes, “the success may have fed its own demise” in terms of an emergent sense of limitless wealth and concomitant pressures to spend oil money on a growing number of social remedies. As Davis and Tilton (2005: 241) note, there is much to learn about “why mining promotes development in some situations and impedes it in others”, but the important questions are those that address the conditions for deriving maximum and broad-based benefits from mining, and avoiding the misuse of opportunities provided by mining (as opposed to avoiding mining). In narrower terms, what is of importance in current debates around the resource curse is not so much its existence but rather how the negative dimensions might be avoided (Goodman and Worth 2008 following Ross 1999). Concurrently, there is a growing interest in understanding how and why some resource-rich countries may be escaping the resource curse, and calls for greater attention to the “role of social forces in shaping economic policies and hence economic outcomes in resource-abundant countries” (Rosser 2006: 566).

As the above suggests, the resource curse is seen not as much as an inevitable consequence of mineral endowment, but increasingly as a product of a range of potentially manageable internal and external factors specific to particular minerals, countries and times (see Rosser 2006). Importantly, this management must encompass what Goodman and Worth (2008) argue are three interrelated, fundamental components: socio-economic impacts, including social division and inequality, and the dominance of externally-owned transnational mining corporations; environmental impacts such as ecological degradation at the local scale and beyond; along with significant political aspects, for example, in terms of clientelism in the form of state support in exchange for private investments in resource developments, and vulnerability to global economic pressures and production networks.

### ***Resource Curse in Australia***

While much of the focus has been on low-income countries (Goodman and Worth 2008), the resource curse thesis is also relevant to industrialised countries, particularly in the form of Dutch Disease, which is a widely-recognised, though complex, situation in Australia (Corden 2012). Whilst this is just one narrow aspect of the

resource curse, as Auty and Warhurst (1993) have pointed out, Dutch Disease can block sustainability goals dependent on developing alternative means of wealth generation for future generations.

Australia's high level, and rapid growth, of mineral exports suggests vulnerability to the broader dimensions of the resource curse, notwithstanding other factors which may ameliorate or exacerbate this vulnerability. This is especially so for WA given its high concentration of mineral endowments and deep dependency on mining. However, the dominant narrative in Australia, and in WA, emphasises its unique or anomalous international position as "proof of potential benefits of resource dependency" (see Goodman and Worth 2008: 206). Wright and Czelusta (2004: 28), for example, offer an account of Australian mining as a "striking success story". Hajkowicz et al. (2011: 37), as a further example, find "that mining is positively associated with income, housing affordability, communication access, educational attainment, and employment at Australian regional scales" and thus argue that there is no evidence of "a 'resource curse' in Australia's mining regions at the whole of local government scale" Others conclude that "the resource curse appears to be alive and well in Australia's latest resource boom" (Goodman and Worth 2008: 216). Among these, Langton (2010), for example, has argued that the curse is amply evident in growing social and economic disparities particularly visible at the level of local rural and remote communities (that is, at the intra-regional level), which affects Aboriginal and non-Aboriginal people not employed in mining.

As we write this chapter, the Australian Government is in the media as host of the A\$127 million International Mining for Development Conference held in Sydney in June 2013 (Garrett 2013). The intention according to the radio reportage is to put Australia "at the forefront of efforts to tackle the resource curse" which in turn is firmly situated as a problem in developing countries and one that Australia has avoided. At the same time, less prominent media sources question this situation. For example, Menezes (2012) argues, in response to the 2012 World Bank working paper asking "Are natural resources cursed?" (De Rosa and Iootty 2012), that "[i]f Australia wants to avoid the 'resources curse' it needs to proactively strengthen its institutions". Indeed, he suggests that the increased reliance on mining could reduce the quality of the country's institutions.

Contrary to widespread perceptions the curse or cure debate is far from settled in Australia. It is thus the intended contribution of this volume to explore the different dimensions of this debate to offer a critical and balanced appraisal of the overall contribution of the resource sector to development, specifically in relation to WA. In this regard, attention will be directed chiefly to the non-economic contributions of mining with a view to balance and complement the usual emphasis on economic orthodoxy.

### *The Sustainability of Development*

Undeniably, resource-based development offers benefits to, and opportunities for, society. At the same time, it harbours risks and poses challenges to environmental,

social and economic sustainability. For the purposes of this book sustainability comprises the three interlocking goals of protecting ecological, social and economic interests (Harrison 1992: 315):

1. **Ecological interests**—maintaining essential ecological processes and life support systems and protecting biodiversity.
2. **Social interests**—safeguarding human health and well-being, equity, social justice and public participation.
3. **Economic interests**—economic development based on efficiency, diversification and cost-effectiveness to improve living standards and quality of life.

The joint pursuit of these interests forms the very essence of what the Brundtland Commission (World Commission on Environment and Development 1987) coined ‘sustainable development’, which became the globally endorsed blueprint for development that was enshrined in the Rio Declaration (United Nations General Assembly 1992b) and Agenda 21 (United Nations Division for Sustainable Development 1992). Despite its popularity and widespread use, we acknowledge the ambiguity (Hurka 1992; Lélé 1991) and intensity of debate (Ayres et al. 2001; Beckerman 1992, 1995, 2002; Daly 1990, 2002; Diesendorf 1997; Dobson 1996; Jacobs 1991; Neumayer 1999; Pearce and Atkinson 1995; Solow 1992) surrounding the sustainability concept with its vague demands for the right balance between social, ecological and economic goals. Vagueness aside, the concept offers basic guidance principles to gauge the quality and social contribution of development.

Three key principles underlying the sustainability paradigm are ‘equity’, ‘futu- rity’ and ‘precaution’. The Brundtland Commission saw the goals of sustainability as meeting human needs today (intra-generational equity) and tomorrow (inter-generational equity) through economic development that stays within the bounds of environmental carrying capacity. This approach foregrounds equity concerns, seeking to ensure that the gap between haves and have-nots is closed, which implies an even distribution of both the costs and benefits of development. The futurity aspect recognises that today’s actions can have profound impacts on future welfare and thus demands that today’s needs are met, yet not at the expense of future generations. Finally, the precautionary principle relates to the treatment of risk and uncertainty. Uncertainty creates problems in that risks cannot be fully understood and quantified. This in turn means that decisions need to be made in the absence of perfect information based judgements on acceptable levels of risk. The precautionary principle, which is enunciated in the Rio Declaration on Environment and Development (United Nations General Assembly 1992b) and the UN Framework Convention on Climate Change (United Nations General Assembly 1992a), serves as a yardstick for decision-making under uncertainty. The principle proposes that (Dovers and Handmer 1995):

- Uncertainty should not delay the implementation of protection measures;
- Actions taken should be anticipatory and preventative; and
- The burden of proof should be shifted onto those proposing development.

The adoption of the principle marks a significant shift in thinking about risk in connection with both social and environmental issues. In contrast to past

approaches of ‘development at all cost’, precaution demands a forward-looking and holistic appraisal of impacts with likelihood, severity and irreversibility of impact determining the acceptability of risk.

The relationship between mining and sustainability is understandably vexed. When judging resource extraction in light of the aforementioned equity, futurity and precautionary demands it is reasonable to suggest mining “fails to qualify as sustainable development *sensu stricto*” (Amezaga et al. 2011: 21). The non-regenerative character of the industry alone raises a raft of futurity and equity concerns as they relate to future resource availability (e.g. peak oil, resource depletion). In addition, there are questions about present and future impacts and risks associated with resource use (e.g. pollution and climate change) as well as distributional effects (e.g. dual speed economies, burden sharing and long-term benefits of mining). It is in light of these problem areas that some commentators regard claims to ‘sustainable mining’ as oxymoronic (Horowitz 2006; Rajaram et al. 2005) and resource companies’ stated commitments to sustainability a “corporate strategy to conceal harm and neutralise critique” (Kirsch 2010: 87).

Then again, sustainable mining can also serve as reference to corporate profits and economic development that will provide lasting value beyond the life of mining projects (Laurence 2011), emphasising the contribution of mining to sustainable development *sensu lato* (Amezaga et al. 2011). This interpretation shifts the focus away from demands of no harm and questions about depletion towards harm minimisation. Sustainability in mining—while seeking to strike a balance between social, economic and environmental interests (Rajaram et al. 2005)—chiefly emphasises the sector’s contribution to development and community well-being; the environmental agenda is one of harm reduction. This approach to sustainability in the resource sector is supported by the International Council on Mining and Metals (ICMM) and aligns with the general principles of sustainability in mining (see MMSD Project 2002). These were ratified by the ICMM in 2003 and are benchmarked against leading international standards (e.g. Rio Declaration, the Global Reporting Initiative, the Global Compact, OECD Guidelines on Multinational Enterprises, World Bank Operational Guidelines). The ten principles of sustainable development in mining which form the centrepiece of the ICMM’s sustainable development framework commit resource companies to:

1. Implement and maintain ethical business practices and sound systems of corporate governance;
2. Integrate sustainable development considerations within the corporate decision-making process;
3. Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by their activities;
4. Implement risk management strategies based on valid data and sound science;
5. Seek continual improvement of their health and safety performance;
6. Seek continual improvement of their environmental performance;
7. Contribute to conservation of biodiversity and integrated approaches to land use planning;

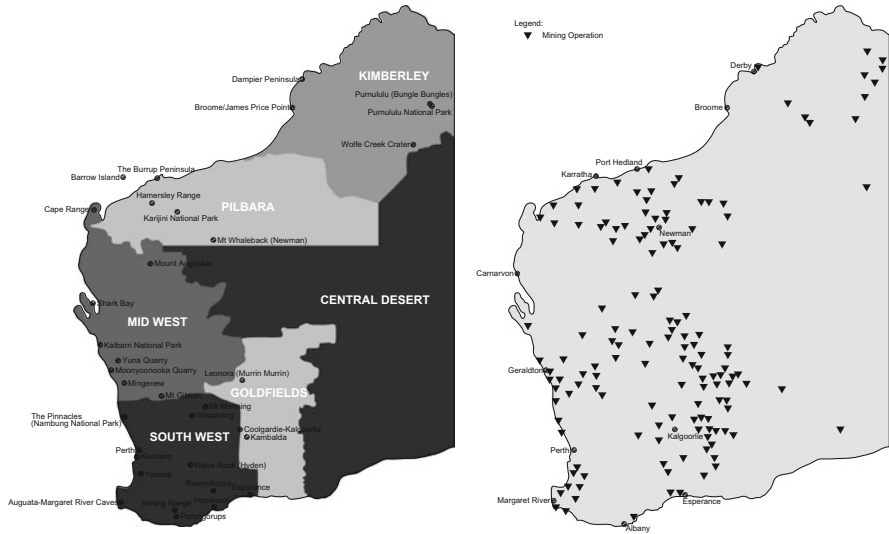
8. Facilitate and encourage responsible product design, use, re-use, recycling and disposal of their products;
9. Contribute to the social, economic and institutional development of the communities in which they operate; and
10. Implement effective and transparent engagement, communication and independently verified reporting arrangements with their stakeholders.

Both literal and more lateral interpretations of sustainability provide the basis for an analysis of the sustainability contribution of the resource sector in WA. Readers of this volume will detect that individual contributions apply their own sustainability frameworks that sit across the continuum sketched above. A final analysis will employ both literal and lateral sustainability lenses, concentrating on the equity and futurity concerns expressed by Harman and Head (1982: 14–15) in relation to resource development.

## **The Dominant Narrative: Western Australia’s Economic ‘Success’**

In recent years, the economic success of WA’s resource sector has been widely publicised, offering much tail wind to political arguments that highlight the importance of the sector to the economic well-being of the state (Barnett 2011; Mining Council Australia 2012; Department of Mines and Petroleum 2011). The orthodox economic discourse, summarised below, featured as the dominant narrative in recent years about WA’s mining boom, especially against the backdrop of the subdued economic outlook and performance of other countries in the aftermath of the global financial crisis (GFC) of 2007–2008. The data presented below serves the purpose of providing (a) an economic snapshot of mining in the state and as such gives a reference point for the ensuing chapters in this volume, and (b) a juxtaposition to the works presented here which focus chiefly on less dominant and at times marginalised discourses on resource development.

When this book was conceived in early 2012, the state stood apart from the rest of the country’s economy, which reportedly had been running at three speeds for a number of years (ABC News 2012). According to CommSec’s latest ‘State of States Report’ (2013), WA still remains Australia’s best performing economy and is likely to hold this top position in 2013 with its economic performance measured along indicators such as economic growth, retail spending, equipment investment, unemployment, construction work, population growth, housing finance and dwelling commencements. This commanding lead has largely been a function of the resource boom with the bulk of Australia’s mineral exploration and extraction activity occurring in WA (Department of Mines and Petroleum 2011). As a result, the resource sector has for a number of years fuelled growth across WA’s economy, helping to keep unemployment low, driving population and income growth and underpinning consumer spending. The centrality of mining to WA’s economy is



**Fig. 1.1** Regions, localities and scale of resource development in Western Australia (based on Geoscience Australia 2013)

shown in greater detail below where a brief overview is presented of mining activities in the state and their economic contribution.

At the time of writing around 1,050 mine sites were operating in WA together with approximately 170 mineral processing plants and over 70 operating oil and gas fields (Australian Bureau of Statistics 2012d), which represent the hub of the state’s economy (see Fig. 1.1). Iron ore as well as crude oil, condensates and natural gas are WA’s key export commodities in terms of export value (see also Table 1.1).

Commodity exports contributed in recent years around 29 % to overall production in WA and represented 95 % of all merchandise exports. This compares to the sector’s contribution to state production of only around 20 % as recently as 2004 (Australian Bureau of Statistics 2012d). The immense growth in mining output and export value can be explained in terms of high export prices and strong growth in demand for key commodities over the last 5 years. In particular, China’s resource demand, which in 2010 absorbed as much as 25 % of all Australian exports (Thirlwell 2011), drove resource production increases across Australia. In WA, the export of iron ore and concentrates, for example, rose over 70 % between 2010 and 2011. Similarly, the export of energy resources such as natural gas rose by over 60 % between 2009 and 2011, elevating WA to the position of one of the world’s leading exporters of natural gases and the largest exporter within Australia with a contribution of 46 % to the country’s total energy exports (Australian Bureau of Statistics 2011c). Despite currently declining commodity prices and signs of economic slowing (Wade and Martin 2012; Sas 2013), the economic contribution of the mining industry is poised to increase further with significant shifts in production levels expected in coming years, especially in the bulk commodities and LNG

**Table 1.1** Western Australia's mineral and petroleum resources in order of value for 2011–2012 (adapted from Department of Mines and Petroleum 2011)

Commodity	Export value
Iron ore	\$61.1 billion
Crude oil and condensate	\$11.6 billion
LNG	\$10.0 billion
Gold	\$9.4 billion
Alumina	\$4.0 billion
Nickel	\$3.7 billion
Others	\$6.2 billion
Total	\$106.0 billion

sectors (Chamber of Minerals and Energy of Western Australia and KPMG 2013). Also, overseas demand for key resources and ongoing investments in the sector and related industries are expected to be enduring (Australian Bureau of Statistics 2012d; National Australia Bank 2012).

State revenue has certainly benefited from the mining boom with the resource sector contributing around 30 %. In 2010–2011 the sector generated \$4.9 billion in royalties paid for the Western Australian Government Consolidated Revenue Fund, which represents a 375 % increase from \$1.03 billion in 2001–2002. The lion's share of collections to the state during the 2010–2011 period came from iron ore operations (69 %) and petroleum (20 %) (Department of Mines and Petroleum 2011). Since 2008, 25 % of the state's mining and onshore petroleum royalties have been distributed annually to the state's regional areas via the Royalties for Regions program (\$817.8 million in 2011–2012). This program seeks to build the strength and vibrancy of regional, rural and remote communities by providing funding to supplement current infrastructure projects, community service programs and competitive grant opportunities (Department of Regional Development and Lands 2011).

The resource sector's growth has been accompanied by strong employment growth in mining. While only 3.6 % of WA's workforce was employed in the sector in 2000 (Australian Bureau of Statistics 2012c), this figure is now believed to have risen close to 10 % with over 100,000 West Australians of the state's 1.2 million-strong workforce employed within the mining and resource industry (Williams 2012). The employment growth is also reflected in the overall population levels in Western Australia. The 2011 census figures reveal that WA's population boomed since the last census in 2006, recording a 14.3 % increase over 5 years (Australian Bureau of Statistics 2012d), helping with long-standing perceptions of WA being underpopulated and underdeveloped (Moon and Sharman 2003). With regards to income generation, the resource sector has been responsible for sharp increases in weekly earnings resulting in five of the state's mining towns ranking among the nation's richest top ten postcodes; the town of Dampier, for example, is leading with 22 % of its residents earning more than \$4,000 per week (Australian Bureau of Statistics 2012a). Overall, income growth in WA outperformed that of all other states, with males employed in mining registering the strongest growth of 33 % between 1998 and 2009 (Australian Bureau of Statistics 2009).



The economic benefits mining delivers in terms of its contribution to state revenue and regional development as well as employment and income are widely seen as the sector's key contribution to the state. The industry's success also aided the state's economic-political rise in the country driven by the growing concentration of corporate power in Perth, the state's capital. Between 2005 and 2009, the number of ASX 300 companies based in Perth rose by 19–63 (Wade and Martin 2012). Notably, the nation's biggest mining company BHP Billiton only recently opened its new high-rise head office in Perth.

Overall, both the state and the nation as a whole benefited economically from the immense investment and production growth in the resource sector over recent years. In the context of an overall depressed economic climate internationally the sector's economic contribution gained even greater public and political attention for it was seen to provide an economic lifeline to WA and indeed the country. Further, in light of its most recent economic success, the resource industry is now also being traded as the engine of future economic growth and well-being in WA (Barnett 2011).

At the same, however, there have been marked downsides to WA's most recent economic success, especially for people outside the mining sector and related industries. For example, with regard to income distribution and material diffusion the income growth triggered by the mining boom has largely been restricted to people employed within the resource sector; a situation also mirrored nationally (Richardson and Denniss 2011). Record income growth in mining has occurred parallel to only very modest income growth in sectors such as hospitality (Australian Bureau of Statistics 2009). CPI-adjusted incomes across most income categories fell in recent years making WA the state with the highest but also most uneven incomes of any state with a Gini coefficient<sup>2</sup> of 0.367 (Australian Bureau of Statistics 2011b).

Income disparities such as these have flow-on effects, especially during periods of growing price pressures. Between 2006 and 2008 household costs increased by approximately \$132 per week or 23 % on basic living expenses as suggested by the Western Australian Council of Social Service (WACOSS 2009). ABS data also point to sharp price rises between 2009 and 2011 in the cost of essential items such as food (7 %), utilities (~32 %) and health (9 %) (Australian Bureau of Statistics 2011a).

The situation is arguably worse in the area of housing. It is estimated that WA's economic boom has attracted around 1,000 new arrivals to the state per week in recent years with the resultant housing demand driving up house prices and the cost of rental accommodation. The Real Estate Institute of WA (REIWA 2013a, b) data indicate the median weekly rent for Perth in the April 2013 quarter was \$470 per week—an increase of 11.9 % from 12 months earlier, which represents close to 75 % of the 2013 weekly WA State Minimum Wage of around \$628 (Unions WA 2013). In April 2013, Perth's median house price reached a new record high at

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<sup>2</sup> The Gini coefficient is a measure of income inequality in a society. Zero indicates total equality, and one indicates maximal inequality.

around \$510,000 (ABC News 2013). Overall, the boom has meant that low-income earners needed to absorb higher costs for basic living essentials and housing with concurrent reductions in real income. This is also mirrored in the statistics of social service providers who registered a growing number of incidences of economic hardship in recent years (Western Australian Council of Social Service 2009; The Salvation Army Australia 2012). At the political level, problems surrounding cost of living increases and housing shortages are recognised. Growing public housing waiting lists, however, attest to a degree of policy inertia despite calls for urgent government action (Community Housing Coalition WA 2012).

In WA's rural and remote regions, mining boom-related impacts are even more pronounced. REIWA (2013a, b) points to median house prices for mining towns like Karratha and Port Hedland at \$790,000 and \$799,000 respectively with a median cost of rental accommodation of around \$1,500 per week. The high wages realised in the mining sector in these parts of the country also stand in stark contrast to the structural disadvantage experienced there. While high incomes are recorded across the Pilbara and Kimberley regions (see Fig. 1.1) where mining occurs, these areas also record high, localised unemployment and low income (Australian Bureau of Statistics 2012b), creating a high-income–low-income dualism in WA, which is reflected nationally in the two-speed economy (Goodman and Worth 2008). As argued by Langton (2010), the mining boom drives and accelerates disparity between towns in WA.

In response to these more pronounced and demarcated 'win-lose' outcomes of resource development, which lie at the very heart of the curse or cure question this volume seeks to address, there is a discernible growth in localised opposition to the path and nature of development in WA (see, for example, Chaps. 3, 4 and 16). Recent high-profile resource development disputes in places such as James Price Point (Bradley 2011), the Burrup Peninsula (Morgan et al. 2006), or the state's South West (Paddenburg 2010; Mercer and Emery 2012) are exemplars of growing community disquiet with regard to proposed or ongoing mining projects. These disputes chiefly centre around cultural, community and environmental values, often in collision with the dominant win-win logic of development, reflecting marked power differentials between communities, industry and government. While WA's resource sector undeniably delivers economic benefits, these are often limited to people working in the industry whilst the costs of the boom are largely borne by structurally weaker and politically less influential community groups across the state. Globalisation processes as well as centre–periphery aspects accentuate further the physical separation between those places and communities bearing the cost of development and those benefiting from it. Many of these adverse effects cannot be attributed to mining directly for they are structural or macroeconomic in nature. Nonetheless, the dramatic growth of the industry in recent years did have large direct and indirect impacts on people and place, which individual contributions in ensuing chapters will explore further.

## **Book Overview**

As these prefatory pages make plain, this book provides a space for the critical appraisal of the economic, socio-political, environmental and cultural state of play in relation to resource development in WA, offering an analysis of how the resource sector is shaping the state, its people and place. To this end, this book is divided into 7 sections comprising a total of 18 chapters including this introductory chapter, with each section addressing different dimensions of the curse or cure theme. Below we foreshadow the structure this book assumes and outline briefly the individual contributions to this volume.

## **Resource Curse or Cure? Framing the Debate**

### *Chapter 2*

John Phillimore's chapter provides an economic and political context for mining and resource development in WA since the Second World War. He offers a descriptive account of the politics underpinning developmentalism from a shift in the 1950s and 1960s to a growth model of resource development.

## **Challenging Frontier Mythologies**

### *Chapter 3*

Glenn Albrecht and Neville Ellis argue compellingly for a more balanced and ethical approach to mining and oil and gas development that articulates the potentially devastating—and often irreversible—social, cultural and environmental consequences of continuing on the same path of privileging short-term economic gain over trans-generational (over millennia) cultural and environmental heritage. The chapter highlights a dialectic in WA between the value placed on developmentalism and the need to recognise the value of places outside of their instrumental, industrial use. The authors present case examples where the actions of large corporations, state government, and the world of private consultants continue the developmentalist discourse over other ethical stances.

## ***Chapter 4***

Anthea Wesley and Diana MacCallum address the corporate social responsibilities (CSR) of the resource industry, drawing attention to the ways in which these responsibilities are framed within Western Australia's political economy and challenged by those at the receiving end of CSR. The recent conflict surrounding the proposed liquefied natural gas precinct at James Price Point in the Kimberley is used as an example to highlight the interactions between industry, government and community spheres which gave rise to the contest. Wesley and MacCallum show that the practice of CSR in the resource industry is more complex, problematic and dynamic than suggested within broader CSR scholarship.

## ***Chapter 5***

Michael Dockery reviews the legal and policy frameworks determining Aboriginal peoples' status in relation to resource development, and examples of best practice in deriving benefits for remote Aboriginal communities from economic development occurring on their lands. In particular, he highlights the tensions between Aboriginal aspirations for maintenance of their culture and achievement measured by mainstream economic indicators. Dockery presents census data measuring Indigenous population and labour market status revealing little improvement in Indigenous unemployment rates associated with mining activity. He poses the uncomfortable question why more benefits have not flown to Aboriginal people who often feel the brunt of the resource curse from cultural destruction and displacement, both internationally and within Australia, citing lack of high quality institutional governance and transparency.

## **Labour Constructions in Mining**

## ***Chapter 6***

Al Rainnie, Scott Fitzgerald and Bradon Ellem critique the prevailing discourse of the WA resource boom as cure—using the framework of global production networks (GPNs) to identify how transnational corporations (TNC) change the dynamics of regional development and are closely linked with government structures and agendas. Using GPN analysis, the authors frame Harman and Head's themes of high foreign ownership in the mineral sector, conflict over resource issues between state and federal governments, strong partnerships between state governments and development companies and the frontier ethos of WA. They highlight how the WA mining sector with its anti-unionist sentiment underpinned national industrial

relations where organised labour was excluded from corporatist settlement and led to the rapid decline in union membership. At a local level, mining companies are shown to have been decisive in repositioning industrial relations in the Pilbara.

## *Chapter 7*

Rod Palmer's chapter draws on his qualitative research into the fly-in/fly-out (FIFO) workforce in the mining industry to examine motivating factors that attract mineworkers to the industry and keep them there. It presents the social and economic benefits and disadvantages of this type of employment in relation to the resource curse or cure dualism. The chapter highlights the tensions experienced by mineworkers between the pursuit of high incomes to meet aspirational lifestyle and financial goals through FIFO work practices and the emotional costs of isolation and dislocation from family and friends.

## *Chapter 8*

Robyn Mayes offers insights into the gendered nature of the resource curse. She examines two core dimensions of women's gendered experiences of mining specifically in WA, exploring what has been, and continues to be, women's principal relationship to mining and addresses the fraught emergence of women as mineworkers. Mayes argues that, though it is rarely acknowledged, the human cost of developmentalism is deeply gendered not only in the past but also in the present. Despite the redefinition of the roles of women in mining over time, dominant and traditional gender constructions remain pervasive and are accentuated further by the resource boom and the growth of the mining sector.

## **(Under)Mining Tourism?**

## *Chapter 9*

In this chapter Michael Hughes addresses the tension between mining and tourism in relation to the proposed gas hub at James Price Point near Broome. While further development of this mining venture has been put on hold, the chapter highlights the need to seriously consider the impacts mining has on other thriving industries such as tourism. While mining can benefit tourism in terms of infrastructure such as improved roads, it also threatens the pristine natural landscape, the culture and sense of place cherished by the community, changing the local demographic with

the influx of FIFO mineworkers into a renowned tourist destination, altering its image as a place to live and visit.

## ***Chapter 10***

Christof Pffor, Ross Dowling and David Newsome highlight the value of preserving WA's geological heritage, biodiversity and ecosystems through the relatively new concept of geotourism. In the face of potentially devastating consequences of mining, finding a balance between resource extraction and conservation is necessary. The authors offer a case for geotourism's potential as a more sustainable alternative to resource extraction highlighting the conservation value of georesources and geotourism's potential contribution to geoconservation. Geotourism can preserve a region's natural heritage and provide economic opportunities for local communities and contribute to regional sustainable development.

## **On the Environmental Dimensions of Mining**

### ***Chapter 11***

Lisa Chandler interrogates the effectiveness of regulating the resource industry and provides a sobering reminder that, despite adequate statutory powers that support rigorous scrutiny of environmental performance in the mining sector, an effective framework to identify compliance with conditions or whether conditions deliver the desired outcomes remains elusive. Chandler argues that equitable regulation of the environmental and social impacts of mining rests on how regulatory authority is implemented, highlighting the need for meaningful, measureable sustainability indicators.

### ***Chapter 12***

Charles Roche and Gavin Mudd draw attention to the importance of addressing not just the direct and local impacts of one mining operation but the cumulative long-term risks of mining overall in a specific region in relation to bioregional, environmental and social impacts. These include pollution, changed landscapes, transport and climate change. They highlight the need for a new approach to the holistic management of mining's impact on the environment. Key questions regarding the legacy of mining are whether WA has systems in place to ensure

it develops its economy from the mining sector and identifies the return for the loss of natural resources and ongoing environmental impacts, including those from abandoned sites.

### ***Chapter 13***

Jonathan Majer examines the impact of the mining, oil and gas industries on Western Australia's biodiversity. He applies the Biodiversity Integrity Index (BII) to five major land uses in Western Australia (namely, agricultural clearing, rangeland grazing, urbanisation, transport corridors and mining) with findings indicating the degree of alienation ('product of loss times area affected') caused by each type of land use. An examination of the extent of land alienation indicates that mining has a small impact when the state is considered as a whole. However the impacts of mining and multiplier effects outside mining are cumulative and increasingly threaten certain ecosystems. Majer therefore highlights the need to consider the overall impact of mining on the maintenance of ecosystems and their associated wealth of biodiversity and whether the risks to society are acceptable.

### ***Chapter 14***

Gemma Broderick and Pierre Horwitz address the multidimensional relationship between water and mining. They highlight how water is central to mining development and the mining debate in WA and reconsider its fundamental value to society beyond a commodity that can be exploited. They argue that current usage of water sources such as aquifers is unsustainable even without mining. The authors advocate for policy development where mining and governments are held accountable for their water usage in terms of societal costs and benefits through, for example, embodying water in mineral products and conducting full cycle assessments to help reduce the impacts of mining on water resources. Continuing to extract water at unsustainable rates and supplying it at costs that are incommensurable with its value undermine future water security for ecosystems and human use.

## **Living the Resource Boom**

### ***Chapter 15***

Robyn Mayes' ethnographic study of the Shire of Ravensthorpe spans the development, operation and eventual closure of BHP Billiton's Ravensthorpe Nickel Operations (RNO). Her study demonstrates how systemic processes inform mining

activity where change is driven by the needs of capital, and analyses the impact of this process on the local community. Mayes explores local experiences with what were perceived as business-centric community engagement practices by BHP Billiton where local communities were ‘managed’ to support industry goals. This included creating environments conducive to business that failed to acknowledge the negative socio-economic consequences at a local community level. The variety and complexity of social and community dimensions of mining were highlighted including the problematic relationships between mining companies and communities, the nuanced and contested benefits and negative consequences, and the way these are experienced differentially within and between communities.

## *Chapter 16*

Martin Brueckner’s chapter highlights that while resources and their economic development are neither inherently good nor bad, their social impact speaks to how, and to which end, development occurs. The current dominant developmentalist narrative in WA portrays economic growth as being indispensable for environmental protection, economic prosperity and social well-being. However, a case study presented on the long-running Wagerup refinery conflict contests this view for it highlights that equity and well-being are integral to social sustainability. Brueckner argues that unless development is human-centered, foregrounding people as the beneficiaries, and their well-being as the very purpose of development, the mining boom can be a curse.

## *Chapter 17*

Kim Scott and Angela Durey’s chapter offers a different approach to relationships between mining companies and local Aboriginal populations—one that centres Aboriginal knowledge, culture and experience as core elements in the relationship. It draws on evidence-based research on the correlation between the health and well-being of Aboriginal people and their connection to land and traditional culture. The chapter offers a case example where the role and potential of cultural awareness training supplied by Aboriginal communities brings their culture and heritage into the mining workforce in ways that respect Aboriginal cultural knowledge, values and experience, enhance Aboriginal health and well-being and build local community capacity. Investing in regional Aboriginal cultures and heritages can immeasurably strengthen a sense of a shared regional, Indigenous heritage *and* build social relationships and a sense of community.



## Resource Curse or Cure? Analysis and Future Directions

### *Chapter 18*

In this chapter the editors offer a synthesis of the works presented in this volume and present an analysis of the key findings using a resource curse and sustainability lens. A final discussion then broadens the WA debate, giving consideration to the effects of neoliberalism and globalisation.

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## Chapter 2

# The Politics of Resource Development in Western Australia

John Phillipmore

**Abstract** This chapter places the past decade of rapid resource development growth within a longer tradition of developmentalism in Western Australian politics and society and the shift in the 1950s and 1960s to a growth model based on “a commitment to resource development by large-scale private capital undertaking large scale projects with assistance at all stages by State planning” (Layman 1982: 163). The chapter examines whether and to what extent the state has moved on from this development model. It begins with a description of the main features of the model *circa* 1982, the time of the last resource boom in Western Australia, and the external and internal challenges facing it at that time. It then outlines how the model has evolved and its political ramifications. The chapter finds that there is significant continuity and broad bipartisanship in Western Australian government policy and attitudes towards resource development, although there have been some important changes to how distributional conflicts have been played out, which has had consequences for party politics.

### Introduction

This chapter places the past decade of rapid resource development growth within a longer tradition of developmentalism in Western Australian (WA) politics and society. As Layman (1982: 149) noted, “resource development has been an objective of all Western Australian governments”. The state has experienced several resource booms, from the Coolgardie–Kalgoorlie gold rush of the 1890s, to the opening up of the Pilbara iron ore industry in the 1960s, and the construction of the North West Shelf natural gas developments in the early 1980s. The latter period led

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Layman (1982), Bolton (1982), Head (1982, 1986) and Harman (1982), to trace in detail the historical contours of development models and ideologies in WA. Layman (1982: 163) noted how resource policy was traditionally one where “individual prospectors and small mining ventures were encouraged . . . [and] state ownership was an acceptable development alternative”. This was superseded in the 1950s and 1960s by a growth model based on “a commitment to resource development by large-scale private capital undertaking large scale projects with assistance at all stages by state planning”.

This development ideology was “one which the Liberal Party formulated and identified as its own” (Layman 1982: 163), guided primarily by the towering figure of former Liberal Premier and Industrial Development Minister Sir Charles Court. The Australian Labor Party (ALP), by contrast, was seen as “compromised by the allegiance it owes . . . to centralism, the working class and unions, environmental and Aboriginal groups” (Harman 1982: 188). Major confrontations occurred between these groups and the resource industry backed by the Liberal government. In addition, there was an economic slowdown in the sector caused by global recession. By 1982, these pressures threatened to “produce a legitimisation crisis of fatal proportions for the Liberal government” (Harman 1982: 189). Indeed, in 1983 a Labor government was elected, bringing with it prospects of a new direction in economic and social development in WA.

This chapter examines to what extent WA has moved on from developmentalism. It begins by describing the main features of the model and its challenges. It then outlines how the model has evolved and its political ramifications. The chapter finds significant continuity and broad bipartisanship in government policy and attitudes towards resource development, although changes in distributional conflicts have had consequences for party politics.

## **The Western Australian Model of Development**

In a landmark book edited by Harman and Head (1982a), several prominent Western Australian researchers outlined key features of resource development in WA. Their analytical starting point was the transformation from development based on promoting small-scale mineral prospecting and farming—which held sway until at least the Second World War—to a new model beginning with the creation of the Kwinana industrial precinct and the development of a blue asbestos mine in Wittenoom in the 1950s (Layman 1982). By the time the iron ore industry in the Pilbara opened up in the 1960s and the North West Shelf gas hub was constructed near Karratha in the late 1970s, a distinctive development model, with accompanying ideology, was in place, consisting of at least five key interrelated elements (Harman and Head 1982b).

First, resource development was highly capital intensive, involving massive investments in large-scale projects, with associated rail and port facilities in many

cases, and offshore gas platforms and onshore processing facilities in the North West Shelf. Second and relatedly, there was heavy reliance on foreign capital and multinational rather than domestic firms. The growth of WA's mineral and petroleum resources was also export based, with Japan as the main customer as it began its rapid industrialisation phase in the 1960s.

Third, the benefits of development were to be spread through economic multiplier effects arising from employment and income generation, rather than by capturing rents through high royalties, public ownership or state enterprises (Harman 1982). The desired path of industrial development was to promote production and export of primary commodities first, but to eventually develop secondary processing industries built on the state's raw materials as and when market conditions allowed and industry had matured sufficiently.

Fourth, WA exhibited a typical 'frontier ethos', with resource development leading to booms in city office construction and property prices, strong migration flows, and efforts to populate and 'civilise' the regions so that the 'Cinderella State' could reach its full potential (Bolton 1982; Harman 1982). International and national competition and the need to capitalise on export opportunities meant that establishing resource projects was an urgent task, and development imperatives therefore outweighed social objectives. Obstruction from internal and external sources such as social movements and the federal government was unwelcome. The fact that most resource projects were located in sparsely populated, underdeveloped and climatically harsh locations distant from Perth added to this frontier mentality.

Fifth, the state government had a central role in attracting, facilitating and supporting development through providing key infrastructure, and being prepared occasionally to underwrite projects through bearing or sharing risk (Head 1982). The clearest example of this was the WA government's agreement to purchase a significant quantity of natural gas to secure the establishment of the North West Shelf development. A system of State Agreements—legislative instruments designed to plan and ease approvals for major projects—signified the partnership approach to development adopted by the WA government. These specified the obligations of both government and the resource company to infrastructure provision; royalty rates and concessions; 'best endeavour' clauses to promote local industry and develop subsequent mineral processing; and assist with approvals (Head 1986: 173).

These five elements also had an important political dimension. They were closely associated with the dominant politician of the era, Sir Charles Court, who had been the industrial development minister in the Brand Liberal government (1959–1971) and then served as Premier from 1974 to 1982. The Liberal Party articulated a clear model of development for WA, connecting Liberal support for 'free enterprise' with development that would lead to economic growth, jobs and improved personal welfare for the state's citizens (Harman 1982: 188). This model resonated sufficiently to result in a long period of Liberal dominance, with the party governing at state level for all but 3 years (1971–1974) from 1959 to 1983.

By the early 1980s, this model was being challenged from both outside and inside WA. Externally, the global recession of the early 1980s had reduced prices and demand for mineral commodities and placed the development model under stress. Internally, three threats were identified: (1) the labour movement and especially trade unions in the Pilbara iron ore industry, who were renowned for their militancy and potential to disrupt mining operations through strikes and other industrial action; (2) environmental activists who were protesting in particular at the impact of bauxite mining near Perth and its contribution to the destruction of the jarrah forest; and (3) Aboriginal groups who were beginning to assert rights to their land and to resist encroachment on it by mining companies, expressed most notably in the Noonkanbah blockade in the Kimberley in 1980 against attempts by an American company to undertake mineral exploration on Aboriginal land. In each case, major protests and conflicts ensued to which the Court Liberal government responded by passing legislation to restrict the rights to protest, strike or hinder development (Harman 1982).

In addition to broadly allying itself with these critics, the Labor opposition and some analysts began to consider a more interventionist role for government to diversify the economy through greater 'local industry content' on resource projects, a new focus on 'high technology' industries, exploring ways to secure a greater return from the resource sector through increasing royalties and even taking an equity interest in resource projects (Head 1986).

## Resource Development Since 1983

The 20 years following the defeat of the Liberal government in 1983 were characterised by significant changes in economic policy and the industrial context within which resource development in WA occurred. These set the scene for the past decade of rapid growth.

A key factor was the economic liberalisation policies of the federal Hawke–Keating and later Howard governments, along with broader globalisation pressures. Initiatives such as floating the currency, removing capital controls, tariff reductions, competition policy, privatisation, tax reform and dismantling centralised industrial relations were generally viewed favourably by the WA government and the resource sector. They had always regarded protectionist policies as disadvantaging the state, given its reliance on international trade and its small manufacturing base (Bolton 1982).

Diversification of the state's commodities base increased with diamond mining in the Kimberley, the first exports of natural gas from the North West Shelf in 1989, and the resurrection of gold mining. However, from 1983 to the mid-2000s, commodity markets were generally subdued, which spurred structural changes to the resource sector and a relentless pursuit of cost reduction and efficiencies to improve competitiveness. These pressures and other factors led to several important changes to the industry during this period.

First, the Pilbara iron ore industry was effectively de-unionised by the end of the 1990s after a series of major industrial disputes and legal battles. This and the associated individualisation of employment in the iron ore and other resource sectors were greatly assisted by changes to industrial relations legislation initiated mainly by Coalition governments at state and federal level in the 1990s (Hearn Mackinnon 2009).

Second, former company towns in regional areas were ‘normalised’ so that local governments now assumed official responsibility for the towns’ governance including the provision of community facilities, adding new complexities to resource companies’ relationships with local communities. These relations were further complicated with a shift by companies to fly-in/fly-out (FIFO) work (House of Representatives 2013: 11).

Third, mining and petroleum became much more professionalised and technology-based, as companies invested substantial resources in R&D aimed at increasing the productivity and efficiency of logistics, operations and the labour process. In addition, a significant mining equipment, technology and services sector also rose to support resource development (Scott-Kemmis 2013).

Fourth, as globalisation proceeded in tandem with pressures from local communities and social movements, resource companies took a much more committed and sophisticated approach to environmental and occupational health and safety issues, and to engaging with Indigenous and community groups as part of an avowed (although contested) ‘social licence to operate’ corporate philosophy (Minerals Council of Australia 2005: 2). While conflicts continue, there has undoubtedly been significant investment and improvement in managing these issues by the WA resource sector compared to the formative and pioneering stages of resource development in the 1960s and 1970s. This has been assisted by an increase in industry concentration through takeovers and amalgamations, leading to a virtual duopoly in the WA iron ore industry consisting of global mining giants BHP Billiton and Rio Tinto (Department of Mines and Petroleum 2013: 13).

As a result of these and other changes, the resource industry in WA was well-placed when commodity prices and demand began to take off in 2004–2005, driven by industrialisation in China. Iron ore and LNG particularly capitalised on these market changes, with production doubling between 2003–2004 and 2011–2012. With prices also soaring, the value of commodity production in WA rose from around \$26 billion in 2003–2004 to over \$106 billion by 2011–2012, of which iron ore’s contribution was \$61 billion (Department of Mines and Petroleum 2013: 7). The resource sector represented over one third of the state’s gross state product in 2011–2012 and investment worth over \$160 billion was committed or under construction (Department of State Development 2013: 2–3).

Despite increased migration, industry has suffered from skill and labour shortages, while housing prices, rents and general cost of living have increased as the state struggles to keep pace with expansion driven by the resource boom (CCIWA 2011; Williams 2012).



## The Development Model Today

Analysis suggests that WA's development model remains largely intact, with modifications.

The WA economy continues to be highly capital intensive, with economic activity dominated by resource construction projects worth billions of dollars. The oil and gas sector in particular is dominated by foreign companies with the exception of Woodside Petroleum. In iron ore, however, a string of local 'second tier' miners has developed. Fortescue Metals Group, led by local entrepreneur Andrew Forrest, has become a clear third player behind BHP Billiton and Rio Tinto. Australia's richest person, Gina Rinehart, daughter of Lang Hancock, the controversial founder of the Pilbara iron ore industry, has succeeded where her father failed in developing an operating iron ore mine in partnership with Rio Tinto and is now developing another mine (Department of Mines and Petroleum 2013: 14–15).

The WA model of development is still underpinned by the promise of benefits spreading to society through multiplier effects, rather than through capturing economic rents through state ownership of resource projects or higher taxes on industry. Benefits sought include direct employment in construction and in mining operations and mining-related services, as well as general economic impacts such as more jobs and higher wages.

The Burke Labor government departed from this tradition briefly in the 1980s when it took a 5 % stake in the Argyle diamond mine (later sold to Western Australians through a public share offering), partly in return for releasing the joint venturers from the usual obligation to build a company town to service the mine (Head 1986: 180). This was an important catalyst for the FIFO model of resource development in WA. Burke also adopted a more interventionist stance to economic development through the WA Development Corporation (the initial investor in the Argyle mine) and Exim, a government-owned trading house. However, scandals and massive financial losses (known as 'WA Inc') partly connected with these agencies discredited ideas of direct state government involvement in the resource sector. This was exacerbated by an ill-fated government attempt to establish a petrochemical processing complex in the wake of the 1987 share market collapse and associated corporate failures in WA (Royal Commission 1992).

State governments of both persuasions have, however, taken a progressively tougher stance on mineral royalties. Burke initiated a review of the Mining Act (Hunt 1983). As resources minister in Richard Court's Coalition government, Colin Barnett introduced a gold royalty in 1997—despite opposition from Labor. As Premier, Barnett removed royalty concessions on iron ore fines, a crushed form of iron ore, as they had increased in value (Department of Treasury 2011: 64–70).

The 'frontier ethos' of development in WA remains and is typified by the new mining barons, Andrew Forrest and Gina Rinehart. Harman (1982) explained how the frontier mentality is typically characterised by a belief in the urgent need for development. Both sides of politics routinely adopt policies aimed at encouraging

resource projects through streamlining approvals and discouraging companies from ‘sitting’ on mineral tenements or gas reserves without developing them expeditiously. Like conservative premiers before him, Premier Barnett prides himself on his preparedness to ‘make decisions’ to support resource development and has expressed concern that:

[i]f we don’t grasp this opportunity of China’s growth and perhaps India following we won’t get a chance again . . . If we don’t do it this decade, we can’t just leave things . . . There are a whole lot of competitive developing countries coming up and this is our one chance. (quoted in Maumill 2013)

Harman (1982) also noted how the frontier ethos in WA includes opposition to ‘external’ interference, and this has been an ongoing theme. As Premier Barnett (2012a: 2–4) argues:

The east coast is . . . a little bit patronising about Western Australia. We all hear it and we all know it . . . West Australians do have a healthy string of independence. We do have a sense of big thinking, big projects and a can do mentality; there is a difference, there’s a cultural difference . . . Western Australia is being pulled and drawn toward Asia, and a corollary of that is that we are drifting away from . . . that triangle of Melbourne and Sydney, Canberra, in all sorts of ways, and that trend I think will continue.

Ongoing conflicts continue between the state and federal governments over the control of resource development and related issues, including responsibility for environmental approvals, health and safety regulation in the oil and gas industry, and the regulation of transport and vocational training. The former federal Labor government’s minerals resource rent tax and carbon emissions tax were widely interpreted as being targeted at WA, given its resource industry base, and this has had adverse political effects for Labor. The WA Labor leader, Mark McGowan, was forced into stating publicly during the 2013 state election campaign that he opposed the carbon tax (AAP 2013a) and distanced himself from the federal Labor government where possible (Maiden 2013).

A particularly significant issue has been the distribution of Goods and Services Tax (GST) revenues. As WA’s resource sector has boomed, state mining royalties have skyrocketed, from \$1.1 billion in 2002–2003 to \$5.3 billion in 2011–2012, with iron ore accounting for 72 % and petroleum for 18 % of royalties in 2011–2012 (Department of Mines and Petroleum 2013: 56). As a result, the long-standing fiscal equalisation formula of the Commonwealth Grants Commission for distributing GST revenues among the states and territories has come into play. WA received only 55 % of its population share of GST revenues in 2012–2013 representing a loss of \$1.3 billion in revenue compared to a per capita share, and the state’s GST revenue is forecast to fall further to 25 % of population share by 2015–2016 (Government of Western Australia 2012: 105). Both sides of politics in WA have been vocal on this issue, but Premier Barnett has exploited the issue locally to add to the ‘them and us’ mentality which so often characterises WA politics and provides incumbents with a convenient political asset, especially when combined with concerns over the carbon and mining taxes.

Both Labor and Coalition state governments still fund infrastructure to support resource developments. The Gallop Labor government invested millions in common user infrastructure aimed at supporting industrial development and processing related to natural gas in the Burrup Peninsula (Brown 2003). The Barnett Liberal–National government (with financial support from the Commonwealth) provided significant funds for the Ord River irrigation scheme and for the (currently stalled) Oakajee port and rail project near Geraldton (Government of Western Australia 2010: 9, 20). Like his predecessor Sir Charles Court, Premier Barnett stresses the important role he believes is required from state governments to bring resource projects to fruition, even while accepting the private sector’s leading role:

I know ... there are many people ... who think these big projects just happen ... over my 20 years in politics I’ve been involved in many of them ... They do not come easily... they take ... courage, leadership and entrepreneurship ... they take risk takers ... to get ... projects of a scale that we have in this State underway ... Since coming to Government one of the first things that we did ... was to get the [\$43 billion LNG] Gorgon project underway... that had stalled ... it took an extraordinary ... effort, not by Chevron and its partners alone but also within government and in this case directly in my office ... a hands on approach to getting that project underway. Similarly the Ord River project (Barnett 2012a: 5).

While the principle of industry support is accepted by both parties, debate over particular projects has occurred. For example, at the 2013 state election the Labor party promised to withdraw government funding for Oakajee, insisting that responsibility for developing it should rest solely with the private sector (Parker 2013). In addition, the Premier’s emphasis on political leadership has political and economic risks if companies decide not to proceed with particular projects, as Woodside did in April 2013 with the gas hub project at James Price Point (Barnett 2013).

Although resource development is the most important economic portfolio, both parties have been more active in supporting development in other sectors. Industry diversification has occurred through shipbuilding, mining services and international education, but the long-held dream of downstream minerals processing has struggled (TIAC 2000). There is still no woodchip or steel mill or aluminium refinery in WA. Debates over local content have continued with both sides of politics promoting policies to advance local industry without placing too many burdens on resource companies.

An example of a more aggressive stance by the state was the adoption by the Carpenter Labor government in 2006 of a domestic gas reservation policy (Government of Western Australia 2006). This requires companies to set aside 15 % of their gas reserves for domestic consumption to assure the orderly development of local industry. Although opposed by the major gas producers, the policy is supported by local manufacturers and gas consumers, and remains in force under the Barnett Liberal government.

## Party Politics and Resource Development

Developmentalism has continued to have an important influence in WA party and electoral politics. Over the past 30 years, the Liberal Party has benefited increasingly from strong community support for pro-development policies in federal elections, but trends at state level have been more variable, with Labor holding office for much of the time. However, as the resource boom has gathered pace, the traditional identification of the Liberals as the party of development has assisted them politically while Labor has struggled.

Federally, WA has become a ‘jewel in the crown’ for the Liberal Party, which won 12 of the state’s 15 lower house seats at the 2013 federal election, with Labor winning just three. In the 2007 election, WA was the only state in Australia where Labor lost seats, a fact widely attributed to concerns held within WA about federal Labor’s proposal to abolish the Work Choices industrial relations legislation which was viewed as potentially threatening individual employment contracts in the mining industry (Miragliotta and Sharman 2010). In 2010, attacks on Labor’s proposed mining tax were spearheaded by industry groups from WA. The Liberals won 56 % of the two party preferred vote, the highest of any state or territory, and they increased this slightly in the coalition victory at the 2013 federal election. The ALP has not won 40 % of the primary vote or 50 % of the two party preferred vote in WA in a federal election since 1987. It won just 29 % of the primary vote in 2013 compared to 47 % for the Liberal Party and 10 % for the Greens.

State politics has been more fluid, with alternating periods of Labor (1983–1993 and 2001–2008) and Liberal–National (1993–2001 and 2008–present) governments. While WA Inc and its aftermath dominated elections in 1989, 1993 and 1996, since then development issues have played a prominent role, although these have not always been mining-related.

In 2001, for example, the issue of logging in native forests was a crucial factor in Labor’s victory as the party finally overrode its traditional union-backed pro-forestry faction to support a full cessation of logging, while a splinter Liberals for Forests group took votes from the Coalition (Black and Phillips 2001). The 2005 election campaign was dominated by Liberal leader Colin Barnett’s proposal to construct a canal from the Kimberley to Perth to overcome Perth’s water shortage and promote inland development along the route of the canal. This vision was consistent with WA developmentalism and with earlier dreams of populating the north and the inland—perhaps even ‘grander’ in scope. But its uncertain and very expensive costing and Labor’s alternative of desalination and water conservation programs saw Labor returned (Phillips and Kerr 2005).

By the time of the 2008 and 2013 elections, however, the mineral resource boom was firmly established and formed an essential backdrop to state politics. Both major parties were concerned to demonstrate their ability to ‘manage the boom’ by securing major projects while spreading economic and social benefits to the broader population and leaving a legacy for future generations.

Over this period, economic and socio-demographic trends have tended to favour the Liberal Party. While mining per se is not a major employer (about 8 % of the workforce), its multiplier effects on industry (Rayner and Bishop 2012), regions (KPMG 2013) and households are manifold. Economic growth, incomes and employment have soared, including in regional WA, although cost of living pressures have also been evident. WA has consistently led Australia in virtually all economic indicators for several years. The unemployment rate has been the lowest of all states despite higher labour force participation, while WA wage and income levels top the country (ABS 2012a; Department of State Development 2013; Department of Treasury 2013). Socially, WA continues to be the least unionised state with union membership in 2011 being only 16.2 % of the workforce in WA (18.4 % nationally) compared to 35.4 % in 1990 (40.5 % nationally). In the private sector it is estimated to be less than 10 %. WA also has the highest percentage of independent contractors as a proportion of the labour force (ABS 2012b).

The Liberal Party remains firmly pro-development. Its leader Colin Barnett regards the current period as “a defining decade for Western Australia” in what he considers to be “probably the greatest nation building economic development in Australia’s history since the 1960s” (Barnett 2010). He sees himself in direct lineage from earlier legendary pro-development premiers:

I think if you go back to the 1890 s no doubt [Sir John] Forrest grasped the opportunity in an extraordinary way. David Brand and Charles Court grasped the opportunity in the 60s and my job is to grasp this opportunity now (quoted in Maumill 2013).

As noted, Barnett has actively championed major resource developments and projects, stressing the role of the state government in facilitating and supporting developments and regularly opposed the federal Labor government on a range of issues. However, Liberal development ideology and policy under Barnett has not been a carbon copy of his predecessors’ approach. He has lifted mining royalties, ruled out coal mining in the Margaret River region, and sided with unions in opposing floating LNG platforms that would enable gas to be processed offshore and thus avoid development in the state.

He has also been at pains to point to the ‘social dividend’ he is seeking from the current resource boom “to ensure that the benefits of a strong economy are shared more widely”, with a \$600 million increase in funding for not-for-profit service organisations and large investments in regional, health and community facilities including several building projects in the Perth city centre (Barnett 2012b: 4).

The Liberal party won a resounding victory at the 2013 state election, securing 47 % of the primary vote (compared to Labor’s 33 %) and around 58 % of the two party preferred vote, for an absolute majority of 31 seats (out of 59) in the Legislative Assembly.

Labor has by contrast been unable to carve out a distinctive stance in relation to the boom or to resource development more generally. The scandals and financial losses from the WA Inc era in the 1980s led the Labor government (2001–2008) to be cautious in its approach to business and government. Early initiatives on the

environment and sustainability fronts were later sidelined under Gallop's Labor successor, Premier Alan Carpenter (Brueckner and Pforr 2011).

After winning the 2005 election, Labor determined to show it could spread the benefits of the accelerating resource boom. A major new hospital and entertainment centre were commenced and the Perth–Mandurah railway was built. Labor also took up WA's anti-Canberra mantra with gusto while John Howard was Prime Minister until 2007. However, Labor narrowly lost the 2008 election.

Since then, Labor has criticised Premier Barnett for presiding over a big increase in state debt and for focusing on showcase projects in the city centre (AAP 2013b). Labor has also been critical of the relatively low level of local content in resource projects and for the Premier's alleged penchant for directing how and where private sector resource developments should proceed (WA Labor 2013). But with the exception of its continued (but internally contested) opposition to uranium mining, Labor has not differed substantially from its Liberal Party rival in supporting the underlying model of development in WA.

Labor has also been hamstrung politically by the fracturing of its alliance with trade unions, environmentalists and Aboriginal groups formed in the late 1970s, and suffered from the rise of new political faultlines such as federal–state relations and the regional–city divide.

As noted, trade union density is low in WA, especially in the private sector. The spread of individual work contracts and FIFO, combined with high incomes in the resource sector, meant that federal Labor's promised abolition of Work Choices in 2007 did not produce political dividends in WA. The mineral resource rent tax in 2010 reinforced the impression within WA of federal Labor being 'anti mining', if not 'anti-Western Australia'. This was exacerbated by the GST issue, which came to a head under the Gillard Labor government.

With the demise of the Australian Democrats, the Greens are now the principal minor party, and represent the main anti- (or alternative) development strand in WA politics. Federally, WA has generally been the Greens' second strongest state after Tasmania in terms of Senate seats and votes won, although they suffered a setback in 2013. While not as influential in state politics, the Greens are nevertheless an ideological challenger to Labor as well as a political ally. They won almost 12 % of the vote at the 2008 state election, but slipped back to 8 % in 2013, winning just two Legislative Council seats.

Environmental criticism of the resource sector has until recently not been as prominent a political issue in WA as in the early 1980s. The highest profile environmental policy debates have been in other sectors, most notably forestry and agriculture (salinity), and coastal development projects (Brueckner and Pforr 2011). Despite opposition by environmental groups and WA Labor, the Barnett government has lifted bans on uranium mining and commenced approval processes for the first mines in WA with minimal disruption. Federal Labor's support for uranium mining makes it arguable whether a future state Labor government could rein in the industry if it gets a foothold in WA.

The huge expansion in mineral production and the massive investments in oil and gas in the Pilbara have occasioned opposition on the grounds of climate change,

environment and heritage (Cleary 2012: 135–140). But development has largely been accommodated under relevant environmental and heritage legislation. The most significant recent conflict has been the proposed James Price Point development north of Broome, where the Barnett government proposed a gas processing hub with gas piped onshore from the Browse Basin, coupled with an employment and economic development package controversially agreed with Native Title holders. This development was vehemently opposed by conservation groups and by some Indigenous interests, although it received Native Title holder approval and in-principle support from Labor. However, the development has now been shelved by the proponents, citing commercial reasons, especially cost escalations in major resource projects in WA (Chambers and Wilson 2013).

There has been some progress in relations between Indigenous groups and development politics. The Burke government balked at Aboriginal land rights in the face of strident conservative opposition and was instrumental in stalling a national land rights regime proposed by the Hawke Labor government (Ahluwalia and McCarthy 2009: 21; Beresford 2008: 75–84; Head 1986: 180). Despite this and concerted efforts by resource companies and the Liberal Party to undermine Native Title legislation following the High Court's Mabo decision in 1992, Native Title has provided a floor of rights from which Aboriginal groups can negotiate with companies and governments about access to land (Langton 2012).

While major social problems and severe disadvantage still exist in Indigenous communities, mining is seen by several analysts as an exemplar in providing jobs, skills and economic opportunities, particularly in regional WA. Authors such as Langton (2012) have documented the extent of Indigenous employment in the mining industry compared to other sectors, initially led by Rio Tinto at the Argyle diamond mine, where around a quarter of the workforce are Indigenous.

The growing links between mining and Indigenous communities have on occasions brought the latter into conflict with environmentalists, most notably over the James Price Point development (O'Faircheallaigh 2011), where internal dissension within local Native Title groups has spilled over into different visions for the future economic development of the Kimberley.

As Labor's traditional alliances with resource critics have fractured, conflicts over the costs and benefits of development have instead been channelled into two other directions, neither of which has been helpful politically for Labor. One is conflict between the state and the Commonwealth over the distribution of GST revenues and issues such as the mining and carbon taxes (discussed above). The second has been a concerted push for increased funding for regional WA amid claims that the benefits of resource development are not being spread sufficiently to the communities where the raw materials are located. This view has been promoted successfully by the National Party.

The Nationals' future looked bleak in WA when electoral legislation was passed in 2005 to abolish rural vote weighting and several rural seats disappeared (Kelly 2006). However, they have thrived, based on a three-pronged strategy.

The first prong has been greater independence from the Liberal Party (Cockfield and Botterill 2011: 348). Following election defeats in 2001 and 2005, the

Nationals' new leader, Brendon Grylls, argued that his automatic support for the Liberal Party could not be guaranteed. When the 2008 election resulted in the Nationals holding the balance of power, Grylls and his younger colleagues were reportedly keen to side with Labor in the post-election negotiations, until his party's traditional rural wing brought him back into line and eventual support for a governing alliance with the Liberals. But electoral competition between the two conservative parties has continued. The Nationals won a seat from the Liberals in the 2010 federal election (but lost it again, narrowly, in 2013) and successfully held off Liberal challenges in a number of seats in the 2013 state election.

The second strand has been to broaden the Nationals' electoral appeal from their traditional farming base as part of a political assault on Labor in the regions. After a strong initial showing in 2008, in 2013 the Nationals displaced Labor from its mining strongholds in the Goldfields and Pilbara, winning seven seats overall (compared to four in 2008), with Grylls himself leaving his safe Wheatbelt electorate to win the seat of Pilbara off Labor (Phillimore 2013).

The third, policy-related, context to the Nationals' strategy has been the Royalties for Regions program, devised by the Nationals in opposition and delivered in the aftermath of the 2008 election. A quarter of the state's mining royalties are now quarantined by legislation for additional spending in the state's regions, with the Nationals' leader, as Minister for Regional Development, in charge of the program. Since 2008, over \$1 billion per year has been spent and this is set to increase as royalties receipts rise (Department of Regional Development and Lands 2012).

Significant expenditure has been directed across regional areas to industrial infrastructure, town development, hospitals, schools, roads, as well as general amenities such as swimming pools and recreation centres. Continuing the tradition of efforts to 'populate the north', a Pilbara Cities program aimed at developing Karratha and Port Hedland into cities of 50,000 people by 2035 has begun aimed at rebuilding communities and moving away from a reliance on FIFO (Department of Regional Development and Lands 2012). With the decline of unions and class identity in resource-based regions, the Nationals have used Royalties for Regions to position themselves as the 'natural' party of regional WA, just as they regarded themselves as such for farming interests in rural areas.

Weighed down by an unpopular federal Labor government, WA Labor is in danger of becoming a purely metropolitan party—generally pro-development but unrepresented in much of regional WA, and without an obvious route to a viable electoral coalition. It won only 33 % of the state-wide primary vote in 2013, and just 25 % of the primary vote outside the Perth metropolitan area. Its WA branch performed even worse at the September 2013 federal election. WA Labor faces challenges from the Greens on one side and from the Nationals as well as traditional rivals, the Liberal party, on the other, and faces internal tensions among its own members and supporters on issues such as uranium mining and the development of the Kimberley.

By contrast, the Liberals' relatively coherent and stable development ideology and its alignment with current economic and socio-demographic trends suggest



that, subject to demonstrating general government competence, a new period of development-based Liberal political dominance may be beginning—just so long as the resource boom continues.

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## Part II

# Challenging Frontier Mythologies

There would always be a pressure to seek economic salvation as a producer of raw materials for export and a hungry need to attract capital by whatever means it could be induced.  
Bolton (1982: 27)

Since inception, matters developmental in Western Australia have been highly political and driven by an at times aggressive pro-growth mentality by successive state governments. To this day, the economic advancement of the state has remained a cornerstone of government policy, and its underlying ideologies form a central part of the mythology of the development of the western frontier.

The development history of Western Australia is also a history of conflict, evidenced by past and present, at times fierce and venomous, conflicts surrounding resource developments (e.g. Cullen 1986; Mercer 1995; Brueckner and Ross 2010; see also Chaps. 3 and 4). Underlying many of these resource contestations were value clashes between development proponents and their antagonists who challenged the ideologies driving resource development and the assumptions made about their associated benefits and community interest.

This section provides a space for explicating the dominant ideologies and assumptions that frame and perpetuate much of Western Australia's development narrative. The contributions presented here serve the purpose of highlighting the workings and the socio-economic and sociocultural consequences of this narrative as well as to offer alternative philosophical foundations for the development of the state.

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# Chapter 3

## The Ethics of Resource Extraction and Processing: Two Western Australian Case Studies

Glenn Albrecht and Neville Ellis

**Abstract** The history of Western Australia is often written as land and resource development with the normative dimension of this history implicitly seen as one of the positive dimensions of civilisation and progress. Yet throughout this history ethical issues abound and, when made explicit, provide opportunities to question and critique the path taken by all humans on this most fragile of continents. Western Australia's rise to the role of key producer of raw commodities to meet global resource demand invites an ethical analysis of resource extraction in the state. Based on analysis presented we call for a refocusing of the way humans in Western Australia relate to not only their land or 'country' but also the whole planet and argue the need for holistic sustainability and place-based ethics that will be required to undertake such a task.

### Introduction: The Ethics of Resource Development

Ethics is the study of what is considered to be 'good', and sustainability ethics consists of a set of principles that serve as a guide for action when deciding what to do in the face of complex normative decisions involving the quality and continuity of life. Justice, the distribution of benefits and burdens in society, can only be achieved when all claims of injustice are rebutted in a fair and reasonable decision-making process. In this chapter we apply a number of different ethical approaches and the core ethical principles contained within them to the complex issue of mineral exploitation in the Pilbara and Kimberley regions of Western Australia (WA). We use two case studies, one based on the current exploitation of liquefied

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natural gas (LNG) on the Burrup Peninsula in the Pilbara and the other based on a proposed LNG gas hub on the Kimberley coast at James Price Point, to test the applicability of the ethical principles used. We argue that the issues involved in the extraction of LNG are typical of other mining and processing issues in WA and that the sustainability ‘ethics test’ developed and applied in this chapter can be used to evaluate other forms of mineral exploitation. Since this chapter is an ethical evaluation of the sustainability issues raised by the two case studies, we make no claims about the economic evaluation of mining and minerals development. We conclude that when a sustainability ethics test is applied to the way mineral development is taking place in WA, ongoing claims of inequity and injustice from both Indigenous and non-Indigenous Australians speak loudly that both process and outcomes have yet to depart from the despotic traditions carried into this continent by colonists from Europe in the nineteenth century.

## Aboriginal or Songline Ethics

Indigenous Australians<sup>1</sup> arrived on continental Australia some 50,000 years ago and encountered a pre-existing fauna and flora that had evolved in relative isolation for millions of years. There is an ongoing debate within science about the likely impact of Aboriginal people on the ecosystems of Australia. One school of thought is that the initial impact of Aboriginal people was relatively large and that within 10–20,000 years of their initial colonisation, they were a primary cause of the extinction of the large marsupials known collectively as the ‘megafauna’ (Flood 1989; Flannery 1995; Gammage 2011). It is argued that because the megafauna were naïve to a human presence, an efficient hunting and gathering culture could have rendered them extinct in a relatively short period of time. Another school of thought suggests that climate and environmental change were the major factors in the extinction of the megafauna (Price and Webb 2006). Irrespective of the agency of their demise, the loss of the megafauna meant that Aboriginal people no longer had available to them a major element of their diet and new adaptive and ecologically informed hunting and gathering was needed for the culture to remain sustainable.

Indigenous people ultimately developed a successful survival strategy, living in harmony with and adapting to the prevailing physical, climatic and ecological processes. Trial and error, while simultaneously building a systematic knowledge base about how to live sustainably within the limits of biophysical reality, allowed for the passing of one element of any sustainability test—long-term occupation of the one place.

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<sup>1</sup> We use the terms ‘Indigenous’ and ‘Aboriginal’ interchangeably to describe Australian Aboriginal people and Torres Strait Islanders.

Over many thousands of years, as active environmental management based on an ethical relationship to the land or country evolved, Aboriginal people understood, in practical, symbolic and mythical form, the shared origins of all forms of life, the ecological integrity and health of natural systems, the bonds of kinship with other species (animal totems) and the importance of conserving special places ('increase' sites) so that populations of plants and animals could rebound after natural hardship such as episodic drought. Following the pioneering work of Jones (1969), contemporary authors such as Gammage (2011) have argued that continental Australia and Tasmania were not in any sense 'wilderness' areas, if wilderness is defined as a place that is uncultivated and uninhabited. On the contrary, the lands occupied by Aboriginal people were farmed in sophisticated ways using the technology of controlled fire, engineering of waterways and gardening techniques that maximised food abundance and availability within seasons.

On the basis of their active management and manipulation of the environment it might be argued that Aboriginal people used a stewardship (Passmore 1980; Attfield 1983) or 'wise management' environmental ethic to define their relationship to the biophysical environment. However, for Indigenous Australians, an instrumentally valuable environmental ethic such as stewardship sits within a larger ecocentric cosmology that sets the context for ethics and values that reflect a total world view. We suggest, with respect to the unique Australian context, that the term 'songline ethics' might be appropriate to use for such a holistic ethic.

The term 'songlines' has been in popular use to describe Aboriginal ideas about place and identity since the publication of Bruce Chatwin's book, *The Songlines* (1987). However, like the terms 'the dream time' and 'the Dreaming' (Stanner 2009), this concept has arisen in the work of Australian anthropologists' attempts to render Aboriginal beliefs and concepts into the English language. The idea of songlines arose initially in the context of explaining how traditional knowledge was passed on through songs whose verses revealed information about the land and its creation. As argued by anthropologists such as Strehlow (1970) and Elkin (1974), for all Indigenous Australians:

the perpetual well-being of the universe, the whole welfare of the material world . . . depended on the continued singing of the original creative words and the continued repetition of the original creative acts of the supernatural beings by their human reincarnations from generation to generation (Strehlow 1970: 132).

All over Australia, songlines or 'dreaming tracks' are understood to be both physical and non-physical 'pathways' within the landscape that follow the routes taken by ancestral beings responsible for the creation of all things and all beings on earth (Stanner 2009; Rose 1996). These metaphysical paths of different individuals and tribes intersect and form a network that connects people, their land and the life within it. They depend on songline knowledge and reproduction for their own instrumentally valuable sustenance and intrinsically valuable spiritual and cultural integrity. The knowledge of interconnections contained in the songlines is reproduced in songs, dances and art that enable others to understand the historical creation stories and their importance for ongoing sustainability. In this way culture

is refreshed and maintained with the singing, dancing, painting and engraving of knowledge. Songline ethics delivers a comprehensive view of place relationships, one not achieved by stewardship, and it is a value system that contains both instrumental and intrinsic value.

Indigenous Australians, as shall be illustrated below, frequently use the concept of songlines in the contemporary context to explain their relationships to place. We extend their use of this concept into the domain of ethics by arguing that the spatial and temporal interconnections encapsulated in the term ‘songlines’ provide a strong culturally defined and ethically framed defence of the value of attachment to place, one not afforded by other ethical traditions.

## Colonial and Development Ethics

### *Despotism*

The songline ethics of Australia’s Aboriginal people was rapidly overturned after European settlement in 1788.<sup>2</sup> Deadly epidemics of smallpox and other diseases decimated the population before conflict and dispossession disintegrated culture and populations. The forced relocation of people ensured that the songline networks of knowledge and law built up over thousands of years became fragile and, in some cases, completely desolated. Moreover, as the endemic life of Australia retreated, the development of settlement in Australia could be termed ‘despotic’ (Passmore 1980) as the landscape, its native people and the flora and fauna were judged ‘inferior’ to those of Europe and could be ruthlessly exploited, eliminated or replaced (by slavery, genocide, acclimatisation societies<sup>3</sup> and ecological imperialism) with clear consciences.

The ethico-legal assumption of terra nullius, or land without owners or occupiers, effectively meant that continental between Australia and Tasmania were seen by post-1788 colonisers as landscapes and resources to be taken without the need for a treaty or compensation. By effectively denying a human presence prior to settlement, colonial powers treated Australia as a wilderness beyond ‘civilisation’, a deserted place ripe to be occupied. The Reverend Lancelot Threlkeld, writing in the context of the early settlement of Australia’s eastern states, put the colonial

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<sup>2</sup> It is to be remembered that Dirk Hartog ‘discovered’ the coast of WA in 1616 and, further, that it is likely Macassan sailors had visited the west and north coasts of Australia long before Cook sighted the east coast in 1770.

<sup>3</sup> From the 1860s onwards organisations in each state systematically introduced and acclimatised new plants and animals into Australia. As stated by Museum Victoria, “Many Europeans at first felt uneasy in their new land. They spoke of ‘the savage silence, or worse’ of the bush. They introduced plants and animals to make the alien environment feel more like home, to beautify their gardens, provide sport for hunters and ‘aggrandise’ the colony. But above all, they wanted to make the land economically productive.” (Museum Victoria n.d.).



conquest and the retreat of the Aborigines in terms of the biblical view of ‘development’:

Another cause of decrease amongst the tribes may be traced to the swelling tide of Emigration which has universally swallowed up the petty streams of Barbarism and the Aborigines have generally either been driven back to the forests, destroyed by force of arms or have become amalgamated with the overpowering people who thus: Multiply, Replenish and Subdue the Earth (Threlkeld, cited in Gunson 1974: 137).

### *Sustainability as a New Global Environmental Ethics*

Sustainability as a new holistic ethics that attempts to harmonise the social, the economic and the ecological has developed in the international arena for almost 50 years. The history of sustainability ethics has been well documented (Engel 1990; Albrecht 1994; Beder 1996) and consensus built around the foundational ethical principles of equity (Norton 2005) and risk have emerged that encapsulate the domain of sustainability ethics.

The core ethical principles associated with a globally relevant sustainability ethics can be found within the World Commission on Environment and Development’s (WCED 1987) *Our Common Future* (OCF) and Agenda 21 (the Rio Declaration) issuing from the Rio Earth Summit of 1992. These principles cover globally significant issues of justice/injustice and generational ethical–moral relations. The overwhelming emphasis in all the documents and agreements is human-centred or anthropocentric. Principle One of the Rio Declaration states that “human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature” (United Nations 1992). Corporations and governments have interpreted this principle as a form of stewardship, so that sustainability ethics is seen as coextensive with stewardship ethics. However, as we argue below, this assumption can be contested: stewardship lacks the necessary commitment to intrinsic value and the holism present in both songline ethics and deeper ethical principles such as inter-generational and inter-species equity.

Based on the WCED documents and declarations such as Agenda 21, many governments formulated their own principles of sustainability in the late 1980s and early 1990s. Australia completed and promulgated its ecologically sustainable development (ESD) principles in the Intergovernmental Agreement (Commonwealth of Australia 1992), which was signed on behalf of the state of WA by the then Premier, Dr Carmen Lawrence.

The Australian ESD response contains all the relevant ethical considerations for assessing questions of development. The two most obvious principles of intra- and inter-generational equity come from the core objective, “to provide for equity within and between generations”. Detailed treatments of these core concepts have been provided by many scholars over the last few decades (Albrecht 1994; Beder 1996; Newton 2003; Dryzek 2005). The principle of inter-species equity can be

derived from the core objective of ESD: “to protect biological diversity and maintain essential ecological processes and life-support systems”. The precautionary principle, “where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation” (Commonwealth of Australia 1992) deals with the question of equity with respect to exposure to risk, while the guiding principle of applying a global dimension is crucial for international development and obvious for issues such as climate change that do not respect national borders.

In overview, the sustainability ethical principles that we identified as most relevant to the evaluation of development are:

- Intra-generational ethics (current justice/injustice);
- Inter-generational ethics (future justice/injustice);
- Inter-species ethics (justice/injustice to other species);
- The precautionary principle (removal/imposition of risk);
- The global dimension (global equity/inequity); and
- Songline ethics (values and place relationships).

## **Ethics and Development in Contemporary WA**

We shall now apply the ethical principles discussed above to two case studies in the North West of WA. From the application of principles outlined above, we construct a sustainability ethics test where the contrast between despotic values and songline ethics/sustainability ethics is illustrated in summary form in Table 3.1, and we also summarise the core ethical issues within each case study.

### ***Murujuga (The Burrup Peninsula)***

The Burrup Peninsula (BP) of the Pilbara region of North West WA has the Aboriginal name of Murujuga (hip bone sticking out). The human and environmental history of Murujuga perfectly illustrates what happens when a value system dominated by instrumental (use) values trumps one based on intrinsic (inherent) value. The original people of Murujuga, the Yaburara, occupied the Pilbara area for possibly 30,000 years. However, in 1868, after a series of massacres inflicted on them by government-backed forces, the Yaburara ceased to exist as an integrated tribe occupying their own territory.

Murujuga (BP) is now internationally famous as home to hundreds of thousands of individual works of rock art, or petroglyphs (Donaldson 2009; Bednarik 2006; National Trust n.d.). The petroglyphs accurately represent the animals of Australia, including the now extinct Thylacine or Tasmanian Tiger and also capture the

dreaming stories and totems within the songlines (Australian Heritage Commission 2011). The famous cave paintings of animals in Lascaux, France, are reputed to be 20,000 years old yet some Murujuga (BP) rock art has been dated at 30,000 years (Donaldson 2009). It is worth noting that the cave paintings of Lascaux were added to the UNESCO list of World Heritage sites in 1979.

Despite the efforts of individuals, Aboriginal bodies representing the Native Title of people now living in the Pilbara and Murujuga (BP), national and international rock art experts, conservationists and, in recent times, well organised campaigns to get the whole Murujuga (BP) area declared National Heritage and World Heritage, the rock art of the area remains at risk from a massive gas and petrochemical dominated industrial precinct.

State and federal governments of Australia have participated in the expansion of the liquefied natural gas (LNG) industry and other industries that feed off the by-products of fossil fuels such as chemical fertilisers (ammonia) and more recently, an explosives factory almost adjacent to a major rock art site (Donaldson 2009). The chemical fertiliser and explosives industries worldwide have experienced major explosions, most recently in West, Texas USA in April 2013. Their proximity to each other and to an LNG plant at Murujuga (BP) could, in the event of an accident, produce an explosion that would vaporise the whole of the industrial precinct along with all of the rock art. The regional LNG industry experienced a major explosion in 2008 at Varanus Island just north of Murujuga (BP) and there have been many other well-documented cases of major explosions at other LNG facilities throughout the world.

In addition to the imposition of risk of total destruction, chemical fallout from the existing plants is implicated in the possible chemical attack and premature degradation of the petroglyphs (Donaldson 2009). Any further chemical industry located in the vicinity will only heighten that risk, and no serious consideration has been given to applying the precautionary principle as a way of eliminating the ethics of such risk imposition.

While further industrial development of Murujuga (BP) is ethically problematic at the scale of regional and global heritage considerations, thought must also be given to the intra- and inter-generational impacts of global warming as knowledge of the impact of greenhouse gas emissions on climate change accumulates. The LNG industry can only violate the global dimension of sustainability ethics as it adds to the sum total of greenhouse gases at a time in history when the science tells us we must rapidly reduce our greenhouse gas emissions.

At Murujuga (BP) there is a powerful history of conflict and death that needs sensitive acknowledgement and reconciliation, a rock art heritage site of world significance and an archipelago landscape with unique biophysical features when compared and contrasted to the rest of the coast of WA. That various governments, supposedly independent assessment agencies such as the Environmental Protection Agency (EPA) and formal impact assessments conducted by corporation-paid consultants, could not identify the need to conserve this special place indicates that despotic values have prevailed over songline ethics and all forms of

sustainability ethics. An elder, Robert G. Bednarik, from the colonial culture has expressed his own opinion on what has happened at Murujuga (BP):

The gradual destruction since 1964 of the Dampier Cultural Precinct, Australia's largest cultural monument, is unquestionably the planet's most serious case of state vandalism in recent history. It exceeds the extent of cultural destruction caused by the former Taliban regime of Afghanistan. (Bednarik, in National Trust, no date)

A traditional owner of Murujuga (BP), Churnside, has indicated in a statement known as 'The Murujuga Declaration' that "my people say that once a piece of rock art left by our ancestors is removed, our song line, our sacred site, is destroyed forever" (Churnside 2007). Clearly, songline ethics, along with all other ethical perspectives covered above, apply to the determination of the future of the rock art and the whole of Murujuga (BP). As can be seen from the application of all the relevant ethical principles in Table 3.1 (below), from the perspective of songline and sustainability ethics, Murujuga (BP) should be de-industrialised and, if the traditional owners agree, declared World Heritage.

### *James Price Point*

In order to kick-start the industrialisation of the Kimberley region of WA and to take pressure off Murujuga (BP) and spread the impacts of the burgeoning gas industry along the North West coast of WA, the state government chose a site for a gas hub on the West Kimberley coast known as James Price Point (JPP), or Walmadany (the name of a traditional owner who lived on this land at the commencement of the twentieth century) to the traditional owners. To approve this site, the state government and its agencies decided that a massive industrial zone, initially known as the Browse Liquefied Natural Gas Hub (BLNGH), needed to be built.

The proposed onshore BLNGH at Walmadany (JPP), located some 50 km north of Broome, has been a highly publicised and divisive issue for the Broome community, local Aboriginal groups, and the broader Australian public. The proposal to build a gas precinct was submitted by a joint venture of resource companies headed by Woodside Petroleum (and other partners) as an effort to secure a means of processing and exporting natural gas derived from the extensive offshore Browse Basin.

However, in April 2013, Woodside Petroleum and its partners decided to "shelve" the BLNGH on economic grounds (ABC 2013). Despite the chairman of Woodside Petroleum claiming that protesters and environmental considerations had "zero influence" (Klinger 2013) on the decision not to proceed, we have the opportunity to consider the ethics of the proposed development within the context of the larger issue of the industrialisation of the Kimberley region. With much of the Kimberley land mass divided up among exploratory mining leases and a growing interest in the Canning Super Basin (Carney 2012), Walmadany (JPP) is a

component of a much larger narrative about mining and industrial development of the Kimberley. Because Walmadany (JPP) may still play a part in future developments in the region, the ethics behind the pioneering project must be considered.

### Natural Heritage

In 2009 the Premier of WA, in an address to the Petroleum Club of WA, stated “[i]f anyone’s been there, it’s a most unremarkable site: 60 km to the north of Broome, a flat tableland, low sort of quality of vegetation, an unremarkable beach with about a 2 or 3 m sort of rise to the tableland” (Barnett 2009). Despite Barnett’s dismissive assessment of the area, recent scientific investigations of Walmadany (JPP) reveal a biophysical landscape that is anything but ‘unremarkable’.

The area contains a diverse range of flora and fauna on land, including rare monsoon thickets (remnant rainforest) and other habitats of the endangered Australian marsupial, the bilby. The diversity on land is matched by the abundance in the sea, including dugong, a number of species of dolphins, turtles, whales and numerous fish species inhabiting the waters off the point. In addition, the waters off Walmadany (JPP) have been found to be a critical marine environment for the humpback whales that migrate from the Antarctic along the WA coast to calve in the relative safety of the warm Kimberley waters. The birthing area is reputed to be the largest humpback whale nursery in the world (Halpern et al. 2008; The Wilderness Society 2011). In the name of inter-species ethics, the protection of this area should be given the highest priority.

The landscape itself in and around Walmadany (JPP) is also of international significance. Embedded in the rock there lies a vast repository of the footprints of 15 different types of dinosaurs and a fossilised early Cretaceous landscape. According to Thulborn, “. . . the Dampier coast has provided practically the entire fossil record of dinosaurs in the western half of the Australian continent” (Thulborn 2009). Given the natural heritage value of the site, the application of both intra- and inter-generational ethics would require that this unique piece of world heritage be protected from destruction and damage.

The impact of the proposed gas precinct on the terrestrial and marine environments would have been hugely significant. As indicated in the WA government’s Strategic Assessment Report prepared for the WA EPA (Department of State Development 2010), in addition to the species likely to be threatened as mentioned above, the development of the gas precinct would include a range of environmental impacts, including (but not limited to):

- The clearing of 3,037 ha of native bushland, including 132 ha of the rare monsoon vine thicket and another 440 ha at risk from draw-down groundwater aquifers.
- Permanent removal of 1.5 km of the shoreline at Walmadany (JPP), with a further 1 km disturbed for pipeline corridors.

- The discharge of up to 30 GI per year of industrial waste water and brine into the ocean off Walmadany (JPP), a marine environment shown by a global study to be amongst the most pristine left on Earth (Halpern et al. 2008).
- The dredging of 21 million cubic metres of seabed for the initial port and shipping channel.
- Significant impact on a further 52 km<sup>2</sup> of waters off the coast.
- Unrestricted increase in greenhouse gas emissions per annum—a 52 % increase in WA’s greenhouse gas emissions compared to 2007 levels (Diss 2013).

Despite these and other environmental impacts, the WA EPA (2012) approved the project on the 16th of July, 2012. The decision was condemned by independent scientists, citizen scientists, and community groups and environmental/conservation groups on the basis of scientific inadequacies contained within all levels of assessment. In addition, the EPA’s decision was made amid controversy after four out of the five EPA board members were stood aside at the last minute after admitting to conflicts of interest, leaving EPA Chairperson Dr Paul Vogel to give the go-ahead himself. Despite inadequacies of content and process, the WA Minister for Environment, Bill Marmion, using EPA recommendations as a guide, approved the development of the gas precinct in November 2012.

## Cultural/Social Heritage

Aboriginal people have inhabited the Dampier Peninsula for at least 30,000 years and, as was the case with Murujuga (BP), the original inhabitants of Walmadany (JPP) have gradually been lost via disease, cultural desolation and dispossession. Traditional owners, such as the late Paddy Roe, who originated from elsewhere in the Kimberley and who was given the custodial duties of Walmadany (JPP), campaigned to preserve the significance of the area and, in particular, he was instrumental in establishing the Lurujarri Heritage Trail from the 1970s (Botsman 2011; Benterrak et al. 1984). Named after the coastal dunes of the region, the Lurujarri Heritage Trail follows the land of a song cycle, or songline, which demarcates the passage of spirit beings of the Dreamtime who originally walked over the land, giving existence to it as they travelled (Goolarabooloo 2012). The significance of the Lurujarri songline to local Aboriginal people was explained in the report to the WA Museum:

Song cycles reflect the travels and creative activities of ancestral beings. Through song-cycles, the creation stories, ceremonies, laws, and rituals are passed between communities . . . the Aboriginal Law encoded in the song-cycle has an unbroken tradition through to the present day. Aboriginal people in this area retain their traditional links with their Law, land and resources, despite immense external pressures (Bradshaw and Fry 1989: 7).

Paddy Roe’s son, Joseph Roe, maintains the cultural traditions perpetuated by his father and he states of the Lurujarri Dreaming Trail that “it traces part of the song line that maintains the living memory of people who have been here for thousands of years” (cited in Wells 2012: 23).

Despite the known cultural significance of the Lurujarri Heritage Trail to local Aboriginal groups, such as the Jabirr Jabirr and Goolarabooloo people, as one of the most defined and preserved songlines in the country, permission was granted to Woodside by the state government in January 2013 to undertake drilling and survey works that directly impacted the songline just south of Walmadany (JPP). The decision was met by a palpable emotional reaction amongst Aboriginal people. In his response to the decision, Jabirr Jabirr man, Rodney Augustine (2012) wrote: “The songline of the Kimberley runs in my veins. It’s the very life force that keeps me alive . . . why don’t you understand that as you desecrate our country you are killing our dreaming, our songline, our culture. You are killing me!”

The approval of industrial activities that would destroy the Lurujarri songline represents a direct violation of intra- and inter-generational ethics since those activities disproportionately impact on traditional owners and their ability to pass on cultural knowledge to younger generations and to the wider non-Aboriginal community. This decision follows a long and contentious campaign conducted by the WA state government to obtain ‘consent’ from the traditional owners for the development to go ahead. Clearly, the issue of free and informed consent from citizens for this development has not yet been resolved and is a violation of the principle of intra-generational equity. In addition to issues of Aboriginal heritage, the Botsman (2011) report, along with other studies (The Wilderness Society et al. 2012), also highlighted a lack of due consideration of the social impacts of development.

Finally, we argue that potential damage to the endemic sense of place afforded not only by Broome but the entire Kimberley region is an area of concern for development in general. A growing body of research, highlighting the interconnections between an endemic sense of place, environmental degradation, and holistic health amongst Aboriginal and non-Aboriginal persons, suggests that negative change to, or isolation from, a home or loved place (both natural and human-made) can elicit significant psychological, emotional and physiological reactions identified as solastalgia and diminished physical health (Albrecht 2010, 2012; Barton and Pretty 2010). This research suggests that the destruction of Walmadany (JPP) and its songlines is likely to constitute an existential and physical threat to the health and well-being of concerned Broome residents, Aboriginal people and the wider Australian public who identify with, and have personal connection to, the West Kimberley landscape and its various types of heritage and cultural value.

The battle being fought over Walmadany (JPP) represents a pivotal moment for the future of the Kimberley. The proposal highlights a dialectic that continues to unfold in WA between implicit instrumental values guiding notions of industrial development and progress within state governments and the intrinsic value system of those with intimate and personal connections to the landscapes under threat of being lost to industrialisation. As places largely untouched by large-scale development become harder to find in a globalised and interconnected world, the true value of Walmadany (JPP) and the wider Kimberley region is only now becoming recognised (Lawrence 2012, 2013). The processes that guide decisions about such projects must begin to recognise the value of places outside of their instrumental,

industrial use and to encompass the broader sustainability and songline ethics, which reflect the ecological and cultural intrinsic value of special places.

The announcement by Woodside that they do not intend to proceed with the gas hub has only reset the debate that must be had about the future of Walmadany (JPP) and the industrialisation of the Kimberley. As argued above, from the perspective of songline ethics and all other sustainability ethical considerations, the proposed LNG gas precinct at Walmadany (JPP) violates every principle on multiple grounds and should not be allowed to proceed (see Table 3.1 below). Such a conclusion also applies to any scaled-down gas processing hub or industrial activity proposed at Walmadany (JPP) at any time in the future.

## Conclusion

The colonial development of WA, particularly of its mineral resources, has proceeded on the basis of terra nullius and the absence of any meaningful environmental ethics. The gold rushes, the iron ore booms, and bauxite mining in the Darling Ranges have all proceeded on ground taken (often violently) from Aboriginal people and at the expense of the health of the local and regional ecosystems. Further, because of greenhouse gas emissions and global warming, the development of WA is now taking place at the expense of the viability of future generations of all types of beings over the planet. Despite token acknowledgement of the desirability of sustainable development and good product stewardship, both government and corporations have not yet deviated from the despotic path of development introduced to Australia in 1788. Major development in WA has been permitted to take place in areas with multiple sustainability ethical constraints that one might think would prevent it (Cleary 2012).

Sustainable development, as promoted by the WCED, has most of its assumptions built on a homogeneous world with a single interconnected economy aiming for instrumentally valuable increased growth in GNP. While it is true we are now a globally connected economic and technological species, the Earth we inhabit continues to consist of intrinsically valuable, highly diverse and heterogeneous ecocultural systems. The two systems are on collision course. We will need sustainability and place-based songline ethics to re-engage with diversity and the genuine resilience it offers.

These interesting and important case studies show that despotic values, as exemplified by the actions of large corporations, state governments and their 'public service' agencies, and the world of private consultants, continue to prevail over other ethical stances. This is despite possible lessons to be learnt via the errors in history, reasoning and ethics at Murujuga (BP) and the abundant evidence available that suggest that the industrial development of Walmadany (JPP) would repeat those errors.



**Table 3.1** The application of sustainability ethics

Ethical principle	Case study: Murujuga (the Burrup) in the Pilbara	Case study: Walmadany (James Price Point) in the Kimberley
Intra-generational ethics (current justice/injustice)	Fail: Exclusion of Aboriginal people Damage to rock art Despoliation of scenic region Pass: Inclusion of 44 % of Murujuga (BP) into a new National Park	Fail: Flawed EIA and SIA Threat of compulsory acquisition Coercion of Aboriginal peoples Degradation of culturally significant sites Pass: Declaration of new Kimberley marine park Declaration of Horizontal Falls national park
Inter-generational ethics (future justice/injustice)	Fail: Massive global warming contribution Loss of local, regional, state and world heritage Loss of particular art sites to industrial expansion	Fail: Massive global warming contribution Loss of internationally recognised dinosaur fossil prints Degradation of all environments and their flora and fauna Loss of tourist trade Health impacts stemming from air pollution
Inter-species ethics (justice/injustice to other species)	Fail: Area rich in biodiversity Threatening of rare species	Fail: A known humpback whale birthing area Compromising the marine habitat of a number of iconic marine species Habitat of the greater bilby Rare remnant rainforest (monsoon thicket)
The precautionary principle (imposition or avoidance of risk)	Fail: Huge risk to art, humans and other beings from explosions and accidents Poor EIS Poor SIA (FIFO workers)	Fail: Flawed and/or incomplete EIS Incomplete and/or absence of SIA Potential for major hydrocarbon spillage Huge risk to whole coast due to infrastructure, explosions, spills and accidents
Ethical Principle	Case study: Murujuga (the Burrup) in the Pilbara	Case study: Walmadany (James Price Point) in the Kimberley
The global dimension (global equity)	Fail: Massive greenhouse gas contribution Loss of world heritage	Fail: Massive greenhouse gas contribution (additional 50 % to WA output) Loss of internationally significant pristine marine environment Loss and degradation of internationally significant and heritage listed dinosaur footprints landscape
Songline ethics (sense of place values)	Fail: Past massacres Present and future exclusion. Pass: Aboriginal inclusion in new National Park management	Fail: Severing of one of the most clearly defined songlines in Australia Prevention of the trans-generational transmission of law Loss of an endemic sense of place (solastalgia) No free and informed consent

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# Chapter 4

## The Political Economy of Corporate Social Responsibility in the Resource Sector in Western Australia. A Case Study of the Proposed James Price Point LNG Precinct

**Anthea Wesley and Diana MacCallum**

**Abstract** Over the last few years, there has been increased emphasis placed on the “right way” of doing business involving transparent and ethical interactions with communities of interest. The global resource industry is regarded as the one of the primary champions and leaders of this corporate social responsibility (CSR) movement. Increasingly, however, its credibility within the industry is being challenged by the existence of conflict and confrontation and accusations of company misdemeanours that can surround resource development projects globally. For Western Australia’s resource sector, the liquefied natural gas precinct recently proposed at James Price Point in the Kimberley is a prime example. The aim of this chapter is to take a critical assessment of the relations and practices that define interactions between industry, government and community spheres, as a way to make sense of the conflict that surrounds this project. The analysis is informed by theories of governmentality and spatiality, which captures the ‘spaces of CSR’ framework discussed in this chapter. The argument is presented that resource development projects in Western Australia are shaped and defined by a series of historical, political, institutional, economic and social forces, prevailing values and assumptions and also relations of power. This is shown to play out in the contest surrounding the LNG precinct. As a consequence, the practice of CSR in the resource industry is shown to be more complex, problematic and dynamic than is suggested within broader CSR scholarship.

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## Introduction

On 12 April 2013, Woodside Energy announced that it would not be proceeding with a \$45 billion liquefied natural gas (LNG) processing facility at James Price Point (JPP), north of Broome, Western Australia (WA). The decision followed more than 4 years of negotiations, protests, claims and counter-claims involving Woodside and its joint venture partners, the state government, Indigenous traditional owners of the land, Broome Shire Council, the federal government, environmental lobby groups, local business groups, and a variety of other alliances which formed around the project's perceived benefits and costs. Despite Woodside's insistence that the decision not to proceed had been a purely commercial one, Green lobby groups and politicians claimed the outcome as a 'victory', and some Indigenous leaders who had long been against the project vowed not to 'give up the fight'. On the other hand, WA Premier Colin Barnett described the eventuality of no onshore processing at JPP as a "tragedy" (AAP and Wilson-Chapman 2013). Indigenous spokesperson Wayne Bergmann, who as Chair of the Kimberley Land Council had been a key player in the negotiation of a \$1.5 billion package of payments to Native Title claimants for use of the land, called upon Woodside and the state government to honour that agreement in full, stating: "I believe they have an obligation morally. It's not about our legal rights. It's about their social licence to operate" (AAP Financial News 2013).<sup>1</sup>

These events reflect a particular set of ideological framings surrounding the resource industries in WA. While there is continuing public debate over the environmental, social and cultural impacts of mining, the state (regardless of the government's side of politics) has been a consistent advocate, actively reinforcing companies' 'social licence to operate' by centring its own policies for employment and other social opportunities (such as housing) on resource development. As a result, state governments have traditionally been happy to align themselves with corporate interests and, conversely, to oppose and discount (and sometimes to ridicule) arguments against such developments, even when concerns are held by significant numbers of citizens. This creates a characteristic space for the enactment of corporate social responsibility (CSR) in WA, one which we argue is best understood as constituted historically in discursive, political and institutional forces at the level of the political economy.

In this chapter, we explore these forces as they pertain to the JPP LNG processing precinct. The analysis is placed within a theoretical framework, which draws on concepts of governmentality and spatiality to reconceptualise the spaces

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<sup>1</sup> By the end of April, Woodside had further announced a shareholder dividend (totalling approximately A\$500 million) as a result of this decision; they had also agreed to limited compensation payment to Native Title holders of about A\$18 million, pointing out that the full package was contingent on the project going ahead. The state government, for its part, is still considering compulsory acquisition of the land from Native Title holders under the terms of the agreement (about A\$30 million).

of CSR as more complex, dynamic and problematic than many CSR commentators would suggest. Following a brief exposition of this framework, we describe the background to the JPP case. We then unpack some of the discursive practices and strategies that characterised debate about the ethics of the proposal, concluding, firstly, that government has a crucial role in shaping the construction of CSR and, secondly, that spatial relations are central to the way that CSR is experienced in context.

## The Spaces of CSR: A Theoretical Framework

The JPP precinct is a good example of the growing international debate about the social, cultural, economic and ecological costs associated with the resource sector's activities and its interactions with various communities of interest (see, for example, Kemp et al. 2011; Idemudia 2007). Despite extensive scholarly and political attention to the role of business in society (Jenkins 2005), informed by transnational codes of conduct, governance institutions, corporate internal policies and the scrutiny of NGOs, development projects tend to be highly contested, involving host communities, resource companies and governments in a range of strategic activities and alliances (Avci et al. 2010; Calvano 2008).

This tendency toward conflict is particularly evident where developable lands involve multiple cultural, historical, social, emotional, strategic and political issues (Garvin et al. 2009; Idemudia 2009) or where there is a perceived inequitable distribution of benefits, costs and impacts (Kemp et al. 2011). CSR is, in part, an antidote to this perception, aiming to balance social interests and rights, environmental and heritage protection, and profit making (Jenkins 2004; Frederick 2008; Mallin 2009), showing an operational sensitivity to local social, cultural, environmental, economic and governance contexts (Burja and Mihalache 2010). As Wood (1990: 136) argues:

[a] piecemeal approach to social responsibility and responsiveness will not protect a firm's legitimacy. Responding to a few stakeholder challenges or environmental conditions but failing to have an integrated plan for achieving social and economic aims leaves the firm vulnerable to attack from all quarters.

The CSR movement reflects a remarkable shift given that only a few decades ago the ideology of business was constructed around Milton Friedman's (1970) dictum that "the social responsibility of business is to increase its profits". As Woodside's chairman recently commented in a public lecture on business ethics (Chaney 2011):

[Friedman's] is a position you wouldn't hear anyone express in a modern boardroom but I couldn't say the same about boardrooms 20–30 years ago.

Because . . . no company will prosper in the long run unless it is seen as a good corporate citizen.

Thus, CSR can be seen as a win-win approach to doing business (Kurucz et al. 2008). However, increasing evidence suggests that the way resource

companies engage in CSR is not simply a function of managerial discretion but is socially and politically embedded (Amaeshi and Amao 2008); how companies interact with communities is strongly impacted by the role of government in managing economic and social affairs, by ideology, bureaucratic tradition and capacity, and by relations of power between actors (Altman and Martin 2009; Banerjee 2007, 2010; Brammer et al. 2012; Detomasi 2008). As Enoch (2007: 80) puts it: “to view the adoption of CSR as an individual management choice is to lose sight of the system in which it is meant to operate”. That is, the complex social, political and economic frameworks that underlie the political economy (Gray et al. 1996) are critical both to understanding why and how companies choose to engage in CSR and to evaluating the effectiveness of CSR initiatives (Detomasi 2008).

The spaces of CSR concept emerges from this understanding of CSR. The forces of the political economy—the social relations, practices, institutions and power structures, as well as associated modes of oppression and domination, that define arrangements between industry, political and societal spheres (Gregory et al. 1994; Warf and Arias 2008)—are seen as significant in shaping CSR policy and practice in the resource sector (Auld et al. 2008; Banerjee 2007; Detomasi 2008) and, more particularly, for uncovering some of the conflicts and challenges surrounding the JPP precinct. To this end, we have found two additional areas of theory useful: governmentality and spatiality. The governmentality perspective, which emerges from the work of Michel Foucault (2004), presents a framework for thinking about the state, and the processes and instruments used in governing, by deconstructing the styles of reasoning embedded within institutions, procedures, tactics, reflections, discourses, and distinctive forms of knowledge that resemble and act as political “truths” (Rose 1999; Rose and Miller 1992; Miller and Rose 2008; Dean 2010). Methodologically, this suggests a focus on political discourse and governance practices as articulating a specific form of power embedded in liberal democracies and regimes of practice (Dean 2010): one that is “productive of meanings, of interventions, of entities, of processes, of objects, of written traces and of lives” (Miller and Rose 2008: 9). Cotoi (2011) suggests that debates about human ethics, notions of risk, ideas on human nature and corporate conduct—issues at the core of CSR—are implicated in this “productive dimension” (Lemke 2010: 33) of political power and its technologies (including statutes, institutional arrangements, policies, procedures, etc.). Critically, governmentality is said to structure the field of possible action (Miller and Rose 2008) and, for this reason, we are not the first to suggest that it can be used in “providing a critical understanding of how CSR works and what it does” (Vallentin and Murillo 2009: 11). According to the critical CSR perspective, a *neoliberal governmentality* strongly shapes relations between industry, government and community: an ideological belief that the state should not intervene directly in markets, but rather govern by establishing “the market’s parameters, monitor its outcomes and consequently adjust these parameters to achieve the most optimal results” (Fletcher 2010: 173). And yet, it has also been noted that states have frequently continued to play highly interventionist roles in the neoliberal restructuring of political economies (Cahill 2007; O’Tuathail

et al. 1998), that “actually existing neoliberalism” (Brenner and Theodore 2002) is far more complex and path-dependent than the ideology suggests.

In recent years, we have also been encouraged to view the political, its processes and transformations (intended and unintended), as materialising ‘somewhere’ and ‘somehow’ (Swyngedouw 2004). Huxley (2008) suggests that governmentality is inherently spatial, with spaces and places, like subjects, being shaped and formed by the intersection of power, knowledge, imaginaries and practices. This perspective on spatiality suggests that the territories for which CSR policy and practice is designed and implemented must be considered “more than merely land, but a rendering of the emergent concept of ‘space’ as a political category: owned, distributed, mapped, calculated, bordered, controlled” (Elden 2007: 578). Methodologically, this involves acknowledging the need to connect with ‘on the ground’ to account for unevenness and spatial variation in CSR governance as played out in different local, political-economic and social contexts (Stenson and Watt 1999). Rose (1999: 34) captures the importance of spatiality to projects of governing:

It is a matter of marking out a territory in thought and inscribing it in the real, topographizing it, investing it with powers, bounding it by exclusions, defining who or what can rightfully enter.

Thus, many studies have illustrated that the imagining and positioning of space(s) is essential to the power relations produced by practices of the state (Legg 2005), technologies of governance (Huxley 2008), and the ways in which problems are defined and solutions formed according to spatial frames (Dikec 2006). As such, an engagement with spatiality goes to the core of issues shaping the political economy and, thus, of CSR as a particular set of such arrangements. From this point of view, CSR policy and practice is not only social, political, economic and cultural, but “inescapably always and everywhere also the spatial” (Warf and Arias 2008: 7).

To further refine this spaces of CSR concept, we also see the spatial arrangements defining the practice of CSR in the resource sector as occurring in *relational space*, ever unfolding, “constituted through a very large number of spaces, discursive, emotional, physical, natural, organisational, technological and institutional” (Rose 1999: 248). This concept contrasts with the traditional Euclidean notion of space as a ‘flat’ container for objects and events; it acknowledges the range of possibilities between objects, events and spaces as they are influenced by a heterogeneous arrangement of physical and social relations, patterns, structures, flows and politics, be they political, legal, economic and/or social nature (Massey 1994, 2005; Warf and Arias 2008; Martin et al. 2003; Clifford et al. 2009). It is therefore suggested that CSR is not a simple business tool used at the discretion of corporate managers, but a process of relational unfolding, a space of modes, networks, power asymmetries and forces that unfold in different ways and different places (Arias 2010). By grounding an analysis of CSR in relational space, alongside governmentality and spatiality, it is possible to draw attention to the way CSR is being re-imagined and reconstituted by way of spatialised forms and arrangements (Clarke 2008).



## Case Study Background

JPP is located in WA's Kimberley region, 60 km north of Broome. In February 2009, Premier Colin Barnett announced the government's selection of JPP as the site for a proposed large onshore multi-user LNG precinct to process gas from the Browse Basin, a significant gas field about 300 km offshore from the Kimberley coast in the Indian Ocean. The government intended to construct the processing precinct, with land area of up to 2,500 ha and a total production capacity of up to 50 million tons per annum of LNG, and lease it to at least two LNG operators. This was to include processing and shipping facilities and also a large support base, either at Broome or in the region nearby Woodside Energy; joint venture partners BHP Billiton, BP, Japan Australia LNG, and Shell, were selected as foundational proponents.

To progress the project under the *Native Title Act (1993)*, the WA state government, Woodside and the Kimberley Land Council (KLC) on behalf of Goolarabooloo Jabirr Jabirr traditional owners (GJJ) negotiated a Native Title Heads of Agreement in April 2009, and in 2010 the government issued notices for the compulsory acquisition of the land required. This process culminated in the signing of an Indigenous Land Use Agreement (ILUA) in June 2011. The agreement included the provision of a \$1.5 billion benefits package to GJJ traditional owners and also a regional benefit for Aboriginal people throughout the Kimberley. Woodside's commitments included the implementation of ongoing education, training and employment initiatives, Indigenous job targets, support for Indigenous businesses, cultural initiatives and payments upon project milestones being met. The state government included a range of regional benefits: an economic development fund, Indigenous housing fund, education fund, cultural preservation fund, Kimberley enhancement scheme fund, funds for conservation reserves on the Dampier Peninsula and land provision for traditional owners (Department of State Development 2012; Woodside 2012).

The LNG precinct proposal has been the subject of enormous controversy within the GJJ traditional owners, the local Broome community and the broader public. Large-scale protests by the local community (including some traditional owners, as well various other Indigenous and non-Indigenous groups), lobbying at the state and federal levels, and a number of legal challenges served to keep the project in the public eye. Throughout this controversy, however, the state has never wavered in its support.<sup>2</sup> Even now, after Woodside's decision not to proceed, the government has indicated that they will continue with the land acquisition process.

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<sup>2</sup> To illustrate their determination: the Environmental Protection Authority's (EPA) recommended approval of the project in 2012 was endorsed in spite of the withdrawal of all but one EPA member from deliberations due to conflicts of interest. After the first Notices of Intention to Take were overturned by the Supreme Court in 2011 and a subsequent resolution by the Goolarabooloo claimants to withdraw from the GJJ and lodge their own claim—a direct result of internal conflict over the JPP precinct—new notices for compulsory acquisition were quickly issued, partly in order to validate the earlier agreement.

## The Spaces of CSR at James Price Point

In this section, we critically examine how the spaces of CSR have been shaped and framed around the JPP precinct, with particular attention to the practices, language and spatial imaginaries of the state government in relation to two key themes prominent in CSR discourse: Indigenous development and environmental protection.

### *The Pressing Need for Development*

In contrast with a ‘pure’ reading of neoliberal ideals, the WA government elevated its role in the JPP precinct to that of ‘proponent’ in order to clear complex impediments (social–cultural–ecological) to the development. In this role, it initiated a process of compulsory acquisition, which seems to have been an important factor in securing the agreement of traditional owners to the project. We suggest that such highly active state involvement is an essential characteristic of Western Australian practising neoliberalism, especially in relation to resource development. In attempting to realise its ‘big dream’ of being a world-renowned resource economy the government showed an ‘authoritarian’ face (Dean 2002), limiting the exercise of choice by enforcing obligations on Native Title claimants under the agreement, an act consistently defended as necessary to the future of the project and, therefore, to the economic future of the state. For example it was claimed that: “the precinct will attract investment to the state worth tens of billions of dollars as well as creating long term employment and business opportunities worth millions annually in Broome and other local communities” (Styles 2012). We can expect that such reasoning will allow for a ‘weak’ form of CSR, a space in which hitherto ‘normal’ demands on resource companies (such as paying tax, employing local labour, supplying construction worker housing or compensating traditional owners) can be reframed as evidence of corporate generosity (cf. Howlett et al. 2011).

To place this in broader context, CSR is being fractured by a long standing ideology of development and entrepreneurialism as primary guiding principles of the state’s political system and culture (Beresford 2001; Gallop 1997; Head 1986; Moon and Sharman 2003). Since the 1960s, industrialisation has been seen as fundamental for the protection of Western Australian state rights and the creation of employment opportunities. This was seen to be most effectively achieved through exploitation of WA’s mineral resources, with governmental incentives for private large-scale developments (Bolton 1981). State political discourses centred around production targets and infrastructural provision and expansion that emerged from big visions, what Layman (1982: 235) regarded as the new discourse of “bigness”, which defined the resources industry as a “vehicle for state-building” (Harman and Head 1982: 59). From the 1980s, this development ideology was reinforced and reshaped following a change in political leadership under Labor

Premier Brian Burke, a period described by a Broome resident as “the start of business and government working hand in glove.”<sup>3</sup> This partnership ultimately ended in the WA Inc. scandals, but also set the scene for a yet more active government role in economic development. The vision of the current Liberal-National government has followed the path set by its predecessors (on both sides of politics) to make the state a “leading mining economy” (Government of Western Australia 2010). At an industry conference in 2011, Premier Barnett stated that “this is a very open country to foreign investment. The access that international business has into this market is not matched anywhere else in the world . . . this is a good deal and you know it” (The Daily Review 2011).

Alongside this strong and persuasive development ideology, there is another long-held “seductive truth” (Vallentin 2012): that the resource sector is critical for the social betterment of Indigenous Australians. In the case of JPP, this has led to the persuasive suggestion that the LNG precinct—with its ability to provide “real jobs, real improvements in housing, education and health” (Barnett 2010)—is, in fact, a form of social responsibility in itself. Indeed, Woodside’s Chairman Michael Chaney has explicitly stated that should the actions of anti-JPP activists lead to the project not going ahead, this “would be an immoral act” (Chaney 2011). As a consequence, it has been difficult to challenge these discourses with alternative ones, for instance about the role of the cultural and conservational economies (whose jobs, it is implied, are not ‘real’) in the social betterment of Aboriginal people.<sup>4</sup> A parliamentary address by Liberal MP Barry Haase was explicit on this point, describing a career in the tourism industry as: “pennies from tourists, the occasional job as a guide” (Haase 2010). Moreover, by creating a discursive space of ‘irresponsibility’ inhabited by protesters and activists, the ‘seductive truth’ legitimises the weak form of CSR noted earlier—the proponents (Woodside and the government) are deemed socially responsible by virtue of their opposition to those who would deny Indigenous people such opportunities.

There was also an important spatial aspect to this argument. Concurrent with the controversy surrounding the LNG precinct, there was a marked increase in media coverage of the Kimberley as a “disposition problem space” (Huxley 2006), a space of disorder, drunkenness and chaos, producing disease, death and poverty (see, for example, Rothwell 2011). At the same time, there have been several articles pointing to the failure of government programs to improve Aboriginal well-being (e.g. SMH 2011; The Age 2011), contributing also to a ‘problem space’ in the way government has so far managed Aboriginal communities (i.e. through welfare programs).<sup>5</sup> The wider context for this debate is a national policy shift from an

<sup>3</sup> Interview with Broome resident as a part of Wesley’s doctoral research in 2011.

<sup>4</sup> For instance, Dr Anne Poelina, a traditional owner in the Kimberley, has argued that “Traditional Owners throughout the Kimberley have been building a sustainable local economy around culture and conservation industries” (Hyman 2010).

<sup>5</sup> These articles show that over the years a significant number of studies and inquiries have highlighted continuing social problems in Aboriginal communities despite government-led programs to intervene. An internal report commissioned by former Prime Minister Kevin Rudd

ideal of ‘self determination’ to one of mutual obligation and economic independence, a discourse that strongly supports the engagement of Aboriginal people with the ‘real economy’—often equated in remote regions with mining (Howlett et al. 2011). However, at this time the Kimberley is receiving a disproportionate level of attention, as Barbara McGillivray, chairperson of the FATSILC, the national peak body for community based Indigenous language also highlights:

Rothwell highlights the suicide, alcohol, drugs, violence and self-harm crisis amongst the Indigenous community located within the Kimberley area. This is a long, complicated and continuing problem experienced in majority of Aboriginal communities throughout Australia (McGillivray 2011).

This provides crucial framing for the CSR discourses being produced around the LNG precinct. The solutions to these problems foreground a discourse of personal responsibility, economic empowerment, self-determination and ending welfare dependency—neoliberal values which are unquestionable according to the state’s own logic. Spatially, they are grounded in a view of remote regions as peripheral to the urban secondary and tertiary economies, as ‘somewheres’ in which resource development is the only ‘real’ economic choice. In presenting the Kimberley as such a problem space—effectively undifferentiated across the region, in spite of important local differences—the proposed JPP LNG precinct tacitly becomes an urgent remedy.

### *Technologies for Environmental Management*

While a strong pro-development mantra exists in WA, the government also highlights that development is subject to the “highest level of environmental protection” (Government of Western Australia 2010). The management of the environment in WA is framed by specific governmental technologies encoded in statute, but its realisation is influenced by the prevailing political climate, the relative power and status of the Ministers and portfolios (e.g. environment versus resources development, the latter being currently occupied by the Premier himself) and also public opinion. In particular, it appears to be shaped by the developmental logic outlined in the section above. Over the past four decades, the management of the environment has been an area of continued government interest, in part due to industry and political concern about the capacity of environmental (and Indigenous) issues to slow down processes surrounding resource development approvals (Government of Western Australia 2009; see also Chap. 11). This has led to a series of reviews, the most recent being the ‘Regulatory Impact Assessment Process Review’ (the Review) initiated by Mines Minister Norman Moore in 2008, whose stated purpose was “to make the state’s approval processes more efficient and more welcoming for

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indicated that the \$3.5 billion a year that have been devoted to 232 programs to support Aboriginal people had not been effective (Wright 2011).

mineral and petroleum exploration and development activity” (Government of Western Australia 2009: 1).

The preface to the Review’s report notes: “the environment is an important consideration, but it is not always—or even often—the only one. A weak economy is a far greater threat to the environment than is responsible mining” (Government of Western Australia 2009: 2). This is a clear example of how the prevailing economic rationality clouds the environmental sphere. In turn, the Review’s finding that “responsible resource development has had, and will continue to have a negligible impact on Western Australia’s environment” (Government of Western Australia 2009: 1–2), suggesting that industry self-regulation has been successful in protecting the environment, reflects a preference for voluntary measures, and is in turn a key indication of the neoliberal values working to shape the WA space for CSR (Vallentin and Murillo 2012).

The way that WA technologies of governance seem to subordinate the environmental sphere to economic interests may explain why the environmental impact reports for the LNG precinct were criticised by some for being inadequate (Collins 2011; Lindsay 2012). Even less evident in the approvals process was serious consideration of social impacts, for which, unlike environmental impacts, there are no legislated management procedures.<sup>6</sup> The concerns of some Broome residents about protecting liveability and sense of place seem to have been largely dismissed by the Premier: “I don’t believe it will have a great impact on Broome . . . once operational. I don’t lie” (Prior and Williams 2011). As a senior public servant stated:

this current government is not about protecting liveability; [rather it is] about providing economic opportunities for those communities. That is how you protect those communities and their liveability . . . there are certainly a lot of similarities in the way industry and key members of the current government think.<sup>7</sup>

A key element of the environmental debate at JPP was a spatial imaginary—the Kimberley region. The current interest in the Kimberley can be situated within an economic development path associated with an ambitious shared government vision for northern Australia. In other words, there exist long-held desires on the part of both state and federal governments to transform the Kimberley into a dominant economic force in the same way as the Pilbara was transformed some decades earlier.

Since the emergence of the JPP LNG precinct, this spatial vision has been a constant reference point. Crucially, the regional scale itself is constructed in relation to the costs and benefits of the development, its size being regularly invoked as a point of comparison with the ‘local’ scale of the precinct and with the environmental impacts that its development will have. For example:

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<sup>6</sup> Consideration of ‘social surroundings’ under the Environmental Protection Act is limited by precedent to impacts directly associated with physical/biological environment.

<sup>7</sup> Interview with a Western Australian senior public servant for Wesley’s doctoral research in 2011.

With respect to James Price Point, yes, it's an attractive beach area. It is a small area. It is about three and a half thousand hectares of land and seabed affected. To put that in context of the Kimberley, if the Kimberley was the MCG, this is one seat. It is a very small part of a vast landscape (Barnett 2010).

And:

Approximately 2500 hectares has been allocated for the precinct, which represents less than 0.006 per cent of the Kimberley. To put it into perspective, the Kimberley is an area of 423 517 square kilometres, which is about twice the size of Victoria, more than three times the size of England, and about the same size as the state of California (Woodside 2011).

Similarly, the strategic contribution of the precinct to the state and national economy is emphasised in explicit contrast to the local scale of competing industries such as hospitality and tourism, as we have seen above. This reflects a Euclidean spatial sensibility, one in which the 'where' of events can be measured, and in which the 'big' trumps the 'small'. When compared with many local expressions of spatial reality, the contrast is stark—in Broome and further afield, JPP is represented as socially and culturally connected with people, through important Indigenous heritage sites (such as the song cycle formalised in the Lurujarri Heritage Trail), and also as a symbol of the non-industrialised landscapes which attract people to Broome, the Kimberley and, indeed, Australia. This was captured by Goolarabooloo traditional owner Joseph Roe:

The LNG Gas Precinct Proposal is a dangerous and frightening prospect for the Traditional Owners and Custodians. Without Country, there can be no Culture. Law cannot be practised. Nor can the Country be "kept quiet" and safe. Culture cannot exist without Country, nor Country without Culture . . . Any amount of money in compensation cannot substitute for it (Roe 2011).

Similarly, local Broome Aboriginal identity Albert Wigan stresses the relational nature of JPP as a space of social connections:

The place they have picked is something that is so close to us that we are integrated to it. We are not removed from it, we are part of it . . . It is not a place 60 kilometres away from us, it is a place that we have used all our lives. There are the connections there just on social basis and on a cultural basis (ABC News 2012).

CSR, we argue, needs to engage local spatial imaginaries if it is to be convincing. In the case of JPP, the strategic use of the Kimberley as a regional scalar unit has worked against such an engagement; in effect, the regional scale has become a discursive boundary between the state's framing of CSR and the local experience of it. The space of CSR in WA, it seems, is one in which a development ideology subordinates environmental and social concerns to the drive for economic growth, itself defined as a form of environmental and social responsibility. This highlights the influence of neoliberal values within CSR by stressing economic emancipation as the primary social good (Dean 2010; Miller and Rose 2008). As a consequence, processes designed to protect physical and social environments themselves receive state scrutiny for their negative impacts on the pace of development, showing a marked preference for self-regulation and, again, creating a space for the exercise of 'responsible' corporate discretion.

## Conclusion

The JPP case reveals a picture of ‘actually existing neoliberalism’ in WA as a space of intimacy between government and industry, in which a range of discursive and procedural strategies combine to present resource development as *intrinsically* socially and environmentally responsible. The implications are clear: the rationalities and technologies of government are central to the spaces of CSR, not only to the way CSR is conceived and practised by companies, but also to the way it is experienced on the ground. That is, CSR is an implicitly spatial phenomenon, which needs to be understood in the context of the political economy of the state.

These findings are powerful, as they give critical insight into the system that has fractured CSR. We can learn more about the way this system works by using the theories of governmentality and spatiality through the spaces of CSR concept. We can also suggest that CSR, a phenomenon that captures the way industry and communities interact, is not a corporate product, but something that is the result of a collation of interactions, forces and flows. That is, CSR is far more complex than is suggested by the mainstream business academy.

Since Woodside’s announcement of its decision not to proceed—a decision wholeheartedly endorsed as commercially sound by Woodside’s shareholders and the stock market—the government has taken care not to explicitly place responsibility in corporate hands for the ‘tragedy’ of JPP’s non-development. While both government and industry have portrayed the actions of protestors as selfish and irresponsible, to our knowledge only Wayne Bergmann has publicly suggested that Woodside has a similar moral responsibility to see that the benefits of the development are realised. The neoliberal space of CSR, of course, can never be larger than the corporation’s obligation to increase its profits.

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# Chapter 5

## The Mining Boom and Indigenous Labour Market Outcomes

Alfred Michael Dockery

**Abstract** Much of Western Australia's economic development and prosperity is derived from mining activity which takes place in remote areas in which Indigenous peoples disproportionately reside, and on country over which Indigenous Australians are now legally recognised as the custodians. It would therefore seem logical that mining should offer a potential basis for improving Indigenous employment and a resource-base upon which to promote self-determination. This paper uses census data to investigate whether the recent mining boom in WA translated into improved employment opportunities for the Aboriginal and Torres Strait Islander populations living in those areas. Despite significant advancements in the legal framework for Native Title and stated commitments to corporate social responsibility towards local Indigenous populations, the results suggest that Indigenous communities leveraged minimal benefits from the mining boom in terms of employment opportunity.

### Introduction

Australia is now one of the world's most prosperous countries, and the resource rich state of Western Australia (WA) seen as its 'economic powerhouse'. Yet in WA as at the national level, progress has been glacial in addressing the social and economic marginalisation confronting much of the Aboriginal and Torres Strait Islander population, and in reconciling the past injustices suffered by these peoples. Much of Western Australia's economic development and prosperity is derived from mining activity, which takes place mostly in remote areas in which Indigenous Australians disproportionately reside, and on country over which they are now legally recognised as the custodians. It would therefore seem logical that mining

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should offer a potential basis for improving Indigenous employment and a resource-base upon which to promote self-determination. Historically, this was clearly not the case as past policies ensured that the expansion of colonial Australia went hand in hand with the destruction of Indigenous culture, including displacement from traditional lands and the forced removal of children from their natural families. However, significant advancements in the legal framework for Indigenous rights were taking place just as this current resource boom was taking off, including the recognition of land rights in 1992 through the High Court's ruling in the Mabo case and the passing of the Commonwealth Native Title Act in 1993. So what of the recent resource boom? In the contemporary and more 'enlightened' policy framework, have some of the benefits from the mining boom flowed through to improve Indigenous livelihoods in WA?

This chapter seeks to cast light on these questions by looking at how the regional expansion of mining activities in Western Australia has translated to improved employment opportunities for the Indigenous populations living in those areas.

## ***Background***

It has been estimated that when Captain Cook sailed into what is now known as Botany Bay in 1770 and claimed possession of Eastern Australia for King George III of England, there were some 750,000 Indigenous inhabitants of Australia, with between 500 and 700 tribal languages in common use (Christie 1985). Early accounts report that these people were healthy and strong and that premature death was rare (Trudgen 2000). Two and a quarter centuries on, Australia has developed into one of the world's wealthiest nations, but not all Australians share equally in this economic prosperity. There is a marked disparity in the standard of living experienced by the Aboriginal and Torres Strait Islander population—the descendants of the Indigenous peoples who inhabited Australia at the time of European settlement—and that enjoyed by non-Indigenous Australians. Income or wealth may not be the most appropriate measure of well-being for many Indigenous people, but the disadvantage they face extends across the range of measures envisaged under standard frameworks for assessing well-being or capabilities. As just some of many potential examples, Indigenous Australians have a lower life expectancy by around 20 years compared to non-Indigenous Australians; rates of arrest and incarceration many times higher; suicide rates approximately double that of the wider population, and are about half as likely to complete high-school (SCRGSP 2011).

There is also a stark contrast in the geographical dispersion of the Indigenous and non-Indigenous populations in Australia. Contrary to the perception of Australia as an 'outback' nation of farmers and miners it is in fact one of the most urbanised countries in the world. Based on 2011 Australian Bureau of Statistics (ABS) census data, an estimated 70.9 % of the non-Indigenous population

**Table 5.1** Indigenous and non-Indigenous population estimates by remoteness: WA and Australia, 2011

	Western Australia		Australia	
	Indigenous (%)	Non-Indigenous <sup>a</sup> (%)	Indigenous (%)	Non-Indigenous <sup>a</sup> (%)
Major cities	37.7	77.2	34.6	70.9
Inner regional	7.4	9.2	22.2	18.5
Outer regional	14.6	7.7	21.7	8.8
Remote	16.0	3.9	7.3	1.2
Very remote	24.3	2.0	14.2	0.5
Total <sup>b</sup>	100.0	100.0	100.0	100.0
(Total persons <sup>b</sup> )	(69,200)	(2,162,200)	(545,600)	(20,913,100)

Source: ABS (2011)

<sup>a</sup>Includes Indigenous status not-stated

<sup>b</sup>Excludes those classified as 'migratory—offshore—shipping' and 'no usual address'

reside in major cities and a further 18.5 % in major regional centres (see Table 5.1).<sup>1</sup> Less than 2 % of the non-Indigenous population lived in areas classified as remote or very remote. In contrast, the Indigenous people are far more dispersed throughout regional and remote Australia. The relative concentration of Indigenous people in remote areas is even more pronounced in WA, where less than one half of the Indigenous population live in major cities and regional centres, while around 40 % live in remote and very remote areas. This included one-quarter of WA's Indigenous population living in areas classified as very remote.

Numerous writers, activists and commentators have previously noted the potential for extractive industries to provide a basis for supporting Indigenous livelihoods given this geography and their knowledge of the land (Langton and Longbottom 2012; O'Faircheallaigh 2010, 2013). This potential derives not only from the coincidence of geography between mining activity and Indigenous populations. More importantly, local employment in regional and remote areas can allow engagement with the mainstream labour market for Indigenous people while maintaining cultural ties that are important to them, such as kinship networks, ceremonies and attachment to homelands and sacred sites (see Chap. 17). Instances of such a coexistence between employment and maintaining elements of traditional lifestyles had been forged within the pastoral sector prior to the ruling in the Equal Wages Case of 1965 (Bunbury 2002) and evidence shows that cultural engagement continues to be very important to the health and well-being of many Indigenous Australians (Dockery 2012; Campbell et al. 2011).

Many Indigenous people worked in the Western Australian mining industry in the early 1900s, and a number of Indigenous organisations and companies formed from the 1940s in what could be seen as a means to extract income and employment opportunities within a culturally appropriate organisational framework (Holcombe

<sup>1</sup> Unless otherwise stated, figures given in this chapter for 2001, 2006 and 2011 are derived by the author from the ABS census data, accessed through the Community Profiles, Time Series spreadsheets and TableBuilder online facilities at <http://www.abs.gov.au>.

2005). In 1967, according to Holcombe, Indigenous people held 30 mining tenements in WA's North West and 28 in the Goldfields, but the emergence of the large mining corporation and closed mining towns in the Pilbara increasingly marginalised Indigenous people from the mining industry (2005: 111–114). In many cases, it is clear that mining developments in WA and elsewhere in Australia in the latter half of the 1900s frequently impinged upon Indigenous rights with little benefits flowing to local communities (see for example, Altman 2009: 24–25; Langton 2013; O'Faircheallaigh 2013: 23).

However, a number of important developments over the last two decades could be expected to have added impetus to the benefits Indigenous Australians enjoy from mining activity taking place on or near their traditional lands. Firstly, the High Court's *Mabo* decision in 1992 established the legal doctrine of Native Title, and hence the requirement for mining companies to negotiate with those recognised as the traditional owners when operating on their lands. Secondly, there is, at least at the public relations' level, a growing recognition of the importance of a 'social license to operate' (Altman 2009; Centre for Social Responsibility in Mining [CSRM] nd; Langton and Longbottom 2012; O'Faircheallaigh 2008). In discussing the 'changing face' of the Australian minerals industry, CSRM note that sustainable development and corporate social responsibility are now firmly on the industry's agenda and that "[i]t is no longer considered acceptable to operate mines alongside Indigenous communities that do not share in the economic benefits derived from mining" (nd: 9).

The third development, of course, is the current mining boom and its sheer magnitude. Even against the many significant resource developments of the past, such as the gold rush of the mid-1800s, the development of iron ore mining in the Pilbara and the commodity linked boom of the early 1960s, the current resource boom has been flagged as the largest and most sustained of the country's history (Sheehan and Gregory 2012). As measured by most indicators of economic performance, Australia has benefited enormously from the demand for resources flowing from the rapid growth of the Asian economies, notably China, making it the stand-out performer among the advanced economies in the early twenty-first century. This has come about initially through a sharp increase in commodity prices and demand for Australian exports, driving up our terms of trade and international purchasing power. It has been followed by a massive investment phase in response to that demand, which is expected to lead to a future flow of export income and employment. Western Australia, and notably the Pilbara region, has been the focus of much of this activity (Taylor and Scambary 2005).

### ***The Legal Framework***

As noted, the High Court Decision in *Mabo v Queensland No. 2* (1992) established the existence of Native Title. The decision essentially brought into Australian common law the principle already long held within English law that inhabitants

of a territory prior to colonisation retained possession of that territory, a principle which had not been applied in Australia because the early colonists did not recognise the Indigenous laws and customs connecting them to their lands (Kildea 1998). The Mabo decision meant Indigenous people retained ownership of their lands if they could prove a continuous connection to them, and if ownership had not been extinguished by the Crown, for example by an Act of Parliament. Later, in the Wik case of 1996, the High Court ruled that pastoral leases did not confer exclusive possession to the pastoralists and hence was not one of those Acts that extinguished Native Title. Pastoral leases and Native Title could coexist. To address the uncertainty created by these decisions and the problems many foresaw, the Commonwealth Government enacted the Native Title Act of 1993 and *Native Title Amendment Act* of 1998 which defined the processes by which Native Title rights can be claimed and extinguished, and the rights it confers to the holders. The latter Bill also addressed uncertainty regarding the form and legal status of agreements into which Native Title holders could enter into by establishing detailed provisions for Indigenous Land Use Agreements (ILUAs) (Kildea 1998).

The full legal and practical ramifications of the Mabo and Wik decisions and the ensuing legislation are highly complex and many aspects remain in contention. In short, the effect of the Native Title legal framework is only to give Native Title holders (and claimants) the right to negotiate over the terms and conditions over which mining companies or other interests will access their lands. However, they have no right of veto over a development, even if it is seen as damaging to their cultural heritage (O’Faircheallaigh 2008: 34). They also have no special rights over mineral resources beyond the right to negotiate and, if the parties fail to reach an agreement within a 6-month timeframe, “. . . an arbitral process allows mining to proceed with compensation determined without recourse to the value of the minerals” (Altman 2009: 23).

Indigenous Land Use Agreements arising from the right to negotiate established in the Native Title Act and subsequent amendments are now the main form of agreement under which Native Title holders and applicants in Western Australia negotiate access arrangements, compensation and heritage protection. As at March of 2013, there were 58 ILUAs registered in WA, including a state government ILUA negotiated to provide greater certainty in continuing state government operations following a Native Title determination.<sup>2</sup> Unfortunately, from a researcher’s perspective, the terms of ILUAs are generally confidential between the parties, but case study evidence on their efficacy and outcomes is now accumulating (see, for example, O’Faircheallaigh 2008, 2010; Langton and Mazel 2012; Trebeck 2007).

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<sup>2</sup> See <http://www.dpc.wa.gov.au/lantu/Agreements/Pages/Default.aspx>. The National Native Title Tribunal maintains a searchable, online register of Indigenous Land Use Agreements accessible from: <http://www.nntt.gov.au/Indigenous-Land-Use-Agreements/Pages/default.aspx>.

## The Mining Boom and Indigenous Economic Development in WA

This section draws upon data collected through the Australian Bureau of Statistics' 5-yearly Census of Population and Housing to investigate how the Indigenous population has fared economically over the duration of the boom. While the census data is the only real option for such an analysis, it must be acknowledged at the outset that there are significant limitations in the count of Indigenous peoples in the census. These include high rates of non-response to the question on Aboriginal or Torres Strait Islander status, and suspected undercounts of younger Indigenous persons and of those in remote areas (see Martin et al. 2002). While concerted efforts to improve Indigenous enumeration have been ongoing, this also serves to limit comparability between censuses.

In 1991, the estimated labour force participation rate for Aboriginal and Torres Strait Islanders in WA was 48.8 %, compared to 64.3 % for non-Indigenous Western Australians. Despite this markedly lower level of participation among Indigenous Western Australians, the Indigenous unemployment rate stood at 36.1 %, three times the 12.1 % recorded for the state's non-Indigenous population (ABS 1993).

In the early 1990s, Australia and WA faced an unemployment crisis. Entrenched long-term unemployment flowing from sharp downturns in 1981–1983 and again in 1990–1992 had cemented a structural floor under the unemployment rate. From a double-digit peak in the unemployment rate in late 1992, exceptionally strong jobs' growth associated with the mining boom steadily tightened the labour market and unwound unemployment. WA's trend unemployment rate reached a remarkable and surely unsustainable low of 2.7 % late in 2008 before the global financial crisis hit (ABS 2013). By the 2011 census, the participation rate for non-Indigenous people in WA stood at 68.2 %, and the unemployment rate at just 4.5 %. Surprisingly, this dramatic turnaround in labour market conditions did nothing to reduce the level of exclusion of Indigenous people from the mainstream WA labour market. The Indigenous participation rate of 46.3 % in 2011 was actually *lower* than that recorded in 1991. For those Indigenous people participating in the labour market, however, fortunes had improved in absolute terms, with an unemployment rate of 17.8 % in 2011. While this represented about half the rate recorded for Indigenous Western Australians in 1991, in relative terms it meant that Indigenous people in WA were now four times more likely to be unemployed than non-Indigenous persons, rather than three times more likely as was the case in 1991 (conditional upon participation as explained in more detail below).

These broad indicators suggest that policy largely failed to harness the potential benefits of the mining boom and associated jobs' growth in improving economic opportunity for the state's Indigenous population at the macroeconomic level, be that policy of government, corporations or other relevant organisations. It is possible to look more specifically at the contribution of the mining industry and the impact of the resource boom on more remote communities. Due to the capital



intensity of the mining industry, its small share of overall employment belies its importance to the wider economy. In 1991, the mining industry's share of total employment in WA stood at 4.1 % (ABS 1993) and actually declined in the subsequent inter-censal period to reach 3.5 % in 2001. Mining's share of state employment then accelerated to 4.3 % in 2006 and to 6.2 % in 2011.

To assess the benefits flowing to Indigenous West Australians from these mining activities, initially the cross-sectional relationships between mining employment and Indigenous labour market outcomes by local government area (LGA) are examined using 2011 census data. Second, the effects of growth in mining employment are investigated by looking at *changes* in regional mining employment between the 2006 and 2011 censuses and changes in Indigenous labour market aggregates in 2011.<sup>3</sup> The indicators of labour market outcomes tested are the unemployment rate, the participation rate and the employment rate. Broadly speaking, persons in the working age population are classified as either in the labour force (participants) or not in the labour force (non-participants). Participants are either working (employed) or actively looking for work (unemployed). The unemployment rate is the number of unemployed persons expressed as a proportion of those in the labour force. The participation rate is the proportion of those in the labour force to the total working age population.

The unemployment rate is the most widely used measure of labour market disadvantage across groups or regions. However, it has some limitations in that changes in the participation rate can negate responses in the unemployment rate: for example, falling employment opportunity in a region may not be reflected in the unemployment rate if enough discouraged jobseekers drop out of the labour market. The employment rate, measured as the number of people employed as a proportion of the working age population, provides a useful additional composite measure of labour market conditions.

Mining employment by LGA, and the share of mining employment in total employment, is used as the main indicator of the importance of mining in each area. This is based on the recorded 'place of work' rather than workers' usual place of residence or place of enumeration on the census night, and hence accounts for fly-in/fly-out workers. There are 139 LGAs in Western Australia, with the share of employment in the mining sector in 2011 ranging from zero in numerous areas to 75.7 % in Laverton. The mining sector accounted for more than half of all jobs in ten shires. The simple correlation coefficient between the share of mining in total employment and the Indigenous unemployment rate is close to, and statistically insignificant from, zero ( $\rho = -0.02$ ,  $\text{prob} = 0.82$ ). The correlation coefficients between the mining share of employment and the Indigenous participation rate ( $\rho = 0.13$ ,  $\text{prob} = 0.14$ ) and Indigenous employment rate ( $\rho = 0.11$ ,  $\text{prob} = 0.21$ ) are also small and insignificant.

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<sup>3</sup> Ideally this analysis would be based on changes over a longer time frame. At the time of writing, however, Time Series data concordant to the 2011 classifications were publicly accessible (through the TableBuilder online facility at the ABS website) only for the 2006 census.

The non-significance of mining activity or intensity on local Indigenous labour market outcomes is confirmed by estimation of simple linear regression models to control for remoteness of the LGA and the size of the Indigenous workforce.<sup>4</sup> In these models a variable based on the ratio of mining employment to the Indigenous working age population was also tested as an alternative indicator of potential employment opportunity for Indigenous people in the mining industry, and similarly proved insignificant. Some evidence is found of a significant correlation between the share of mining in total employment and the local participation rate if the sample is restricted to more remote areas, but this is still not reflected in lower unemployment rates.

That is to say, after two decades of the mining boom, there is little discernible advantage in terms of labour force status for Indigenous people living in areas with high levels of mining activity. These findings suggest that Indigenous people derive minimal benefit, in terms of labour market outcomes, from living in regions with more intensive mining activity. These initial empirical findings may seem surprising, but the raw data readily confirm that a number of mining intensive areas also display high rates of Indigenous unemployment. These include Yalgoo, where mining accounted for 73 % of jobs and the Indigenous unemployment rate stood at 33 %, Wiluna (54 % mining share and 31 % Indigenous unemployment) and Coolgardie (66 % and 26 %, respectively).

To more precisely investigate the impact of regional mining developments on labour market outcomes for local Indigenous people, a multivariate regression model is estimated across LGAs and relating changes in Indigenous employment outcomes to growth in mining employment. A fuller discussion of the specification of the models and the estimation results are presented in the [Appendix](#) to this chapter. In essence, the average effect of changes in mining employment upon local Indigenous labour market outcomes is estimated after allowing for remoteness and initial (2006) labour market conditions. Basing the analysis on *changes* in labour market outcomes between 2006 and 2011 also helps to control for any fixed characteristics of the LGAs and their respective Indigenous populations that cannot be observed in the data. The labour market outcomes investigated by LGA were the Indigenous unemployment rate, participation rate and employment rate. Several measures were tested to capture the influence of mining activity: the change in mining employment in the LGA (in absolute numbers); the change in mining's share of total employment between 2006 and 2011 (in percentage points); and the inter-censal change in mining employment as a proportion of the Indigenous working age population in 2006 (expressed as a percentage).

Evidence of 'convergence' of regional unemployment rates is found in the sense that LGAs with initially higher Indigenous unemployment rates experienced

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<sup>4</sup> Remoteness is based on the 2006 classification of LGAs as being in a major capital city, inner regional area, outer regional area, remote area or very remote area (see Table 5.1). It was tested as both a linear measure of remoteness and as dummy variables capturing remote versus non-remote status.

significantly greater falls in unemployment between 2006 and 2011. However, the results also suggest a falling level of employment opportunity for people in more remote areas relative to less remote areas between 2006 and 2011. No significant impact of any of the measures capturing the expansion of mining employment on the local Indigenous unemployment rate was identified. Neither increases in mining jobs in the LGA, in the share of mining jobs in the LGA, nor increases in mining jobs as a proportion of the Indigenous working age population were found to contribute to decreases in the incidence of unemployment among local Indigenous people.

Evidence of benefits flowing from expanded mining activity is found in the intercensal changes in the participation rate and employment rate. This is best captured through the variable specified as the share of mining employment in total employment, and statistical tests indicate that these effects are estimated with some precision. The estimated magnitude of such changes, however, is very modest. The mean change in the mining share of total employment across all LGAs was 0.7 percentage points. Compared to the steady state, an increase in mining's share of employment of 5 percentage points in an LGA can be predicted from these estimates to be associated with an increase in the Indigenous participation rate of around 3.0 percentage points and in the employment rate of around 2.4 percentage points. Only 10 % of LGAs experienced an increase in mining's share of mining employment of 5 percentage points or larger. And to repeat, none of this improvement associated with expanded mining employment appears to have translated into lower unemployment rates, suggesting expanded employment opportunities for Indigenous people may have been largely taken by those moving into the areas in which mining was expanding rather than by the existing resident population.

## Discussion

The evidence presented here on labour market outcomes suggests Indigenous communities have shared in little of the economic benefits flowing from Western Australia's mining boom. Overall, employment opportunity for Indigenous people living in remote Western Australia fell relative to those living in less remote areas. Analysis based on the cross-sectional data from the 2011 census suggests that, across the more remote areas of WA, Indigenous employment and participation rates are marginally higher in areas with a high share of mining employment to total employment. Across all of WA, however, these 'mining' areas do not display higher than average Indigenous participation and employment rates. Analyses of changes between the 2006 and 2011 census confirm that high rates of growth in local mining jobs were associated with very modest increases in Indigenous participation and employment rates. None of the empirical tests revealed any improvement in Indigenous unemployment rates associated with mining activity.

These findings must seem incongruent with what we know of the scale and longevity of the mining boom taking place across regional and remote Western

Australia, and it is worth reiterating again the limitations of census data for measuring Indigenous populations and labour market status. However, the results echo those of earlier studies. Taylor and Scambray (2005) note only a very modest 4 percentage point increase in the employment rate for Indigenous people over three decades from the 1971 to the 2001 census. Altman (2009) points to evidence of positive effects of mining based on broad social indicators for eight selected mining regions, but that more detailed case studies in these areas do not necessarily support this picture. Given the developments in the legal standing of Native Title holders and claimants and the apparent change in attitudes of the major mining companies regarding their social responsibilities towards the Indigenous communities living in or near their areas of operation, the question must be asked as to why there has not been a greater flow of benefits to remote communities?

There have been numerous examples of Indigenous people feeling the brunt of the resource curse in the form of cultural destruction and displacement, both internationally and within Australia (Langton 2013; O’Faircheallaigh 2008: 26). At the international level, explanations for a country’s resource wealth becoming a curse rather than a cure have focussed on the lack of high quality institutions and governance, creating a lack of transparency and the potential for corruption (Langton and Mazel 2012: 25). It seems likely that in many instances Indigenous communities will not have the institutions or governance arrangements in place to effectively bargain with globalised mining companies. This is not to suggest that the problem is one of poor governance, though that may be a contributing factor in some cases. Rather, there is likely to be a cultural gulf between the practices established for governance in remote Indigenous communities, which will largely be derived from traditional law and customs, and those that would be suited for negotiating benefits with large corporations and managing wealth in the modern state. Holcombe (2005: 131–132), provides a discussion of the tensions that arise in such intercultural contexts, such as maintaining balance between the pooling of wealth and resources for social and community benefit on the one hand, and individual desires for autonomy, ‘cash in hand’ and the incentives for entrepreneurship on the other hand. Indigenous leaders, she argues, need to be adept in the world of commercial business and have respect and credibility in the context of Indigenous law.

O’Faircheallaigh’s (2008) analysis of 41 mining agreements highlighted the bargaining position of the Indigenous communities as the key determinant for successful outcomes with respect to the protection of cultural heritage. Those with stronger levels of protection were negotiated under the *Aboriginal Lands Right (Northern Territory) Act* of 1976, which gives landowners a right of veto over exploration and mining. The weakest protections were afforded in agreements under the Native Title Act which, as noted, provides landowners only with a right to negotiate. Western Australia does not have any state legislation conferring additional rights beyond the Native Title Act, and the agreements offering poor protections included the ILUAs negotiated in WA. Moreover, weaker protections for cultural heritage do not appear to reflect Indigenous choices to ‘trade-off’

cultural heritage for mainstream economic benefits, but simply reflect a weaker bargaining position across the board (O’Faircheallaigh 2008: 27).

Barriers to Indigenous participation in the mainstream economy have been highlighted as the main reason behind the failure for Aboriginal and Torres Straight Islanders to realise the opportunities presented by the mining boom. CSRM list low levels of education, poor health, and cultural differences in lifestyles and communication as examples of these structural barriers (nd: 13–18). It is not sufficient to have coexisting employment demand and a pool of labour, due to mismatches in skills and in the appropriateness of recruitment practices (CSRM: 24). Similarly Langton and Longbottom say there is “almost universal agreement” that the best way to leverage benefits to Indigenous people from such projects is by “investment in the economic participation, education and health of present generations, and accumulation of wealth for future generations” (2012, preamble). However, this raises the prospect of mining companies being asked to fill the void of what should rightfully be the role of the government in providing basic services, such as education and health, to Indigenous people living in remote Australia (Altman 2009: 38–39). Altman argues previous agreements have failed to adequately recognise Indigenous diversity in aspirations and differing views on what constitutes economic development in remote communities. Without this recognition and the input of Indigenous people from a position of bargaining power, agreements surely risk promoting assimilation in much the same way as the pursuit of statistical equity under the federal government’s Closing the Gap agenda.<sup>5</sup>

This study has concentrated on census data, by LGA, and has not looked at individual agreements or the approaches of individual companies. It should be noted that some companies, including Rio Tinto and Argyle, have won praise for their efforts to increase Indigenous employment (Langton 2013; O’Faircheallaigh 2010). Figures on overall outcomes for Indigenous people, however, sit uncomfortably with the glossy brochures touting mining companies’ dedication to, and success in, Indigenous employment. Is there much more to corporate social responsibility (CSR) than the bare minimum required to secure one’s social license to operate? O’Faircheallaigh points to the limited work examining the behaviour of mining companies beyond their public pronouncements and self-generated CSR reports, “. . . mining companies vary greatly in their willingness to support their CSR rhetoric with substantive commitments and the resources necessary to deliver on such commitments” (2008: 35).

Others have pointed to the power imbalance typically faced by Indigenous people as the key factor limiting the benefits they can extract through CSR (Altman 2009; Langton 2013), with case study evidence suggesting companies respond directly to Indigenous communities’ ability to impact upon profits (Trebeck 2007:

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<sup>5</sup> Closing the Gap is a strategy agreed to by the Council of Australian Governments, with targets to reduce the discrepancy in outcomes between Indigenous and non-Indigenous Australians in six key areas: life expectancy; young child mortality; early childhood education; reading, writing and numeracy; Year 12 attainment and employment (see SCRGSP 2011).

557). For many of the Indigenous peoples of Western Australia, the resource boom raises issues of sustainability, not only through its impact upon the environment given their close connection to the land, but also with respect to sustaining culture. With limited evidence of mainstream benefits flowing to remote Indigenous communities, it seems unlikely that ILUAs will have been any more successful in securing the protection of cultural heritage. For this highly marginalised group, this suggests the resource boom contributed little by way of sustainability or equity over this period.

In short, much more needs to be done to strengthen the bargaining position of Indigenous people in dealing with mining companies and their capacity to benefit from such agreements, including a stronger legislative footing. In 2011, of every 100 mining industry jobs in remote and very remote Western Australia, just 4.6 were held by the Indigenous residents of those remote areas, and there were a further 4.6 Indigenous residents who were unemployed. For every 100 mining industry jobs located in outer regional WA, just 3.9 were held by Indigenous residents while a further 11.3 Indigenous residents remained unemployed. On these figures, it is hard to believe the resource industry, as a whole, has made a concerted effort to accommodate Indigenous people in meeting their labour demands, or in extending opportunities created by the mining boom to local Indigenous populations. To achieve long-term benefits from the mining boom, the importance of culture and heritage to Indigenous people's well-being needs to be recognised and respected, along with their right to value these alongside mainstream economic outcomes, by companies and within the legal framework. This, I believe, is a necessary precursor to making any significant inroads into the relative exclusion of Indigenous Australians from the mining industry, inroads the boom to date has failed to deliver.

## Appendix: Regression Modelling

Models of the change in Indigenous labour market outcomes by LGA of the following basic form were estimated by Ordinary Least Squares (OLS) regression:

$$\Delta Y_j = \alpha_1 + \alpha_2 \text{REMOTE}_j + \alpha_3 \text{UR}_j^{2006} + \alpha_4 \text{PR}_j^{2006} + \alpha_5 \Delta(\text{MINING})_j$$

Where  $j$  denotes LGA,  $\alpha_1 \dots \alpha_5$  are coefficients to be estimated and:

- $\Delta Y$  denotes the change in the outcome variable, or  $Y^{2011} - Y^{2006}$ . The outcome variables tested are the unemployment rate (Model 1), the participation rate (Model 2) and the employment rate (Model 3), expressed as a percentage in each case.
- **REMOTE** is an index of remoteness taking on values of 1–5 for LGAs in a major city, inner regional, outer regional, remote or very remote area in 2006, respectively.

**Table 5.2** Regression results: change in LGA unemployment, participation and employment rates, 2006–2011

	Model 1: change in unemployment rate		Model 2: change in participation rate		Model 3: change in employment rate	
	Coeff	P >  t	Coeff	P >  t	Coeff	P >  t
Intercept	39.73	0.00	39.51	0.00	16.59	0.02
Remoteness [1–5]	1.11	0.29	–2.35	0.03	–2.49	0.02
2006 baseline data (Indigenous)						
Unemployment rate (%)	–0.89	0.00	–0.29	0.00	0.15	0.06
Participation rate (%)	–0.47	0.00	–0.60	0.00	–0.31	0.01
Mining activity—change in						
Mining emp/Indig wa. pop	–0.06	0.57				
Mining emp/total emp			0.59	0.00	0.47	0.02
Observations (LGAs)	119		125		125	
Adj-Rsq	0.50		0.26		0.15	
F-value	29.98	0.00	12.07	0.00	6.26	0.00

- $UR^{2006}$  and  $PR^{2006}$  denote the LGA's unemployment rate and participation rate in 2006.
- $\Delta MINING$  is the change in mining employment in the LGA between 2006 and 2011. The variables tested to capture the influence of mining activity included the change in mining employment in the LGA (in absolute numbers); the change in mining's share of total employment between 2006 and 2011 (in percentage points); and the inter-censal change in mining employment expressed as a proportion of the Indigenous working age population in 2006 (expressed as a percentage). These are measured on 'place of work' basis rather than place of enumeration or usual residence.

The rate of growth of the Indigenous working age population between 2006 and 2011 was also included as a control variable, but this was not significant in any models and subsequently dropped. Results for preferred models for the 2006–2011 change in the Indigenous unemployment rate, participation rate and the employment rate by LGA are shown in Models 1–3, respectively, of Table 5.2.

In addition to the 'convergence' noted for regional unemployment rates, labour market conditions also tightened for Indigenous people living in LGAs with initially higher Indigenous participation rates. The coefficient on the remoteness scale was positive, but not statistically significant for the change in the unemployment rate. For the participation rate and employment rate, however, a significant negative effect is identified. These results are consistent in suggesting a falling level of employment opportunity for people in more remote areas relative to less remote areas between 2006 and 2011. It can be seen that part of the convergence in unemployment rates observed in Model 1 arises from a decline in Indigenous participation rates in LGAs with higher unemployment in 2006 (Model 2), combined with a higher employment rate (Model 3). Both participation and employment rates decline in areas which had initially high rates of labour force participation.

The results with respect to the mining variables are not substantially altered if the estimation sample is restricted to LGAs in outer regional, remote and very remote WA.

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## Part III

# Labour Constructions in Mining

According to a report recently commissioned by the Western Australian mining industry's peak organisation, the Chamber of Minerals and Energy WA, the industry in 2011–2012 employed close to 143,000 workers making it the largest overall employer accounting for 11 % of the state's total workforce (KPMG 2013). Mining workers, though not a homogenous cohort, in general receive high incomes not only in professional occupations but also in blue collar jobs leading to the emergence of a new working class social identity known as the 'Cashed up Bogan' (Pini et al. 2012). At the same time, the higher wages have attracted workers away from other industries (National Resources Sector Employment Taskforce 2010). Women and Indigenous Australians, however, are largely absent from, and disadvantaged in, this workforce.

The mining industry over the last decade has undertaken an extensive reorganisation of its labour force in order not only to address a boom-driven shortage of labour, but also to increase the scale and speed of production to take advantage of high demand in the market. In addition to the turn to fly-in/fly-out work (FIFO), there has been an extension in working hours with compressed and extended shifts in support of 24-h production. There has been an increasing use of contract and temporary labour (Bowden 2003) and, to a lesser extent, use of international labour facilitated by Temporary Work (Skilled) (subclass 457) visas. According to the Department of Immigration and Citizenship, as at May 2013, the WA mining industry sponsored 20 % of the state's total number of 457 visa holders.

The industry has also experienced "a series of intense struggles over work regulation and worker representation between unions and global resource companies" particularly in the Pilbara iron ore region (Ellem 2005: 335). Undertaken in the context of shifting industrial relations laws, these struggles saw the decimation of mining unions over the late 1980s and 1990s leading to transformed union structures and strategies (see Ellem 2005). Current struggles are evident in union responses to industry assertions of skills shortages. The Construction, Forestry, Mining, and Energy Union (CFMEU 2013), for example, is currently running a "Train Our WA Kids Campaign" arguing that "We don't have a skills shortage, we have a training shortage" and, in a related campaign around 457 temporary visa

workers, is arguing that such labour is not only exploited but also undermines the value of local labour.

Further, as the recent House of Representatives report (2013), *Cancer of the bush or salvation for our cities?*, makes clear, labour practices such as FIFO have unevenly spread benefits and disputed wide-ranging social consequences. Understanding the construction of labour in the mining industry requires attention to socio-spatial dimensions and relationships within and between capital and labour, and the spheres of paid work and family and community (McDonald et al. 2012; Ellem 2005).

The chapters in this section engage with aspects of the above geographic, social and gendered complexities of the mining industry organisation of labour in WA. In doing so they approach labour in relation to global production networks, empirically from the perspective of workers, and in terms of women's experiences as mining wives and as workers.

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# Chapter 6

## Global Production Networks and Resources in Western Australia

Al Rainnie, Scott Fitzgerald, and Bradon Ellem

**Abstract** This chapter draws on the literature on global production networks and spatiality to examine the development of Western Australia and its relationship with the resource sector, with an emphasis on institutional capture, the dynamics of regional development dominated by large external capital, and a contested notion of place.

### Introduction

The resource boom in the state of Western Australia (WA) has captured the imagination of media, investors, workers, and in some ways an entire country. It is almost always understood as an uncomplicated good, with high profits and wages and rapid growth. The boom is also usually seen, perhaps more implicitly, as the latest in a history of win-win developments in WA. We disagree with both these views, as the chapter will explain.

At the opposite end of the excitement about the boom lies the idea of the resource curse. For Goodman and Worth (2008), there are three elements to the Australian resource curse:

1. deindustrialisation and social division;
2. regulatory capture and energy security; and
3. ecological degradation and exhaustion.

All three are evident in WA. But this situation is far from new. In 1982, Harman and Head edited *State, capital and resources in the north and west of Australia*.

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Reading the text in 2012, the issues raised echo strongly, including denials by the WA state Premier that a boom was even taking place, opposition to a resource rent tax and talk of secession! In the introduction, Harman and Head (1982b: p. 11) argued that:

The patterns of regional economic specialization, or uneven development, which existed in the past, are now undergoing changes, wrought not only by investment in resources. This has produced both hopes and fears of a power shift north and west in Australia in favour of the resource rich peripheral states.

Crucially, they went on to suggest (1982: p. 13) that in any analysis of resource development in the two regions, five factors stand out:

- the high degree of foreign ownership which exists particularly in the mineral sector;
- the acrimony which has developed between state and federal governments over resource issues;
- the strong partnership forged between state governments and development companies;
- the existence of a ‘frontier’ ethos; and
- a growing debate about the relative costs and benefits of resource development.

It is striking that so little has changed in the intervening years. The present resource boom has simply served to bring all these factors (and more) back into play. In this chapter, we build on Harman and Head’s analysis by drawing on insights from what is known as the global production network (GPN) framework (Bair 2008; Coe and Hess 2011, 2012; Rainnie et al. 2011a, b) to show how the dominance of transnational mining corporations has radically affected the dynamics of development of the state.<sup>1</sup>

We also reflect on and emphasise the role of organised labour in shaping the state. In his 1982 overview of the history of WA, Bolton (1982: p. 39) concluded that “if little has been said about the labour movement, it is because there is not a great deal to say”. This is a classic example of what is called in the resource curse literature ‘institutional capture’, which we explain—and take issue with—below. Specifically, Bolton argued that while unions resorted occasionally to strikes and other forms of industrial action, they were mostly subservient to a Labor Party, which was as committed to economic development of the region as were the more right-wing political parties. This view of the Labor Party was, and remains, true but we disagree with Bolton’s explanation for it. As we have argued elsewhere (Rainnie et al. 2010, 2011a, b), states and regions must be put into the context of the GPNs that shape their economies and, in turn, labour must be part of the analysis of GPNs.

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<sup>1</sup> Some things do change. In 1982, Kwinana was being touted as a possible saviour in the face of dominant global corporations. By 2012, high youth unemployment, declining apprenticeships and exclusion from lucrative large contracts had doomed the area to ‘problem’ rather than ‘saviour’ status.

In this chapter, we explore the complexities of resource economies and the importance of labour and GPNs by revisiting the history of labour, broadly defined, in WA, and then by focussing on the iron ore industry as a particular case in point. First, we outline our analysis of GPNs, and we then show the important role of organised labour in the state and industrial relations in the WA resource sector. In concluding we note that the development of GPNs has exacerbated elements of the resource curse in which the social and economic benefits of mining are unequally spread.

## Global Production Networks

As with previous phases in the state's expansion, international investment in the mining sector is driving growth today. However, the dominance of a handful of transnational corporations (TNCs) like BHP Billiton, Rio Tinto, BP, Chevron, ExxonMobil, and Shell, is even more conspicuous than it was. In diagnosing the characteristics of contemporary capitalism and the role of TNCs in particular, Dicken (2011: p. 52) argues that 'connectivity' is a useful concept. This simply means that components of the world economy are increasingly interconnected, and in different ways from in the past. TNCs are themselves the main force in this change, as coordinators of GPNs. In Dicken's work, GPNs are understood as circuits of interconnected functions, operations and transactions through which a specific commodity, good or service is produced, distributed and consumed (Dicken 2011: p. 56). For Coe and Hess (2011: p. 130), GPNs are best understood by analysing the processes of value creation, enhancement and capture, the distribution and operation of power within them and how they come to be 'embedded' in particular places. Furthermore, GPN analysis is powerful (Coe and Hess 2011: p. 130) because of its:

1. explicit consideration of extra-firm networks that necessarily brings into view a broad range of non-firm institutions;
2. multi-scalar nature, privileging neither 'the local' nor 'the global';
3. emphasis on complex networks, not simple chains;
4. attention to the complexity of governance structures in these networks; and
5. capacity to reveal the impacts of development on both firms and territories.

Accordingly, a place's development is an outcome of the interaction between its local social relations and its links with other places through global production networks. GPNs are therefore seen to act as global pipelines between locally based firms or clusters of firms and selected partners in other regions (Coe and Hess 2011). In short, the world economy consists of tangled webs of production circuits and networks, with TNCs playing a key role in coordinating those networks.

## ***Strategic Coupling: Winners, Losers, Losing Out***

Although much analysis has focused upon the actions of TNCs as the creators of commodity chains, MacKinnon (2012) suggests that regional institutions—which vary considerably across space due to the particularities of local histories—are also vital because they shape how ‘strategic coupling’ (Yeung 2009) between various institutions occurs through their moulding of regional assets to fit the needs of GPNs. However, despite the centrality of TNCs and regional institutions, power asymmetries between them can often result in the latter’s ‘corporate capture’ over time, which affects the degrees of freedom or agency they have. There is, then, a need to identify tensions within the strategic coupling process, such as uneven value capture, labour exploitation and social and class conflict. This approach makes the agency of workers central to the shaping of GPNs (MacKinnon 2012).

The scope for basic change, that is, decoupling or ‘capital flight’, is in part determined by the material form of the commodities produced across different production networks. This is vital in thinking about resource sectors. Dicken (2011: p. 243) argues that GPNs in extractive industries are different from most others because resources are quite literally embedded and this materiality influences the organisation of production. Resources are therefore closely bound to notions of sovereign territoriality and national or regional identity. Thus, while the processes of establishing products and markets involve “establishing and severing linkages [and] incorporating and expelling people, places and things” (Berndt and Boeckler 2011: p. 566), the extractive industry faces specific material limits on these processes. In such instances, the institutional capture and the reworking of the state is crucial, not least because the limited potential for capital flight means there is less power to discipline labour. In the case of WA, the role of the state in a social formation, and the relationship of the conservative *and* Labor parties to capital must be central to the analysis of power within GPNs and the processes by which value is created and captured.

## **State and Development**

In his historical overview, Bolton (1982) pointed to a number of continuities with regard to the activist orientation of the political elite, the close links between government and business circles and the coordinating role of the state in economic growth. Early state policy had shifted from focussing solely on domestic (usually relatively small) capital to fostering massive foreign (principally British) investment in mineral development. The weakness of domestic capital, Head (1982: p. 46) argues, led to a reliance on foreign investment and an interventionist state (cf. Crough and Wheelwright 1982). Here we begin to see the usefulness of GPN theory in explaining how the dominance of external capital was established, along with its close relationship with governance structures. This had started in the

colonial period when ties with Britain created a class of local businesspeople dependent on imperial structures for their power (Oliver 1995: p. 37).

In the half century following Federation in 1901, agriculture replaced minerals extraction as the main economic driver in WA, a process which changed the process of regional production, settlement and labour politics. However, the long boom after 1945 and the emergence of Japan as an internationally competitive economy laid the basis for a renewed phase of mining-based growth, this time based on alumina, nickel, mineral sands and, most importantly, iron ore. The 1960 decision of the Commonwealth government to lift an iron ore export embargo underpinned the Western Australian government's successful attraction of international capital to develop iron ore deposits in the Pilbara region. The state government provided very long mining leases, crown land and reduced royalties to attract private infrastructure investment by multinational corporations (Thompson 1983: pp. 79–83). This process enhanced the capacity of the state government *vis-à-vis* local government. As Pick et al. (2008: p. 520) demonstrate, the state government in the 1950s passed an Act that meant that mining companies in the region would never pay rates to local governments for the use of land. All taxes (such as they were) would be paid to the state government. As a result, local governments have little in the way of independent financial resources and are weak and marginal.

However, the 'story' promoted in influential quarters downplays the vital role played by the state:

The story that has persisted is that of a state developed primarily by brave private enterprise led by tough minded alpha males persevering in the face of all sorts of impediments. Those impediments included distance, lack of capital, small population, hostile aborigines, sluggish government, rapacious rule from Canberra, greedy workers and sundry do-gooders, including the green variety (McMahon 2009: p. 4).

### *Institutional Capture*

One obvious effect of development focussing on a sector dominated by large companies is the threat of institutional capture. Harman (1982: p. 336) had already pointed this out:

once an economy like Western Australia is shaped by the multinationals and governments to extract and export primary products efficiently, then it may become locked into this pattern. The very nature of the infrastructure, labour skills, technology, government policy and so on, become geared to that end.

McMahon (2009: p. 55) is more critical, pointing to the growing influence of mining over the state: small unsophisticated state structures come under the sway of huge foreign and Australian mining concerns and the ability of these mining interests to organise politically to promote their preferred policies is enhanced.

Coe and Hess (2011: p. 134), following Christopherson and Clark (2007), argue that TNCs are able to co-opt regional growth agendas in their favour, particularly in terms of influence over regulatory policy, driving the research agenda of publically



supported research centres and dominating regional labour markets in terms of skill as well as pay and conditions. This is precisely what has happened in WA. Head (1982: p. 59) was already pointing in the 1980s to the number of massive projects being developed which required complex coordinated sets of intervention. The multinationals that state governments dealt with were large and getting larger. O'Neill (2012: p. 82) points to four key stages in the development of one of the best known examples, BHP Billiton:

1. the development of BHP as Australia's standout monopoly firm;
2. restructuring and shedding of its steel investments;
3. financialisation; and
4. the creation and globalisation of BHP Billiton.

McMahon (2009: p. 13) argues that the mining boom of the 1960s tied the state into global financial and industrial networks, GPNs, and that by the end of the century the state government had lost any real control, faced, for example, with a successfully merged BHP and Billiton that had created the world's largest mining corporation (McMahon 2009: p. 52). The Australian Financial Review (Cornell and Stensholt 2012) argued that BHP has a reputation for being controlling: of staff, contractors, senior executives, and information. By the end of the first decade in the twenty-first century, the government was dealing not only with BHP Billiton and Rio Tinto but also a new tier of smaller mining companies. As Tonts (2010) pointed out, Perth had become a hub of the Australian energy industry, and therefore an increasingly important location for corporate headquarters within Australia. By October 2010, there were 220 energy companies listed on the Australian Stock Exchange that had headquarters in Australia. Half of these were located in Perth.

But the notion of institutional capture extends beyond government policy and practice, into education and training provision, and immigration policy, as well as more obvious infrastructure development. Hamilton and Downie (2007: p. 28) examined the relationship between Australian universities and the fossil fuel industries, looking at case studies of the University of Western Australia, Curtin and the University of Queensland. They concluded that:

While those in favour of greater commercialisation of universities argue that universities must embrace this new environment to attract private funding, the relationships between the fossil fuel industries and universities raise concerns that universities are becoming captured and that sponsoring corporations have an inappropriate level of influence over teaching and research.

Mining magnates are now extending their influence into the media. Much attention has focussed on Gina Rinehart building up an interest in Fairfax and demanding representation on the board. She already owns 10.6 % of the shares in Channel 10. But without anything like as much fanfare, Don Voelte, former head of Woodside Petroleum, was appointed head of Seven West Media in June 2012. Seven West owns the *West Australian* newspaper, the Seven Network, Yahoo!7 and Pacific publications. Kerry Stokes, who owns the controlling stake in Seven West, also

controls WesTrac, the main distributor of Caterpillar mining equipment in Australia. Julia Macken (2012: media6), suggested in an article in *newmatilda* that:

With two opinionated owners potentially controlling two commercial TV stations, one national newspaper and the leading newspapers for Sydney, Perth and Melbourne, and the only other competitor, News Limited, going through a massive restructuring and retrenching up to 10 per cent of its editorial staff, there is a real fear that certain stories will be pushed while the space available for others will all but disappear.

The presence of an increasingly powerful group of resource companies is problematic in other ways. There is no certainty that the development of resource clusters *within* one region will lead to development *of* the region beyond the confines of the cluster itself. This is particularly so for workers and communities not immediately connected to the resource sector (Richardson 2009). The gender wage gap in WA remains stubbornly around 50 % above the national average (Jefferson and Preston 2008) and, despite recent gains, Aboriginal engagement with the resource sector remains problematic (Langton 2010; McMahan 2009; Altman 2009).

The growth of TNCs in size if not in number and the emergence of global divisions of labour within and between them has had serious consequences for another issue—local content. In 1982, Harman (1982: p. 342) was already suggesting that most WA contracts were lost to out-of-state firms. By 2009, McMahan (2009: p. 52) was pointing to WA suppliers being increasingly squeezed out of contracts as operations were rationalized in the resource sector. In 2011, the Australian Steel Institute had carried out a survey of their members which concluded that (Skilled Work Alliance 2012):

- 88 % of businesses reported a negative or very negative impact on their business from the off shoring of skilled work by the big resource companies; and
- apprenticeship and trainee positions remain 20 % below 2007/2008 levels.

A statement from the campaign ‘WA Jobs from WA Resources’ (mobilised by UnionsWA, APESMA, AMWU and the Australian Steel Institute) echoed Harman’s contention that contracts that did remain in the state were relatively small and service oriented (Skilled Work Alliance 2012):

While we welcome all local expenditure by our resource companies, if we kid ourselves into thinking there is a long term economic benefit from earthworks, catering, cleaning, transport, telecommunications, car hire, advertising and corporate hospitality expenditure, then we are very much at risk of the “hollowing out” effect [that is, the undermining of employment, skills and production capacity in manufacturing and other trade-exposed sectors].

## Labour

It is at this point that we begin to take issue with Bolton’s dismissal of the labour movement (1982). Oliver (1995: p. 17) traces the construction of the developmental myth, emphasising the role of the WA Historical Society (formed in 1926), which

promoted the idea that there was no class conflict in WA because hardships were endured by all alike. In contrast, Oliver analyses a conservative ideology that ‘undergirded’ the class structure that existed in the state throughout the 1914–1926 period. This translated into repressive legislation, creating divisions and sparking labour militancy. By 1912, 41 % of male workers were members of trade unions in WA, compared to a national figure of 44 % (Oliver 1995: p. 45). This represented a remarkable growth given that the organised labour movement was only a little over 30 years old. By 1913, there were tensions generated by class, gender, ideological and economic differences and inequalities. In May 1917 strikes erupted on the wharves in Fremantle. Two years later, the ‘battle for the wharf’ culminated in a major demonstration in Fremantle in which a worker was killed (Bloody Sunday). The action was triggered by state Premier Hal Colebatch proceeding down the river from Perth with a party of armed police and strike breakers, intending to enter the wharf. A crowd of 3,000 people battled with police. The Riot Act was read and the crowd charged with bayonets. One man was bludgeoned with the butt of a police rifle and died 3 days later. The subsequent funeral displayed a massive show of solidarity by trade unionists from across the state (MacIntyre 1984: p. 9).

However, by the 1930s, the state’s labour movement had become extremely parochial (MacIntyre 1984: p. 39). By the late 1940s, despite outbursts of discontent, the Australian Communist Party was talking of Western Australian ‘exceptionalism’, meaning that in the absence of heavy industry and with workers in primary industries being widely dispersed, there was little hope of militant class action. Outside the waterfront, Collie, Kalgoorlie and the State Railway Workshops, there were few places employing more than a 100 workers. The largest unions were the most conservative, with the Australian Workers’ Union, Railway Employees’, Clerks’ and Shop Assistants’ unions underpinning the Labor Party’s conservative leadership (MacIntyre 1984: pp. 137–38).

This brief and selective journey into labour history serves two purposes: it offers a factual corrective to Bolton’s dismissal of the pre-1978 WA labour movement and, more importantly, it serves as a way into our argument for a view of GPNs which allows for the importance of labour, here meaning not only organised labour but work itself. The nature of the labour process in firms, large and small, resources and non-resources, is a vital component of GPN analysis. The nature of work and employment and how that interacts within and outside of GPNs is crucial. We will look in more detail at work and industrial relations in the resource sector next.

## Industrial Relations in Western Australia and the Mining Sector

Work and industrial relations have certainly developed their own characteristics in WA, but we describe and explain these features in different ways from Bolton and others. In general terms, the distance and isolation of the state and its resources spaces are striking but, when framed in terms of GPNs, the state and most notably sites such as the Pilbara appear pre-eminently as places constructed globally.

In the midst of the current resource boom, there are any number of general measures which point to WA's 'difference' compared to other states and national norms: most obviously higher proportions of workers employed in mining and mining-related construction (ABS 2011a); a gender wage gap remarkably higher than in other states and territories (Jefferson and Preston 2007; ABS 2011b); Australia's only residual private sector industrial relations regime under state law; and low rates of award coverage of workers as opposed to both enterprise agreements and individual arrangements (ABS 2011c).

Much of this structuring of industrial relations is interwoven with the politics of work, as revealed in recent electoral outcomes. At first sight, this pattern seems to confirm the view that labour (broadly defined) is less a presence in WA than elsewhere. This was highlighted in the federal election of 2007, often regarded as the 'Work Choices election' because this industrial relations policy—which privileged individual contracts, cut back on minimum labour standards and further reduced union power—was the defining, vote-changing issue (Muir 2008; Spies-Butcher and Wilson 2011). However, in WA, the issue did not bite as elsewhere. The Labor Party actually lost a seat and gained no new ones from its opponents (AEC 2008). Had the rest of the country voted like WA, the coalition parties would have comfortably won national office. An obvious causal element of these local variations goes to the heart of the concerns of this chapter: the discourse around individual contracts in the West was largely in terms of high-income males; elsewhere, it was about low-income, precariously-placed female workers (Pocock et al. 2008). If WA has been in some senses peculiar, it is by no means either eccentric or marginal. WA politicians and mining magnates have made the populace, not least 'over east', well aware of the economic significance of the state's resource sector to Australian exports and growth. We frame this phenomenon in terms of GPNs, global markets and transnational corporations rather than local particularism. In one sense we go further than the state's 'boosters', arguing that after the early 1990s WA policy-makers and managers exemplified, predicted and sometimes drove national changes in industrial relations, through individual contracting laws in 1993 (prefiguring Work Choices) and the 'direct engagement' between employers and employees (Hearn Mackinnon 2007). For all its physical isolation, the all-important iron ore industry in the state's North West, in the Pilbara, lies at the heart, then, of national industrial relations. At the same time, it is profoundly local, because of the fixity of the ore bodies, and shaped by GPNs—as it has been since mining began in the late 1960s.

In iron ore mining, the rise and fall of unionism distilled the essence of wider changes across the country. Without going into a detailed narrative of developments, we now highlight our points of analytical difference from the ‘consensus’ view of WA labour history. We briefly show how the place of labour, specifically of unions, was contested in the Pilbara (and still is) and how the patterns that emerged were shaped by the intersection of local production, state and national politics and global capital.

Very soon after iron ore mining began, funded by US and British capital with keen and vital state government support, workers drove the establishment of distinctive patterns of industrial relations, with locally regulated work practices and high levels of strike activity. All but complete union shops were established by the early 1970s, and local union convenors were as independent of (and at times antagonistic to) state union officials 1,600 km away in Perth as they were of local managers and global investors (Dufty 1984; Fells 1993).

Given that, as a site of capital accumulation in mining, the Pilbara was new ground, and given the massive start-up costs, state support and global finance featured from the beginning (Trengrave 1976). The region exemplified the general characteristics of the state’s development as set out earlier in this chapter. All the companies which undertook the mining operations had long traditions in and outside Australia. The two which would become dominant are among the world’s three largest mining companies, BHP (now BHP Billiton) and Rio Tinto (which would assume control of companies originally trading as Hamersley Iron and Cliffs Robe River).

The nature of early industrial relations in this sector is often explained, either explicitly or implicitly, with reference to physical geography, and, by extension, local factors—physical isolation, harsh climate, and loneliness (see Kerr and Siegel 1954 for the definitive statement of this hypothesis). There is much in this viewpoint. However, many of these characteristics did not change in ensuing years: what did change was the human geography of the sector—and the re-organisation of work processes by employers was central to this development.

The much-documented control that Pilbara iron ore workers had established over the labour process was, by the late 1980s, routinely referred to by employers, governments and the media as a set of *restrictive* work practices. This struggle for control came to a head at the Robe River company when a new anti-union owner assumed control in 1986. The global context was vital: Robe River’s ores were of a lower quality than other suppliers and they were sold into the market at spot prices, not on long-term contracts. This made the company’s earnings figures more volatile than others. Over 18 months through 1986–1987, the new management team attacked union representation, root and branch. By the end of this time, the unions were all but wiped out, the state-award marginalised, and the workforce employed under common law contracts (Thompson and Smith 1987; Swain 1995; Read 1998: pp. 347–60).

A second assault unfolded at Hamersley Iron in 1992–1993, with more immediate results: a union stronghold collapsed just a few weeks after a strike over the employment of a non-unionist. In this case, the state’s politics merged perfectly

with employer strategy. The ink was barely dry on the legislation which introduced statutory individual contracts before Hamersley rolled out these ‘staff arrangements’ (Hearn Mackinnon 2007: Chap. 4).

The union crisis intensified in 1999 when BHP Billiton managers assessed their globally competitive position against this local rival, Hamersley Iron, and decided to offer the individual contracts in place at Hamersley. Learning from the failures at Robe and Hamersley, the unions’ response was a nationally co-ordinated one (led by the Australian Council of Trade Unions) that also drew on local support through a network of mineworkers’ partners and engagement around community concerns. This enabled the unions to retain a core membership, chiefly in rail but also among some production workers. However, despite changes in both state and national labour law, in the decade after this, unions made no gains as the industry entered a hyper-boom, with the exception of a collective agreement (signed in 2011) won by the Construction, Forestry, Mining and Energy Union to cover Rio’s rail section (Ellem 2006, 2013).

A significant aspect of this redefining of industrial relations in the sector had been the national labour laws in place between 1996 and 2007 which allowed employers to force acceptance of individual agreements on new workers (Cooper and Ellem 2008). With high turnover and rapid growth, union membership all but inevitably declined. The companies’ anti-unionism—notably Rio Tinto’s practice of ‘direct engagement’—left workers in no doubt of the culture of the transnational mining employers. The influence of these practices spread far beyond the Pilbara, with other employers emulating Rio, with the company’s executives exercising dominant roles in policy-making, and with many of them taking leading roles in other sectors such as telecommunications, banking and airlines (Hearn Mackinnon 2007).

It is the local geography of the GPN with which we conclude: the control of spaces of work which these mining companies came to exercise was decisive in remaking the industrial relations of the Pilbara. The sites themselves are fragmented. For example, the Rio mines are 300–400 km by road from the main BHP Billiton mine. Mine operations are fragmented within the one company: port and mine sites can be as much as 500 km apart. In the last two decades, these divisions have been compounded by almost every aspect of work organisation. Not one mining town has been built in that time. Despite employer rhetoric about ‘community’, it was clear by the 1980s that such formations could be nothing but trouble to the mining companies and a source of power to unions. Fly-in/fly-out arrangements reduced this threat and fragmented the workforce; contractors—even contracted managers—predominate (Ellem 2013).

In short, if it is—and we contest even this—the case that labour has been relatively unimportant in WA, then this account shows that employers and the state have sought to make it so, wresting control of the Pilbara from the workers who had made major advances there a generation ago. More broadly, we can see that the unusual characteristics of work and industrial relations in the WA resource sector owe at least as much to global networks as to local forces.

## Conclusion

Assessing the development and sustainability of Western Australia from 1829 to 2020, McMahon (2009: p. 60) argues that:

A tendency towards ‘boom and bust’ exploitation of natural resources as a core driver of the state’s economy has left some Western Australians and foreign investors very rich, but otherwise a highly questionable socio-economic legacy. It has resulted in both environmental problems that are reaching a point of criticality and social imbalances that should not be tolerated in a modern society.

McMahon (2009: pp. 7–8) also points out key themes that have brought about this unfortunate state of affairs, namely:

- reliance on natural resources;
- reliance on overseas demand and finance;
- the central importance of transport and communications due to isolation; and
- the role of government in organising essential infrastructure, sponsoring large-scale development and carrying out scientific research and development.

We have shown how these developments are best understood in terms of GPNs, and in turn how labour—both the labour processes itself and the organisational politics of labour—are central to understanding those networks. Furthermore, we have set out an argument that challenges the common views that labour has been unimportant in WA history and that resource booms are a simple and uncomplicated ‘good thing’. Nothing makes all this clearer than to place the Pilbara’s iron ore industry in the context of the history of development, state and labour in WA. And likewise, none of that can be understood without locating the current boom in a global context.

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# Chapter 7

## The Money Trail: An Exploration of Perspectives on Money and Materialism in FIFO Employment

Rod Palmer

**Abstract** This chapter draws on interviews with FIFO workers to examine the motivations informing the decision to undertake such work. Through these ‘insider’ voices a complex picture emerges in which a range of material and lifestyle aspirations, including increased wealth and associated opportunities for ‘getting ahead,’ emerge in many cases as central, but also challenging and shifting, goals. Interviewees highlight the ways in which the nature of FIFO work and attendant personal and family compromises, along with broader cultural expectations, contribute to a somewhat paradoxical situation in which workers no longer feel that FIFO work is a choice. The FIFO experience is one that shows clearly the curse–cure dualism that characterises Western Australia’s mining boom.

### Introduction

Over the past three decades the Australian mining sector has undergone radical transformation. The earlier practices of companies building towns in remote regions to house a permanent workforce and their families are largely passé. Today, the increasingly preferred approach is to fly a mobile workforce on a rotational basis from worker homes in large cities and regional towns to purpose built, all contained, but often very temporary, mining sites. This employment model is called fly-in/fly-out (FIFO) and it is the dominant labour solution underpinning Australia’s current mining boom.

While FIFO is not new, media interest and community concern is increasing. In response to these concerns the Australian Parliament established a travelling inquiry examining FIFO in detail. The inquiry’s final report (House of Representatives Committees 2013) reveals views ranging from overwhelmingly supportive

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to unrelentingly hostile. FIFO is nothing if not polarising. Described by some as the cause of much personal, family and community grief (Carrington et al. 2011), FIFO is also presented as an essential component of the Australian mining boom—a boom described in some quarters as the primary reason why Australia has maintained existing prosperity despite tough global economic times (Richardson and Denniss 2011). The extrapolation of these benefits beyond the bottom line of mining companies and high employee salaries to the broader community can be heard in support of the industry. For many though, the question is: at what cost FIFO? Do the material riches of FIFO mining look healthy only when we fail to properly account for the long-term costs borne by individuals, families and communities? Is FIFO, as some critics argue, weakening society's cohesion and collective spirit via the promotion of self-interest and materialist individualism? To provide possible answers, this paper presents research that offers the views of insiders by exploring FIFO workers' attitudes particularly towards money and materialism.

Prior to commencing it is important to acknowledge that, while FIFO is highly topical today, research contributions from several disciplines provided an important foundation for this research. Some of the most noteworthy include those examining FIFO health and well-being (see among others Venables et al. 2002; Solheim 1988; Parkes 1998; Clifford 2009; Jenkins 1997) and community impacts (see Haslam and McKenzie 2011; Storey 2001, 2010; Shrimpton and Storey 2001; Tonts 2010; Hogan and Berry 2000; Pini et al. 2012).

## The FIFO Effect

For some observers, including those who presented to the Australian Parliament's inquiry, FIFO is seen as a cause of significant social issues, including family breakdown, increasing mental health problems, excessive drinking and drug taking, rising sexually transmitted disease rates and a decline in civic participation (House of Representatives Committees 2012). Perhaps less socially destructive (but no less a source of grievance) are broadly felt lifestyle impacts including poor restaurant service, high bar prices, staff attraction and retention problems and, in parts of the state, runaway property prices and rents. Other voices, including industry leaders, say there is no alternative and, like it or not, FIFO mining is here to stay (CMEWA 2012). The social impact, says WA's Premier Colin Barnett, echoing an often repeated theme about 'free choice', is exaggerated: "most of these guys would rather be working on big projects up here than working in a factory in Melbourne" (cited in Fletcher 2012). Those who advocate the model offer the claim that FIFO is preferred over relocation to remote areas. Here 'choice' is the key. If FIFO isn't suitable for the employee then, according to this reasoning, there are always other options: "There is very low unemployment . . . If a fly in/fly out lifestyle doesn't suit a family you will find they will simply leave that job and do another one" (cited in

Fletcher 2012). Those critical of the industry are often reminded that FIFO participation is voluntary, and doing it or not doing it is up to each individual to decide.

Strong positions on FIFO as an industry extend to views about the FIFO employee. The common caricature presents the figure of a white, overweight and unskilled male truck driver earning A\$140,000 per annum, with minimal formal education. This character likes to drink, and exhibits ‘bogan’<sup>1</sup> cultural and consumer tastes, including a penchant for hotted-up V8 utility vehicles and the biggest flat screen TVs (Pini et al. 2012). For many outsiders the closest contact with FIFO takes place while standing among the hundreds of fluoro-wearing<sup>2</sup> employees in snaking queues at Perth airport. The reality of who the FIFO employee is, perhaps unsurprisingly, is a little more complex and continues to evolve. Today, it appears that FIFO is increasingly representing the pluralism of Australian society; employees come from diverse ethnic backgrounds, women are joining in increasing numbers and, the aforementioned archetype notwithstanding, the vast majority of FIFO vacancies advertised demand a professional or trade qualification.<sup>3</sup> The mine site truck driver described above, while he still exists, is perhaps a declining figure on the FIFO mining landscape.

Of all the FIFO stereotypes it is likely that those concerning employees, money and materialism show the closest crossover between outsider perceptions and insider descriptions. There is no doubt that money is a key driver attracting people to the industry. As one interviewee in the research reported here commented: “no one is going to work up here unless they were well paid”. But what lies beyond this headline statement? In this chapter I explore this question from the perspective of 14 FIFO employees interviewed in 2012. The explicit purpose of these semi-structured interviews—half of which were conducted at interviewees’ homes in Perth, with the remainder recorded in Pilbara work settings—was to better understand the world of FIFO employment from an insider’s perspective. These men and women represent a diverse cross-section of roles, and length of time in the industry (2 weeks to 6 years, with an average of less than 2 years in FIFO). Of all the interviews conducted perhaps the most candid was that conducted with the most senior employee who has participated to date. Gary,<sup>4</sup> a mine superintendent with many years of experience with different companies, pulled no punches in talking about the good and bad of FIFO. In the next section, drawing on my field notes, I use my onsite conversations with Gary to introduce the FIFO life from his perspective.

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<sup>1</sup> A cultural and/or socio-economic group distantly related to ‘rednecks’ and ‘chavs’.

<sup>2</sup> Fluorescent safety vest.

<sup>3</sup> The author’s search of online advertised jobs suggests that the vast majority of FIFO positions require some combination of professional qualifications, specialised skills and/or previous FIFO experience.

<sup>4</sup> All participant names have been changed.

## An Introduction to Life Inside a Junior Iron Ore Company

We sit on the verandah of a donga<sup>5</sup> in J block facing east. The outlook is typical Pilbara spinifex, the only interruption to the seemingly limitless horizon is a walking track, newly carved by a bulldozer from the mine. It is for me the conclusion of an exceptional day—my first experience of a FIFO work setting. For my host, who had just poured both of us a second Jim Beam, it has been much like all the rest of his consecutive 6 a.m.–6 p.m. working days. There are eight more cans of diet Cokes to follow the two just emptied. I can see that Gary has settled into a regular routine. “I know I drink too much, in fact I am in pain right now, but I drink more when I am back in Perth” he revealed to me earlier that morning in his office. This mid-40s man doesn’t pretend to hide his love of the drinking culture many believe is integral with mining life. “I mix it with diet Coke to make it healthier”, he says with a laugh. I ask him about the zero blood alcohol requirement when he fronts up each morning for mandatory pre-start breath testing. “Nine before nine”<sup>6</sup> he offers obliquely. It takes me a moment to realise what this means.

In the quietness of this dusk setting we continue to talk through the themes Gary has offered during several interviews I conducted with him while he worked. He talks about the happiness the work brings him, his love for the landscape, the importance of getting the right guys on board to grow the crew, his failed first marriage, and his far more successful second one. “You have to put the work in. Every day I speak with my wife while I’m here. I learned this lesson the hard way. If you don’t work your relationship you will lose it.” His conversation is genuinely open and frank. He is most passionate when talking about what the work means to him and why he feels so hostile towards those who believe the mineral resources of this remote north western region is for all Australians to share. “These resources are not everyone’s. We are the ones up here doing this shit. I’d like to see them up here during summer working through 50 degree days.”

This is not an uncommon view; it is expressed by many of those I interviewed. Perhaps as strongly felt is nervousness about the ‘end of the boom’ and decline in demand for a mineral that has propelled this industry into the centre of Australian social, economic and political narratives in recent years. Money is a key theme at the start of many conversations; how much money can be made, the level of debt some people have, and the possibility of losing it all if the boom ends. This possibility is attributable, at least according to my most politically forthright informant Gary, to loose ‘end of the boom’ talk and bad policy decisions made by ‘outsiders’ such as the Federal Resources Minister and his Labor government. On this subject the disdain was unmistakable.

Moving from a subject that gets him agitated to one that gives far greater pleasure Gary raises a finger: “Hear that?” he asks. At first I hear nothing, but

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<sup>5</sup> Dongas are small demountable accommodation blocks common on Australian mine sites.

<sup>6</sup> Nine drinks before 9 p.m.

slowly the rumble in the distance becomes clear. “You know what that is? Money rolling down the highway. Money, money, money and lots of it.”

The money in question is a four trailer articulated truck filled with nearly 500 tons of iron ore. That one truck can carry roughly \$50,000 of mineral iron ore at today’s prices. While the popular image of a Pilbara mining operation is of conveyors filling trains with hundreds of carriages, relatively small iron ore producers like the one I am visiting do not have train lines and must make do with carting iron ore in trucks to train access points. Only the biggest companies have rail, and use of this strategically central infrastructure is a tightly controlled asset. In the Pilbara scale of things, this site with 200 workers and six million tons of iron ore shipped annually to China is a baby. Numerous Pilbara camps owned by the ‘major’ miners like BHP, Rio Tinto and Fortescue Metals contain thousands of employees. While comparatively small, the mine I am visiting has grown from nothing to its current size in only 2 years. For those who have been here since that first day, having transformed an ancient river bed into a highly productive and growing mining operation is a source of great pride.

## **FIFO Concerns: A Chance to Get Ahead: Toys, Houses and Control**

I feel good about having the money. When people hear you are FIFO they assume you are loaded (Jesse).

‘Getting ahead’ is not an uncommon phrase in the vocabulary of those interviewed for this research. There is strong motivation to make good while opportunities exist. While the importance of the work experience and career progress are also occasionally described, the most common get ahead dimension features the importance of making a large financial gain in a relatively short time period.

For many, FIFO employment generates far higher wages than those possible for similar work in a non-FIFO environment. The overt materialist foundations of the industry and the relatively high remuneration helps explain how FIFO employment is seen more broadly. For some FIFO workers a potent driving force appears to be the prospect of exceeding expectations of oneself and of others, and to achieve material success. As one participant explained, “Success to me is to have a house, to have my toys, and to have a family” (Stephen).

While FIFO is an increasingly researched topic, one area that is incompletely understood is the full spectrum of factors, motivations and habits influencing employee behaviours and decisions. Is high financial expenditure—whether in consumption or asset accumulation streams—simply a response to the impairing nature of the work, or does it indicate something deeper? Perhaps, at least in part, it reveals a little about the cultural context in which mining employment is situated specifically, and the movement towards materialist orientations in contemporary Australia more generally (Hamilton and Dennis 2005).

That FIFO employees generally receive higher salaries than they would in equivalent non-FIFO roles is unremarkable. Perhaps a little more interesting is to consider several other factors, which arguably contribute to money and spending attitudes. The first of these is that FIFO employees generally have limited options for spending while at work, with day-to-day material needs mostly met by the employer. The second factor is that, for many, recreation breaks are often short compared to days spent at work. A final element to consider is the highly regulated nature of mine sites and of FIFO work life generally, which for several participants leads to ‘letting off steam’ behaviours. The stereotype that FIFO workers can be carefree spenders is, at least in part, supported by the interview data. For example, Chris reflected that “It is no problem to spend \$1,000–\$3,000 when back on your break”.

How money is spent differs from case to case, and it is unsurprising that some FIFO employees hold combinations of lifestyle and asset building goals. Lifestyle goals include expensive holidays, shopping for clothes and gadgets, eating out and generally ‘having fun’ (including sometimes excessive drinking and drug taking). Being able to comfortably afford these purchases, without the need to weigh up the budgetary implications, is a point of pleasure for several participants interviewed:

When you do go home you have got more options. I don’t ever have to say ‘I don’t have enough money’. If I want to go on a holiday I go on a holiday, I don’t have to save up for it . . . I never have to think about the money. Also I can be generous with the money. It gives you a lot more options (Jesse).

‘Toys’ are a separate, and for some, more expensive lifestyle purchase category. One male participant, interviewed at his newly purchased home in suburban Perth, described how he had taken to spending thousands of dollars buying action figures, model cars and boats:

You can probably tell my interest in toys from the thousands of dollars of Transformers that you can see up there. Before I bought this house there was a lot of money sitting there for the deposit. I was rather unhappy at the time, so I was just buying things to make myself happy. I took up golf, and bought toys and model sailing boats. You’ve got a week off and there is no point sitting around with a hangover every morning. I might as well spend it on something that I want (Stephen).

More typically, toys come full size in the form of boats, jet skis, cars and motor-bikes. Toy talk is particularly common among male FIFO workers. Demonstrating the allure of ‘retail therapy’ (Kasser 2002) perhaps after years of financial struggle, are stories of buying consumer items that were never planned. An example of this comes from Lenny who has only recently commenced FIFO having moved from rural Queensland with his partner of 10 years, Emma. Lenny and Emma made the decision to move to Western Australia to attempt to clear \$40,000 of accumulated debt. I spoke with Emma prior to formally interviewing Lenny.

We both planned to do FIFO, but I found it impossible to get a job. I have a lot of admin experience but I didn’t even get replies to my applications. It was disheartening. Lenny got offered a cooking role. He works away for 4 weeks and is back for one. He is now on his third swing. It’s really hard as I get quite lonely in Perth.

I asked Emma whether they were meeting the financial goals they had set.

Well he has just told me he is about to buy an \$8,000 camera. I mean he already has about \$10,000 worth of camera gear.

Was this part of the plan?

No not at all. He just feels that he deserves it. He feels that he has worked hard and this is his treat.

This type of goal drift and the need to self-reward is frequently mentioned during interviews.

Aside from buying consumer items, travel experiences are important to numerous FIFO workers. Karen, a Pilbara based environmentalist, is a case in point, explaining that: “I travel overseas a lot. I only get 6 days off but I will sometimes fly to the US for those 6 days. I go to rodeos; I am trying to meet a cowboy.”

Karen bought a V8 utility on credit, but has no other assets. She concedes that her family (who also do FIFO) and friends are worried that she is wasting her money, and she recognises that the tension between having fun and doing something for the long-term is hard to manage: “I would like to buy a farm, but I really struggle to save any money”.

Heavy partying is also a regular FIFO activity that is data supported. While there is much talk of an illicit drug culture in FIFO it was not explicitly referred to during interviews. In contrast, numerous participants described heavy alcohol use without prompting. Stephen’s description is representative:

I used to spend \$400 on grog every day on my break when I was in Kalgoorlie. There was nothing to do there except drink. I used to binge the entire break. I came away after two years having pissed away almost everything I earned

## *Houses*

Distinct from the consumption and lifestyle-oriented stream, home and property ownership is perhaps the most common FIFO. When asked why they do FIFO, saving for a house or servicing an existing mortgage is a frequent response. It is not uncommon for FIFO workers to service multiple mortgages. In other cases FIFO employment is seen as an important impetus to climb up the housing market ladder.

We’ve got a town house in Highgate (Perth) and an investment property. Yes I’m nervous about talk of the end of the boom. I have two mortgages totaling \$1,000,000. People think because you do FIFO you are loaded, but I’ve only started saving coin in the past few years (Martin).

Chris is a trade assistant who has been in FIFO for 18 months and currently works a 28-day shift. Chris describes how the work can be lonely and difficult with sometimes entire days spent under the Pilbara sun. During our conversation Chris describes several features of the job that reduces his satisfaction of the experience: “They talk about the importance of staying hydrated but they only give us one 5 l



water esky<sup>7</sup> to last the whole day. It is never enough.” Chris acknowledges that such a long shift has become unsustainable. He is angry that the company he is contracted to has delayed providing permanent contracts. His goal is to move to a 19-on-9-off rotation but can only do this if made permanent: “I know that it will be less money, but the 4 weeks roster is just too long.” Chris is now almost 30 years old. Prior to FIFO he was a self-employed plasterer in rural Victoria and was struggling financially. He recognises that saving almost \$8,000 per month is remarkable by almost any standard. He has “a goal to save a \$100,000 home deposit by this Christmas and then quit.” His ‘problem’ however is: “I don’t know whether I will be able to get out of this work when I hit that goal.”

Chris’s comment is typical of the sentiment expressed by those employees who have chosen FIFO to get ahead on their first house purchase. With clear financial goals Chris says his savings will be used to help buy a house, either near his family farm in Victoria, or in central Queensland where a brother lives. Responding to the question of how long he will continue doing FIFO Chris expresses uncertainty: “I don’t know how long I can keep doing this long rotation. If they gave me the shorter contract shift I would stay beyond Christmas.”

Perhaps in this comment we see the first sign of the elasticity of goals that FIFO workers in other interviews also reveal. Perhaps for Chris this is recognition that accruing a deposit for a home is a first step to long-term financial commitment. The subsequent mortgage payments will mean that, at least for some FIFO workers, leaving the industry is no longer a realistic option.

Another late 20s couple, Peter and Jocelyn, also describe very specific financial goals. The discipline they bring to their FIFO careers and how they save seems to be a source of pride: “We basically put our entire wage into our mortgage.” Despite this apparent goal achievement this couple also reveals that even among those most fiscally disciplined FIFO employees there is evidence of goal creep. When asked whether their financial objective had remained fixed since starting FIFO, they responded with a laugh:

Well actually we have just bought a house. We didn’t plan to, we only planned to pay off our current town house, but we felt that we wanted something bigger, something with a yard, somewhere to put a dining table.

The strong focus on housing and investment accumulation among FIFO employees is perhaps unsurprising. The mortgage as a core ingredient of the home and investment property ownership strategy, long described as the ‘great Australian dream’, has been a culturally dominant aspiration for many decades (Weidmann and Kelly 2011). Many of the comments made in these interviews resonate with broader cultural narratives about what we should aspire to be, and how we would mark achievement.

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<sup>7</sup> An insulated food and drink container.

## A Good Time, Not a Long Time: Golden Handcuffs

Martin (2002) drawing on Weber's 'calculating attitude' recognises a key narrative in contemporary capitalism of the importance of harnessing 'self-entrepreneurship' as a technique to leverage future potential and create personal certainty. In the FIFO case this could be seen to translate into the attraction of high intensity/high reward employment to propel the employee beyond her or his existing financial situation into a desired state. This simple description of the pathway from current position to imagined future appears to ignore the fluidity and complexity of that journey that writers such as Schor (1998), Lane (2000) and Kasser (2002) explore. Numerous FIFO employees describe how goals have changed—frequently becoming larger and more aspirational—after their journey commences. It appears that fixing financial and material goals is often far more difficult than first supposed. Within a mining context this goal nebulousness has been described as the 'golden handcuffs' (Shrimpton and Storey 2001: 12): patterns of living and spending which, in part at least, are said to compensate for work that is frequently isolating and difficult. As shown earlier many FIFO employees describe the freedom to spend without restraint as intensely pleasurable, and acknowledge that the amounts spent would be impossible without the accompanying salary. A further recognition is that large mortgages could not be paid without mining income. For these reasons a number of FIFO employees say they often feel trapped in employment that does not bring significant intrinsic rewards. These FIFO accounts show how employees struggle with marginal intrinsic work rewards yet feel bound to stay due to existing consumption habits, debt commitments or the strength of financial goals.

As the experience of FIFO employee Chris demonstrates, one's free choice to exit the industry, a notion enthusiastically declared by FIFO proponents, can be more problematic in practice. In his example the choice is to endure a 4-on-1-off rotation that is adversely impacting personal and family well-being, or accept the lower salary of a shorter stint. Selecting the latter will invariably require staying in the industry much longer than originally planned. As a shorter rotation, from Chris's own admission, is more sustainable, this suggests that this employee would be prepared to continue FIFO for the additional years needed to reduce mortgage debt. On the surface the trap in this choice is that goals can shift along the way. At what point is a (relatively) financially modest house in rural Victoria sufficient when an influential narrative emanating from the industry and its workers is the importance of exceeding previously held goals and aspirations?

Illustrative of the risks of the golden handcuff in this high-paying industry is Andrew's experience. Two years ago Andrew (26) made a decision to leave mining, something he had been doing since he was 17, to start university:

My dream since I was a teenager was to get a degree, but when facing the option [to leave a mining job] I felt very anxious about how I would survive on Austudy.<sup>8</sup> I thought I would need to get a job for a couple of days per week in Perth, but where was I going to earn the

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<sup>8</sup> An Australian government-provided study benefit.

money I was used to? I wasn't prepared to work in a café or bar and only earn \$20 per hour. It wouldn't be enough.

These concerns notwithstanding Andrew left the technical assistant position he had held for several years with a large mining company and studied for an 18-month period, relying on Austudy and a small cache of savings. Having decided not to work part-time while at university, Andrew accrued an A\$11,000 debt. At this point he made a decision to return to FIFO work. When discussing his reasons for returning to full-time FIFO employment—a work pattern he says he has never particularly enjoyed—Andrew described the stress of growing debt and very strong feelings of not being in financial control of his circumstances as key drivers in his decision. Andrew's plans to continue studies part-time are currently on hold.

Jesse describes a similar dilemma: "I want to be out of this (FIFO mining) by the time I am 30. I want to be in a geology role in the city not in a mine site." Jesse says that to achieve this aim he will have to complete a Master's degree in business. His first attempt at the degree while working is proving difficult:

I started a Master's this year, but I have pulled out. If I was able to put in a half an hour every night I would have been able to do it, but that study is mentally exhausting and after working for 12 hours up here you have no energy left.

Exhaustion at night plus an unpreparedness to engage with study while on his recreation break meant Jesse's attempt at completing a postgraduate qualification has also faltered.

I had assignments due every second Sunday. I would get back and wouldn't want to do them on my first day back, Saturday is spent all day with my mates and partying, and then I would wake up lunchtime Sunday feeling absolutely rotten and I have an assignment due in 12 hours. It is very stressful and draining with my current lifestyle. Maybe if I slow down a bit more, and really focus I might be able to do a bit better.

### ***Empowerment or Entrapment?***

While there is much negativity about FIFO, for some it offers significant freedom and flexibility compared to more traditional work models. One FIFO manager I spoke with off the record (his company would not allow employees to be interviewed) described how his family life functions much more cohesively when he is in a FIFO role compared to when he has been employed as a supervisor in Perth factories. Other participants say that the extra income and long recreational breaks comprehensively meet their employment needs. For other employees, though, the highly regulated work pattern of FIFO brings restrictions that can lead some to feel they are not in full control of their work nor personal lives. The view that FIFO employees are serving prison time is reflected in a number of interviews. Stephen for example commented that "Basically the best way to describe it is it like being in prison. They tell you when you can eat, when you can drink, what you can do."

Several employees seem to find it difficult to quarantine the worst effects of FIFO from home lives. Where employees have a partner/spouse and sometimes children, the frustration of being absent from significant family events is common. In some cases, FIFO employees say they often feel out of tune with family and friends.

It seems hard, you sort of see where (the girlfriend) is coming from too, but on the same hand she's got to think 'maybe I should give him time to relax, chill on the couch and watch movies, or whatever' . . . You have got seven days, but it just feels like rush rush rush rush, let's do this, let's do that. And by the time you have got to your fifth day home you're thinking 'it's over, I've been flat out seeing everyone, and being out every day for the last five days, and haven't done anything that I want to do' (Chris).

The demands of home appear exacerbated by both the amount of time spent away and the complications of distance. Participants interviewed for this research frequently mentioned the challenge to de-stress, re-energise and reconnect with their home environment on their own terms. For many though, the reality experienced is arriving home to family and friends with expectations and plans frequently out of balance with their own. On multiple occasions FIFO employees said they feel resentment as the demands of others are grudgingly acceded to or, in other cases, where frequent conflict and disagreement pressure relationships. Despite the high material rewards on offer the FIFO employee is likely to experience a degree of alienation from her/his 'home' life:

You can spend your whole time when you are home fighting, and you think 'why am I spending my time fighting when I could be out having fun?' . . . What I've noticed is that you will come home and your girlfriend will want to spend the whole time with you, but I want to go out with my male friends and be a boy for a while. I don't want to be full-time in a relationship when at home (Stephen).

## Conclusion

The interviews with 14 FIFO workers drawn on here reveal an experience of work that contains significant compromises. The long hours and the consecutive days away from home become, for many, emotionally and physically draining. Connections with home lives are frequently described as bearing the scars of the FIFO model's spatial and temporal dislocation. Working in remote geographical locations, often with constrained outside communications, means that for some employees the risk of detachment from the priorities of their non-work lives grows. Arguably this work model exacerbates the potential for miscalibration between the FIFO employee's needs and expectations and that of others. This miscalibration, as described previously, can result in significant emotional and relationship costs—a theme covered extensively in submissions to the Australian Parliament's FIFO inquiry (House of Representatives Committees 2012).

This research also shows that short-term time horizons can become complicated once the journey commences. Numerous examples of shifting goals, increasing

spending habits and growing debt commitments reveal that the choice to come and go from the industry as one pleases is more problematic in reality. The high material rewards of FIFO that seem so attractive to many outsiders and new recruits can become a 'golden bind' that has both material and psychological potency. In this vein an argument that the FIFO experience can leave its mark on employee thinking appears valid. This research has revealed numerous employees struggling to imagine a life without a FIFO salary. The question this research poses is whether FIFO employees can successfully straddle the path between acceptable short-term personal costs incurred in the pursuit of long-term financial goals? Whether the individuals at the centre of FIFO, or the communities affected by FIFO mining, can manage these costs over the long-term, and whether FIFO is a curse or cure, remains to be seen.

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# Chapter 8

## Gendered Dimensions of Resource Extraction: The Place of Women

Robyn Mayes

**Abstract** This chapter examines two core dimensions of women’s gendered experiences of mining in Australia and more specifically in Western Australia (WA). First, the chapter explores what has been and continues to be women’s principal relationship to mining encapsulated in the social and cultural identity of the ‘mining wife’ and, more recently, ‘fly-in/fly-out (FIFO) wife’. Second, the chapter addresses the fraught emergence of women as mineworkers. As the research presented in this chapter makes clear, the human cost of developmentalism was and continues to be deeply gendered.

### Introduction

Women’s relationships to the mining industry, as a substantial and growing body of research around the world makes clear, are complex, diverse and far from homogeneous. These relationships, whilst variously informed by class, race and sexuality (see for example Pini and Mayes 2011; Pini et al. 2013; Mayes and Pini forthcoming), along with industry practices and broader social norms are at the same time deeply gendered. This chapter examines two core dimensions of women’s gendered experiences of mining in Australia and more specifically in Western Australia (WA). First, the chapter explores what has been and continues to be women’s principal relationship to mining encapsulated in the social and cultural identity of the mining wife and, more recently, fly-in/fly-out (FIFO) wife. Second, the chapter addresses the fraught emergence of women as mineworkers. Importantly, these relationships occur in dialogue with an industry fundamentally gendered as masculine and in which “masculinized notions of physicality, technical competence with machinery, and strength” are foregrounded along with the harshness and

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remoteness of the ‘frontier’ locations in which this work is undertaken (Gibson 1992; Mayes and Pini 2010: 187). This understanding of mining work as the natural preserve of men has a long tradition in Australia (Rhodes 2005), as elsewhere.

## Mining Wives (and Mining Towns)

In Australia, as a product of broader social expectations and industry practices, the most common relationship women have to mining is as mining wives, traditionally located in rural and remote mining towns (Williams 1981; Gibson-Graham 1994; Rhodes 2005). These included those which sprang up in the Pilbara in WA in the 1960s and 1970s as a result of significant resource development following the lifting of the federal embargo on iron ore exports (Alexander 1988). Companies constructed closed residential towns such as Mount Newman and Goldsworthy, and contributed to the development of infrastructure in pre-existing towns such as Port Hedland (Storey 2001). In the purpose-built towns, the companies controlled working conditions, community facilities, and residents’ housing. For example:

The company built the roads, footpaths, houses, parks, sports facilities. The company fixed your fuses, air-conditioners and broken flyscreens. The company gave you a house and took it away from you. The company still hires or refuses to hire you. (Bulbeck 1985: 89)

Many women found themselves in such mining towns in WA and Queensland as a result of the lure of relatively highly-paid employment for unskilled male partners and “the promise of saving vast amounts of money” (Gibson 1992: 36; Bulbeck 1985). Wives often gave up jobs to accompany their husbands (Bulbeck 1985). For many women this move meant that, as a result of their partners’ high wages, they could afford to stay at home to raise their children (Gibson 1992: 37). In either case, this choice represented “a lifestyle decision in which the influence of a traditional ideology of gender roles in the social division of labour is strongly apparent” (Gibson 1992: 37).

Life in a mining town was a very different experience for men and women (Bulbeck 1985). Collis’ (1999) study of ‘Mineton’ in New South Wales demonstrated the patriarchal nature of mining town culture and its close connections to the town’s economic reliance on the traditionally masculine mining industry. Studies undertaken from the mid-1970s to the mid-1990s of company mining towns in Queensland (Williams 1981; Gibson 1992; Gibson-Graham 1994) and Mount Newman in WA (Heath and Bulbeck 1985) showed that women experienced significant social isolation, a debilitating lack of community and health services, and gender inequality in their marriages at a level more pronounced than women living elsewhere in Australia. Most women were occupied full-time as wives and mothers responsible for the bulk of the domestic labour with very limited opportunities for economic independence (Gibson 1992). As Gibson-Graham (1994: 216) argued, “the male dominance of the mining workforce and lack of alternative employment for women” contributed “to the impoverishment of women and their



utter economic dependence upon men". Indeed, the very conditions in these mining towns that promised wealth for men ensured financial dependency for women, including those who were able to secure (poorly paid) non-mining work and make it fit the domestic demands of the partner's shift work (Gibson 1992). Women's dependence was strongly linked to housing policies in company mining towns which stipulated that mining employment was a pre-condition of access to accommodation; in the case of a marriage breakup, women, in the main not employed in mining, would have nowhere to live and would be forced to leave (Bulbeck 1985; Gibson 1992; Williams 1981).

At the same time, women's access to mining work was (and continues to be) limited and highly contested (see Gibson-Graham 1994; Heath and Bulbeck 1985). Colleen Heath's (1985: 47) firsthand account of local responses in Mount Newman to attempts by the mining company to employ women as shovel greasers in the 1970s suggests something of the social complexities:

The wives of the shovel-drivers did arrange their own action once. It was over women working in the mine. There was a lot of bitterness when one woman worked and another didn't. The union was against it—two income families—because that's not helping unemployment. It was cheaper for the company to have two incomes in one family because it saved on housing. There were quite a few women employed around the town, but men did not want women working in the mine. Some of the wives, and myself, did not want it either because of the things that went on. . . . Most wives were against it because of the hours and it was a four-panel shift. They did not want women doing shift work because they thought it would break up marriages.

This earlier research into the gendered experience of company mining town life also examined the social and cultural impacts of the introduction of continuous production and 7-day rosters in the Queensland coal industry (Gibson 1992) and women's struggles to coordinate domestic life around newly introduced 12-h shifts (Collis 1999). Not surprisingly, findings showed these changes resulted in substantial increases in, and intensification of, women's domestic labour, and loss of companionship and shared family and community leisure time: women with children were effectively solo-parenting three weekends out of the month. The new roster system implemented in the Queensland coal industry in the late 1980s became known as the 'divorce roster' (Gibson 1992).

Importantly, Gibson-Graham's (1994: 205) work has challenged the notion that women in mining towns constituted a "natural, self-evident and coherent" group. Rather, the categories of 'mining town women' or 'mining wives' (or 'FIFO wives') are "regulatory fictions" (Gibson-Graham 1994: 212) that limit the identities available to women and regulate their relationships to mining and to each other. Within this fiction of mining town women, for example, women in mining towns were positioned in much of the mainstream literature as either a 'client group' in need of better community and health services or as "the feminine face of the politically cohesive working class mining community" (Gibson-Graham 1994: 207). Similarly, mining women were portrayed as (and encouraged to be) "independent and self-reliant" just as they were constructed as "defensive, vulnerable, cautious of emotional commitment, lonely, isolated, stressed and traditional"

(Gibson-Graham 1994: 207). Other ways of being and other identities were thus precluded for women in mining towns. At the same time, women's contributions to the industry have been sidelined and marginalised. As Linda Rhodes (2005: 5) has argued, women's essential, "enormous" contributions to the mining industry in their roles as mining wives have not only long been unrewarded but also unrecognised, as has the "corporate exploitation of women's work".

Continuous production, long hours including 12-h shifts, and intensive block rosters that were new features of the mining industry in the 1980s and 1990s are now normative. Census data from 2011 (ABS 2013) indicates that mining industry employees worked on average 51 h/week whereas people employed in other industries worked an average of 35 h. This disparity was lower in high growth mining towns where everyone worked longer hours: in these towns those in mining worked an average of 50 h/week and those in non-mining employment worked 44 h (ABS 2013).

Despite the shift away from closed mining towns in Australia since the 1980s and the rise of fly-in/fly-out (FIFO) work practices (discussed below, and see also Chap. 7), large numbers of women continue to live in mining towns fulfilling the role of mining wife. A very recent example is the residential workforce gathered in the Ravensthorpe Shire in the South West of WA to work on the newly constructed BHP Billiton, Ravensthorpe Nickel Operation (RNO). Interviews with a cross-section of women who moved to Ravensthorpe to take up employment at RNO, or who migrated as partners accompanying mineworkers, suggests that the work and roles undertaken by women have changed very little over the last 20–30 years (Mayes and Pini 2008). The gendered division of labour documented in earlier studies continues in the present as evident in the experiences of these partnered women in Ravensthorpe whether they were in paid mine work or were principally engaged in unpaid domestic work (Mayes and Pini 2008). Participation in mining work for women with dependent children was impeded in Ravensthorpe by the long shifts, limited part-time work, and lack of access to child care facilities, while opportunities for non-mining employment were either limited or non-existent (Mayes and Pini 2008).

This lack of employment opportunities in the non-mining sector, however, may not apply in the larger mining towns such as Karratha. Following the 2011 census, the ABS (2013) identified ten 'high growth mining towns,' defined as urban centres which had a minimum, average annual increase of 2 % in the recorded census night population between August 2006 and August 2011, and in which at least one in six of the people staying on census night were substantively employed in the mining industry. Three WA towns met these criteria: Karratha (with the highest average annual increase in the country), Newman and Port Hedland. In these high growth large mining towns, 75 % of women were likely to be in the labour force in comparison to 59 % in the rest of Australia. Furthermore, women were represented in several non-mining jobs to a higher degree than elsewhere in Australia. The example given is that women in these towns represent 93 % of bank workers as opposed to 72 % Australia wide. This suggests that women in urbanised mining towns characterised by high growth have greater access to the non-mining labour

market. At the same time, it is important to keep in mind that mining jobs attract the highest pay, and that living expenses in towns such as Karratha are notoriously high.

## **FIFO Wives**

First gaining traction in Australia in small, short-term gold mining operations in the 1980s and early 1990s (Storey 2001), FIFO labour is now used on a large-scale in the exploration, construction and operational phases of the mining of a wide range of minerals at sites of all sizes, locations and projected lifespans. This work involves regular, rotating rosters of a fixed number of days onsite and a fixed number of days at home, together with the provision of transport, food and accommodation (Storey 2001). Concomitant with the rise of FIFO work practices is the emergence of the social categories of FIFO family and FIFO wife (see Pini and Mayes 2012a).

Research currently in progress by the author indicates that women take up the role of FIFO wife as a result of the lure of high paying jobs for male partners relative to the income that can be earned in non-mining employment. In-depth, semi-structured interviews with 20 women whose partners are engaged in FIFO work further suggests that social isolation, as a result of the domestic exigencies of their partners' work, is an important aspect of this lifestyle.

Pini and Mayes' (2012a) examination of public postings to an Australian FIFO families' online chat forum demonstrates that women, many of whom describe themselves as FIFO wives, take pride if not pleasure in being strong, supportive and resilient, and undertake a substantial burden of emotional work in the maintenance of FIFO work as a viable and sustainable practice. Women strive, and encourage each other, to manage their emotional responses to the FIFO lifestyle—their sadness, sense of isolation, feelings of loss, for example—by understanding such feelings as irrational and pathetic, and as connected to the early stages of 'dealing' with the domestic and personal pressures deriving from their partners' FIFO work. At the same time as women develop this emotional strength they are also working to avoid becoming 'too independent' in the partner's absence. In order to maintain the relationship, and the conditions which make FIFO work possible, "female partners perform a delicate emotional balancing act of self-transformation" and shape their "emotional capacities around the presence or absence of [the] male partner in the home" (Pini and Mayes 2012a: 79). In supporting their mining partners' careers through intensified and ongoing emotional and domestic labour, reminiscent of the intensified work undertaken in the past by mining town women as documented by Gibson (1992), everyday patriarchal relations and the sexualised division of labour are both reproduced and naturalised (Pini and Mayes 2012b).

## Women and Mining Work

The last decade has seen sustained concern over the marked and seemingly intransigent under-representation of women in the Australian mining industry. While gender equality and equal opportunity agendas are important in this, much of the contemporary discussion around women's employment in the mining industry is driven by concerns around labour shortages and the potential and gendered 'untapped resource' which women are seen to represent (see Mayes and Pini forthcoming). However, despite claims of a chronic labour shortage (NCVER 2005; Healy et al. 2012), and claims on the part of peak industry bodies such as the Minerals Council of Australia that companies are seriously addressing the recruitment and retention of women, the number of women employed in the industry has remained very low. Women working in mining in Australia made up just 12 % of the industry full-time workforce in May 2011 and also May 2012, and 15 % in May 2013 (ABS 2013). This under-representation occurs in what is Australia's most highly paid workforce; males employed in the WA mining industry experienced a 33 % rise in income between 1998 and 2009 (see Chap. 1).

### *Women in Mining: Statistical Overview*

In WA the representation of men and women in the workforce is highly segmented by industry; just over 45 % of all women employed in May 2011 worked in the following female dominated, and often less secure and lower paid, industries: health care and social assistance, education and training, and retail (Department of Commerce nd). Gender segregation is also very evident within the mining labour force as shown in Table 8.1. The percentage of women employed in traditionally masculine occupations, which encompass those with the highest number of employees, is extremely low. Inversely, the percentage of women in traditionally feminised, lower-pay occupations is extremely high.

Attention to the *number* of women in selected occupations (see Table 8.2) gives a sense of the marginalisation female employees may experience. For example, according to 2011 ABS statistics, there were just 92 women in a cohort of 14,700 mechanical engineering trades workers. Similarly, while the number of stationary plant operators increased since 2006 by close to 14,500 the number of women in this occupation grew by just 1,500 (so that women constitute just 10 % of new recruits). The duties associated with this occupation are principally "operation monitoring" (watching gauges, dials or other indicators) and "active listening" and the pay is "above average" (Australian Government 2012). Between 2006 and 2011, the number of women employed as general clerks on the other hand grew by 1,259 whereas the number of men in this occupation increased by just 53.

A further highly important aspect of women's employment in the mining industry is the gender pay gap (see Table 8.3). The gender pay gap is a product of

**Table 8.1** Representation of women across select occupations in the mining industry

Occupation in the mining industry (a)	2006 women employees (%)	2011 women employees (%)
Miner	4	7
Truck drivers	14	20
Geologists	20	26
Shot firers	4	6
Chief executives, general managers and legislators (b)	4	6
Hospitality workers	67	66
Clerical and administrative workers	77	75
Personal assistants and secretaries	98	97
Receptionists	99	99

Table generated using 2006 and 2011 ABS Census of Population and Housing Data calculated using TableBuilder. (The author thanks Paul Koshy and Richard Seymour for these calculations)

a range of interlinked factors including segregation in different industries; high numbers of women in low paid occupations and, conversely, low numbers of women in high paid occupations; undervaluation of women; career breaks due to child care responsibilities; and, given that a substantial proportion of the gap is unexplained by the above, direct discrimination is a further likely factor (WGEA 2012). As Table 8.3 shows, the mining industry gender pay gap is substantially larger than that of the Australian all industries average. While the gender pay gap in WA is highest in Financial Services, in the mining industry it is 10.6 % higher than the state’s all industries average. Importantly, the gap widens as the level of job responsibility increases: the gap is lowest in entry positions and grows with seniority reaching over 32 % in high-level jobs.

## Addressing Women’s Under-Representation

Attempts to actively address women’s under-representation and disadvantage in the workforce through women’s movements, government intervention and corporate strategies, for example, has a long history in Australia. Of particular relevance for the discussion here is the rise of the equal opportunity movement and EEO legislation in the 1980s which saw mining industry engagement with the business case for the employment of greater numbers of women (for example, see Pattenden 1998). Recruitment and retention strategies have been largely underpinned by the assumption that achieving a ‘critical mass’ of women across all levels in organisations will “rebalance the dynamics of power, rewards and status that served to advantage men” (Eveline and Booth 2002: 558). As Eveline and Booth (2002: 559) remind us, however, this assumption is fatally flawed in that it fails to “account for why women do not share equal rewards and status with men in society more broadly, given that they make up more than 50 % of the world’s population.”

**Table 8.2** Representation across the top two 'highest number of employee' occupations for each gender

Occupation	2006				2011			
	Male		Female		Male		Female	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Mechanical engineering trades workers	9,059	100	27	0	14,607	99	92	1
Stationary plant operators	26,459	96	982	4	40,903	94	2,554	6
General clerks	166	10	1,431	90	219	8	2,690	92
Accounting clerks and bookkeepers	206	14	1,314	86	347	14	2,098	86

Table generated using 2006 and 2011 ABS Census of Population and Housing Data calculated using TableBuilder. (The author thanks Paul Koshy and Richard Seymour for these calculations)

**Table 8.3** Gender pay gap

	Australia (a)		WA (b)		
	All industries (%)	Mining (%)	All industries (%)	Mining (%)	Financial services (%)
2012	17.5	21.8	26.4	37.1	42.7
Australia-wide: gender pay gap according to level of responsibility					
	Level 1 (low responsibility)		Level 2	Level 3	Level 4
					Level 5 (highest responsibility)
2008 (c)	2.9		6.3	8.2	12.9
					32.3

Table constructed from data sources: (a) WGEA (2012); (b) Department of Commerce (nd); (c) Sarder (2008)

Importantly, the gendered organisation of work in the mining industry continues. Though mining work is characterised by longer working hours than in other industries, Bryant and Jaworski (2011: 1358) found that “HR personnel rarely acknowledged the need for any structural or cultural changes required in shift work in order to foster increases in the numbers of women in the mining workforce.” Entrenched ‘masculine’ attributes such as tolerance for dirty work, hot weather and the ability to work 12-h continuous shifts (born of freedom from responsibilities shouldered principally by women) continue to define the industry’s ‘ideal’ worker (Bryant and Jaworski 2011). As Eveline and Booth (2002) found in their study of women’s employment at ‘Emsite’ in the Pilbara, having children under 18 is a barrier only to women: in their sample, none of the women had children who were under 18 years of age while over half of the male participants did have children younger than 18 years of age.

In addition, the efficacy of voluntary equal opportunity and gender diversity programs as deployed in the Australian mining industry is highly questionable. Eveline and Booth (2002) found that the Affirmative Action Awards bestowed on Emsite in the 1990s had much to do with the company’s high profile and its role as flagship for the Voluntary Affirmative Action program; the difference between the public image and insider experience was so great that women workers resigned in protest. In addition, the portion of women in the Emsite workforce declined as a direct result of implementation of the Voluntary Affirmation Program. In Lord et al.’s (2012: 93) assessment of mining company reports to the Equal Opportunity for Women in the Workplace Agency (EOWA), in particular in the period 2009–2010, there is “little evidence of targeted policies or of successful outcomes to suggest that gender-related measures are a widespread strategy for addressing skills or labour shortages,” while policies intended to improve retention of women are limited and infrequent.

## Women's Disadvantage and Mining Industry Culture

The mining industry is characterised by a persistent denial of a “blokey culture”, often presented as an “outdated” perception of mining workplace culture held by women (Barrett 2013; Mayes and Pini 2010). However, as Eveline and Booth (2002) have pointed out, mining scholarship has tended to ignore the crucial role of gendered organisations in shaping the identities of workers and managers. In addressing this gap they draw attention to the sexual politics of the employment of women mineworkers at ‘Emsite’, a remote mine operation in WA’s Pilbara region. Using rich qualitative research spanning the decade from 1988 to 1998, they show how women employees were valued by management for purportedly taking better care of the equipment than male counterparts and providing a ‘civilizing influence’ leading to reduced antagonism among the male staff and improvements to the safety record.<sup>1</sup> As one interviewee in Eveline and Booth’s (2002: 565) study put it: “They expect us to mind ‘the boys’.” At the level of management the employment of women thus emerges as a “human resource strategy” (Eveline and Booth 2002: 566). On the mine production side, male workers saw themselves as beneficiaries of the presence of women who, in their view, made the site cleaner, “lent a dash of sexual excitement to work life” (Eveline and Booth 2002: 567) and provided an outlet for discussing family and personal issues. As a result, “Few women at Emsite felt free of the contradiction between the promise of equal work and their secondary value as women” (Eveline and Booth 2002: 570). Such contradictions are less likely for male workers; occupational identities in the resources sector and hegemonic masculinities align well. At the same time women at Emsite were subject to misogynistic practices—including physically dangerous, practical jokes; offensive name-calling; and overt sexualisation through the pervasive distribution of female pin-ups.

The emphasis on gendered qualities, on women’s ‘secondary value’ in the industry, can be traced at least to the 1970s. As Cilla Bulbeck (1985: 102) noted, “Shay Gap was the first community of its kind in Australia to employ women alongside men, after an industrial relations expert in 1977 suggested it may stabilise the workforce and reduce the violence.”<sup>2</sup> This view is alive and well in contemporary narratives circulating in the industry and the Australian media (Mayes and Pini forthcoming), including industry advice from tire companies about how mining firms can lower truck maintenance costs through employing women drivers. This is because: “women tend to take more care of the machine and don’t abuse the brakes or the engine” just as they “often follow rules and directions better than their male counterparts” (Agora Tire nd). Analysis of the representation of women in mine management in the Australian business press between 2006 and 2008 demonstrates

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<sup>1</sup> As Eveline and Booth (2002) also point out, this civilising task has a wider social history in Australia stretching back to white settlement.

<sup>2</sup> Evens so, as she pointed out, in a 400 strong workforce there were only 30 single women (Bulbeck 1985: 102).



the mobilisation of a similar narrative of ‘feminine advantage’ based, in that instance, on the understanding that women are ‘naturally’ better communicators (Mayes and Pini 2010).

In addition, the women mine managers quoted in the business press foreground individual responsibility for dealing with any gender issues; the key to overcoming gender disadvantage and discrimination is presented as individual persistence and hard work, and a concomitant erasure in the workplace of feminine traits, pursuits and interests (Mayes and Pini 2010). This is also evident in the narratives offered by Pirotta’s (2009: 41) sample of women FIFO workers who reported a “male work-force culture that keeps a close eye on the performance of female workers.” Indeed:

All participants reported that they had to learn how to adjust to the male mining environment and male culture. Participants mostly noted steep learning curves in which they had to quickly learn how to “harden up” if they were to survive. They felt the pressure to “prove themselves” in a man’s world. Extreme, but not uncommon testing behaviour included: verbally abusing women; aggressively defending their stated positions; giving women heavier workloads; patronising women; watching their every move; making suggestive or derogatory remarks; displaying inappropriate pictures; or, making negative remarks about women in mining, in the presence of a lone woman (Pirotta 2009: 43).

In light of industry expectations on the part of management and male workers that women will perform additional, normative gendered labour, it is interesting that many of the participants in Pirotta’s (2009: 43) study noted that “their male colleagues sought their counsel on personal issues,” and were less resistant to the presence of women in what could be argued are feminised operations involving, for example, organising equipment and multi-tasking. At the same time, these women reported dressing conservatively and downplaying femininity. As Pirotta (2009: 50) notes, women’s experiences appear to be contingent to some extent on “the size and culture of the mine site on which they work, and the nature of their job.”

Eveline and Booth’s (2002) study highlighted the ways in which women strove to actively manage their own agenda and position as mineworkers, thus emphasising the need for ‘critical acts’ undertaken collectively by women within and around organisations in order to “exert control over organizational change agendas.” Examination of the interview texts presented in Pirotta (2009) as undertaken in the development of this chapter, on the other hand, suggests that women workers accept their position as outsider in a masculine workspace, just as an important coping mechanism or survival strategy is the minimisation of femininity. There is a clear need for critical analysis of the ways which the mining industry and its various firms, networks and peak bodies function as gendered organisations not least in terms of their roles in shaping worker and manager identities.

## Conclusion

As noted at the outset, this chapter does not, indeed cannot, offer a comprehensive examination of the gendered dimensions of mining in Australia. Many aspects have not been addressed—women’s positions in environmental and anti-mining activism, in governance and unionisation, and their many professional contributions to the development of the mining industry, have not been included just as those areas examined have not included the experiences of Indigenous women, or attended to class, for example. In its attention to women’s positioning and experiences as ‘mining wives’ and as mining workers, however, this chapter points clearly to a systemic gendered inequality in the distribution of the economic benefits and social burdens of mining. Women are largely excluded from the benefits associated with high incomes and job opportunity, just as they (continue to) take on a greater burden of unpaid domestic labour. The human cost of ‘developmentalism’ in relation to the Australian mining industry, and in particular in its WA manifestations, is deeply gendered. The rapid growth of the sector, far from providing opportunities for gender equality both in and beyond the resource sector, accentuates gender inequality.

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## Part IV (Under)mining Tourism?

Between the 1950s and 1970s Western Australian governments sought to diversify the make-up of the state's economy (Harman and Head 1982). At the time, it was hoped that the development of industries outside the resource sector in areas such as services and manufacturing especially would help create an economy that is both less volatile and more labour intensive. Diversity was seen as a means of shielding against economic instability (Trendle 2006). Yet, despite predictions a decade ago that foresaw a relative decline in the economic importance of natural resources and calls for a more diversified economic base in Western Australia (Western Australian Technology and Industry Advisory Council 2000), recent years have seen a seeming reversal of past diversification attempts by government and the very active encouragement of direct foreign investment in mining projects. Arguably, partially as a result, the tremendous growth and proliferation of mining operations during the current resource boom remained unmatched by other industries.

It is in this context that the contributions in this section explore the relationships between resource development and non-mining related industries. Specifically, attention is drawn to the tourism industry in Western Australia which is a key contributor to the state's economy, generating over 83,000 direct and indirect jobs and contributing over \$6.3 billion into the Western Australian economy (Tourism Western Australia 2013). At issue here are questions about the degree of compatibility between the interests of mining and tourism and about the possibility of co-existence. This exploration is part of larger debate touched on by other contributors to this book (see Chaps. 6 and 15) about the extent to which an expanding resource sector limits opportunities for, and/or threatens the economic basis of, other industries and thus by inference enhances the susceptibility of the state economy to the boom–bust cycles that govern globalised commodity markets.

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## Chapter 9

# Introducing Oil and Gas to a Remote, Iconic Tourism Destination: Impacts on Broome and the West Kimberley

Michael Hughes

*Tourism has great potential to provide the sorts of job and business opportunities that can deliver economic independence for regional Indigenous communities, particularly here in the Kimberley which has the highest concentration of Indigenous tourism experiences on offer anywhere in Australia. Grasping those opportunities is the key to closing the gap between Indigenous and non-Indigenous Australians.*

Federal Tourism Minister Martin Ferguson, Broome,  
13 April 2010

**Abstract** This chapter reviews the conflict relating to the proposed industrialisation of a remote and relatively pristine tourism region. The West Kimberley region is located in the remote North West of Western Australia with Broome as the regional center. Vibrant culture together with expansive remote wilderness, including rugged landscapes and pristine coastal and marine areas, provide the central components of an iconic nature-based and cultural tourism destination. While a proposal to develop a large-scale onshore oil and gas processing complex on the coast north of Broome has been withdrawn, questions remain about the environmental, social and cultural consequences of such development on a pre-existing tourism industry. The evidence indicates that the development would have significantly impacted on the region, potentially changing its image as a place to live and visit. Benefits to the region from the development would likely be relatively limited. The evidence relating to the relative merits of each sector are presented and discussed.

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## Introduction

Australia is a continent of vast landscapes and valued natural resources. Because of the relatively small population and large land area, conflicts around land use often occur outside areas of high productivity and in regions beyond the metropolitan fringe, and thus may be considered relatively minor (Holmes 2006). In addition, different dominant land uses in Australia tend to be geographically separated and generally occur in locations where alternative land uses have little appeal (Hughes and Jones 2010). However, there are examples of conflict where seemingly incompatible land uses vie for access to contested locations in remote areas. This chapter examines the case of a proposed large-scale industrial development in the remote West Kimberley region of Western Australia. The development was proposed in a location valued for its isolation and wilderness qualities that form the basis for a significant nature-based and cultural tourism industry. Although the proposal for the specific development that this chapter focuses on was withdrawn in 2013, there is still a political will to industrialise this region (see, for example, Anon 2013a, b; Barnett 2013). Thus, while the original proposal has been scrapped, the issue lingers. This chapter provides important insights into the consequences of such development.

Tourism is a significant part of the Australian economy contributing about 2.5 % of the national GDP and comprising about 4.5 % of the national workforce in 2010–2011 (Jago and Bailey 2012). Australia is primarily a nature-based tourism destination strongly reliant on its unique natural heritage as a core component of its tourism product (Hughes and Carlsen 2004). From this standpoint, the natural landscapes are a significant asset reflected in numerous valuations of natural areas that have been deemed to have significant economic value for tourism (Hughes and Carlsen 2008).

Australia also has a significant resource sector that contributes around 8 % of the national GDP in 2010–2011, about half the value of total exports, and is associated with high profit margins. In terms of labor force, mining comprises about 2.3 % of the national workforce (Australian Bureau of Statistics 2010). As such, while mining generates significant wealth, tourism employs a larger component of the national workforce overall, although this varies across regions within Australia. This chapter discusses a case of tourism and the resource sector in direct conflict for land use in terms of the relative benefits of each at the regional level.

## Method

This chapter is based on a project conducted in 2010 that reviewed the potential impacts of oil and gas development on tourism in the Broome and West Kimberley region. During the first half of 2010 information relating to tourism and oil and gas

in remote areas was gathered. The focus of the review was to gather substantiated data on the character and economic significance of tourism in this region; the regional impacts of oil and gas development in remote areas; and how industrialisation might influence tourism activity in the Broome and West Kimberley region. Sources included online databases such as ProQuest and Informit to access published documentation including local, state and national news media and academic research material. State and federal government websites were used to access relevant reports and data including tourism visitation data, population and employment statistics, impact assessment reports relating to the proposed development, and data on industry contributions to the region. These included sources such as Tourism WA, the Kimberley Development Commission and the Department for State Development among others. Personal communications using email and phone contact with experts in impact assessment and tourism in the Broome region provided additional context for the secondary data sources. The content of the material was collated and analysed in order to build a picture of the relative merits of industrialisation of the West Kimberley versus further development of tourism from primarily a socio-economic standpoint.

## **Impacts of Industrialisation on Remote Tourism Destinations**

There is very little substantiated research on the impacts of introducing the oil and gas industry to remote regions with an established cultural and nature-based tourism sector (Butler 2010). There are examples of developing tourism in regions with established resource extraction industries. For example, Mansfield and Winckler (2007) discuss development of tourism in the oil rich Gulf States based on the idea that the oil industry has a finite life span as determined by the available oil reserves able to be extracted. In this case, tourism is seen as a replacement economic activity in the longer term. Buultjens et al. (2010) present a similar discussion in relation to bauxite mining and its eventual cessation in northern Australia. In these examples, a pre-existing resource extraction industry plans to be eventually replaced by tourism in an attempt to sustain the socio-economic viability of the region.

As a historical case strikingly similar to the Kimberley proposal, Butler and Fennel (1994) examined the influence of the development of an onshore oil terminal and associate supply base on the Shetland Islands in the 1970s. The facilities were built to receive oil from the North Sea rigs in what was then a resource boom. Prior to construction of the oil terminal and supply base, the Shetland Islands were branded as a remote, rugged and isolated tourism destination with a nature-based and cultural tourism market. The industrial development included construction of an oil terminal at Sullom Voe on the Shetlands Islands mainland and a supply base at the town of Lerwick, the main town and administrative center for the Shetland



Islands. The oil terminal processed oil received through two pipes fed by offshore rigs in the North Sea region.

According to Butler and Fennel (1994) the industrialisation of the Shetland Islands severely impacted on the regional brand and associated tourism activity. This was despite the Shetland Islands' oil terminal development adhering to best practice in terms of impact assessment and community consultation to limit the impacts on local traditional activities. Indeed, the Sullom Voe oil terminal is used by environmental impact assessment professionals, policy makers and researchers as a case example for good practice engagement with local community to generate mutually agreed benefits for local residents and the oil industry (Morrison-Saunders 2010).

However, the impact of industrialisation on tourism in the Shetland Islands was referred to as being "catastrophic" with a near complete cessation of tourism activity in the region (KPP Business Development 2009: 47). During the peak of oil production in the 1970s, the director of Shetland Tourism considered that promotion of the Shetland Islands for tourism was a waste of money (Butler and Fennel 1994). This was primarily due to accommodation being almost entirely and constantly used by oil industry workers with no availability for holidaymakers. This is similar to the Australian context where a national review of the impacts of mining on tourism found that accommodation availability for holidaymakers is severely depleted due to heavy use by resource sector workers (Pham et al. 2013). Another effect of the development was a significant increase in operating costs for local businesses and communities, driven by the dynamics of the oil industry (Nash and Martin 2003). High costs of living are common for regional economies dominated by the resource sector (Pham et al. 2013).

The brand image of the Shetland Islands shifted from a wild and remote region for nature-based and cultural experiences, to that of an industrial area. This was reinforced by some industrial accidents in the region, including significant oil spills. While the accommodation providers benefitted from the near constant and high level of occupancy during the peak of production, this waned as the North Sea and Sullom Voe terminal went into production decline. Reduced production and a shift from oil to gas meant fewer workers. At this point there was virtually no tourism market to replace the oil industry workers and the region went into a decline (Butler and Fennel 1994). This is symptomatic of 'company town syndrome' where a region is strongly dependent on a single industry and goes into social and economic recession once that industry ends.

Weiler and Davis (1992) discuss conflicting use values related to Kakadu National Park in the Northern Territory, Australia. Kakadu is a remote wilderness wetland area in the northern region of Australia. While it is now an iconic tourism destination (Director of National Parks 2012), it was not always so. Kakadu was proclaimed a national park in three stages from 1979 to 1987 as a result of efforts to reconcile interests relating to conservation, tourism, cultural values and existing mining (Ryan 1998). In this case mining was established prior to the proclamation of national park and World Heritage status and prior to Kakadu's status as a popular tourism destination.

Weiler and Davis (1992) note the mining activity had benefits for tourism in the Kakadu region. For example, upgrading roads and establishing a town site to service the mine contributed to accessibility and subsequent increased tourism activity. Proclamation of national park status and World Heritage listing, among other factors, were also noted as significant contributors to the rise in tourist numbers during the 1980s and 1990s. However, Weiler and Davis (1992) noted that during this period mining offered relatively few employment opportunities for Aboriginal people in the region while tourism was considered to have better job prospects (see Chap. 5). In addition, mining activity was seen as environmentally and culturally destructive by certain local Aboriginal community members. Mining in the region was seen by some as a threat to their way of life that could not be compensated (Fox et al. 1977; Hamilton 1996). On the other hand, mining in the region afforded financial rewards to local communities through royalty and compensation payments for the life of the mines. Longer-term benefits require investment in economic activities independent of the life of the mine and its finite resources. This can include investment in tourism infrastructure and businesses that can offer ongoing benefits if properly managed (Bultjens et al. 2010).

Bultjens et al. (2010) provide examples of how mining could benefit tourism development in a region using the case of Weipa in remote northern Australia. In this case, the mining sector provided support such as funding small business training schemes and the transfer of decommissioned mining infrastructure (such as accommodation) to use for tourism. Bultjens et al. (2010) observed that the mining interests recognised the limited life of mining and the potentially longer-term benefits of investing in tourism. However, despite the best intentions of the mining company, a lack of community support and conflict between community groups hampered efforts to establish and build a tourism sector in the region.

The three studies highlight pros and cons of the relationship between resource extraction industries and tourism in remote areas in different contexts. The Shetlands was a nature-based and cultural tourism destination that was industrialised to the detriment of tourism. Expansion of mining in Kakadu improved access for tourism, though it faced significant community resistance due to environmental and cultural concerns. The Weipa case highlights a recognition of the limited life of mining in the region. This precipitated financial support for business training schemes in local communities and agreements to transfer mining infrastructure for use in tourism once mining operations cease. The aim was to ensure a positive legacy from mining that could be of long-term benefit to the local communities. In this chapter, the case of James Price Point near Broome is discussed. This is a remote but iconic tourism destination with a firmly established cultural and nature-based tourism sector that was selected as the location for a major resource sector development.

## Context: The Kimberley

The Kimberley Region is located in the remote North West corner of Australia and covers 425,000 km<sup>2</sup>. The region is sparsely populated with an estimated 2008 resident population of 34,185, almost half of whom (15,386) live in the town of Broome. The Kimberley is arid-tropical, combining spectacular landscapes and coastlines with a rich diversity of flora and fauna. The region hosts one of the few remaining large intact tropical savannah wilderness areas left in the world. The land area is home to impressive geological formations such as the Purnululu National Park (Bungle Bungles) and the Devonian Reef, large free-flowing river systems, isolated pockets of tropical rainforest, extensive open savannah woodlands and desert (Kimberley Development Commission 2009a). The coastal and marine areas of the Kimberley are a significant part of the region's physical setting and character. The coastline varies from wide sandy beaches to mud flats, mangrove inlets, coral reef systems and tidal creeks interspersed with coastal cliffs. Some bays extend well inland while there are numerous offshore islands and coral atolls. The Kimberley coast is subject to large tidal variations of up to 11 m. The strong tidal flows result in dramatic effects such as 'horizontal falls'. The horizontal falls are a phenomenon involving large, daily tidal changes causing a rapid movement of water through two narrow coastal gorges connecting a bay with the open ocean. This results in a waterfall effect as water banks up on one side of the gorge and is funneled through as the tide moves in or out (Kimberley Development Commission 2009a).

The expansive, remote and rugged wilderness forms the core of the Kimberley brand and attracts an average of 271,900 overnight visitors equating to about 2.25 million visitor nights annually (Tourism WA 2012). This contributes about \$640 million annually to the regional economy (Kimberley Development Commission 2009b). The Kimberley also has a strong and vibrant cultural heritage built on at least 40,000 years of Aboriginal and Torres Strait Islander (hereafter Aboriginal) occupation, with a more recent colonial history since the late nineteenth century. The Aboriginal culture and language is extremely rich, diverse and complex with the Kimberley region having at least 27 traditional language groups (Fryer-Smith 2002). In conjunction with this, there is a strong demand for 'authentic' Aboriginal tourism experiences, especially among international visitors (Tourism WA 2010). In this context, the Tourism WA promotional material appears to indicate that authentic experiences involve positive tourist interaction with local Aboriginal communities and individuals and exposure to local Aboriginal culture and art. Aboriginal people are significantly involved in the tourism industry in the Kimberley region with about 20 % of the workforce employed directly in the tourism sector (Department of Employment Education and Workplace Relations 2008). Colonial heritage includes pearling, pastoralism and mining overlaid with a multicultural aspect based on various nationalities who have settled in Broome to take advantage of the wealth on offer, primarily from the pearling industry (Kimberley Development Commission 2009b).

As a tourism destination, Western Australia is generally conceptualised in terms of two regions, the South West and the Kimberley/Broome region (Trembath 2008). This highlights the central role Broome and the Kimberley play in terms of Western Australia's tourism image and branding and attracting visitors to the state. The iconic status of the Kimberley brand has been built over time based on significant public and private investment. This includes investment by businesses involved in the tourism sector as well as state and federal government tourism development and small business development support schemes (Tourism WA 2010)

These distinctive natural and cultural qualities, and their iconic tourism status, were formally recognised by the Australian Federal Government which has recently added the Kimberley region to its National Landscapes Initiative (Government of Australia 2010). This initiative, in part, aims to conserve areas of outstanding cultural and natural significance and promote tourism visitation to these places, ensuring the tourism experiences meet target market expectations.

Despite claims regarding the importance of conserving natural and cultural landscapes, developmentalism is the guiding belief within the political system and culture in Western Australia (Beresford 2001; see also Chap. 2). Thus, the James Price Point LNG development proposal and the socio-political driving force behind it rests on a century old vision of industrialising the Kimberley to exploit the considerable natural resources and generate wealth (Botsman 2012). However, remoteness and difficulty with accessibility have meant large-scale industrialisation has not occurred. Consequently, with the announcement of the Browse LNG development proposal, the Kimberley was presented, by the current state government and corporate interests, as a "new" and untapped resource development region (Nolan 2009; Proctor 2011).

### ***The Broome and Kimberley Brand***

Branding is about providing guidance through imagery and information that helps build brand recognition, loyalty, value, and market share (Pike 2005). A brand combines psychological and experiential elements that determine the perception of a product, service or place in the minds of consumers (Morgan et al. 2002). Repeated consumption of a brand reinforces the consumer's psychological and experiential elements, leading to consumer loyalty. This market is maintained based on trust that the brand consistently delivers on its promise (Tourism WA 2007).

In relation to tourism, the Broome and Kimberley brand is built on the geographical and cultural setting and the experiences offered to visitors. The Kimberley regional brand is based on a sense of remoteness, iconic rugged landscapes and expansive wilderness (Trembath 2008). This combines with a rich coastal and marine life, offshore islands and coral atolls that feed perceptions of a pristine remote and untamed wilderness. Aboriginal culture is also a strong aspect to the

Kimberley brand with marketing images focusing on contemporary and historical art and culture.

Broome is the main hub for access to the Kimberley. The town's tourism appeal is its multicultural community, beaches, climate, hospitality and relaxed, tropical lifestyle (Trembath 2008). Broome branding is largely based on imagery including pearls, pearling luggers, Chinatown, Cable Beach, bush tucker, colorful (contrasting) landscapes, camels at sunset on Cable Beach, boab trees, Aboriginal rock art, crocodiles, festivals, luxury coastal cruising and luxury accommodation.

Possessing a distinctive and appealing brand is vital for a destination's success in tourism (Ekinçi and Hosany 2006). Broome and the Kimberley's tourism sector has achieved the difficult task of producing a distinct and easily recognisable brand for something as complex as a region offering a multidimensional tourism product for a diverse range of market segments (Pike 2005). Given the effort required to develop and maintain the brand, any damage to the brand image will take considerable financial reinvestment, effort and time.

### *The Development Proposal*

Since 2005, the Western Australian State Government has been considering the development of a liquefied natural gas (LNG) processing plant on the West Kimberley coast located at James Price Point, 50 km north of Broome. The plant would process gas piped from the Browse Basin about 400 km offshore. The Browse Basin deposit is a significant deep-water hydrocarbon deposit discovered in the 1960s. Exploitation of the resource has only become viable relatively recently due to improved extraction, processing and transport technology, and favorable market conditions (Department of Mines and Petroleum 2009). The project's proponents withdrew from the proposal in 2013, citing financial concerns and the possibility of more cost effective alternatives such as an offshore floating LNG processing plant (Stewart 2013; Wilson-Chapman 2013). However, the WA State Government has stated that it still plans to facilitate development of the precinct in readiness for future proposals (Barnett 2013). This reinforces the notion that developmentalism is still the guiding belief within the political system and culture in Western Australia as previously observed by Beresford (2001).

The originally planned project would have involved construction of an onshore gas processing precinct covering a land area of about 2,500 ha, although a total area of 10,000 ha had been reserved for development. This area would accommodate two gas liquefaction plants and an adjacent large port to accommodate ships for transporting bulk LNG. The operation also includes constructing a supply base to support offshore and onshore activities. A site assessment process by a state government contracted consultant identified Broome as the preferred site for the supply base because of the existing deep water port, international airport and existing small exploration supply base at that location, though other locations have been considered in the region (WorleyParsons 2009). The LNG project

would temporarily employ about 8,500 workers over the 5 year construction phase with approximately 300 employees during the 30 year operational phase (Department of State Development 2012).

The development proposal included provision of a \$1.5 billion benefits' package with employment targets for Aboriginal people and cash payments to the Goolarabooloo and Jabirr Jabirr traditional owners. It also included health, education and employment training commitments for the Kimberley Aboriginal population including improved school and hospital infrastructure (Department of State Development 2012).

## **Tourism and the Resource Sector: Regional Benefits**

A core argument in favor of the James Price Point Gas Hub related to the positive contribution it would make to the regional economy. The gas hub was touted to create jobs in the Broome and West Kimberley region and diversify the economic base (Department of State Development 2012). The government and supporting community members viewed the development as a significant opportunity to raise the standard of living and generate employment for all local residents. Interestingly, according to the Kimberley Development Commission (2009a), the Kimberley currently has a broad-based and diverse economy. In this light, the following sections examine the relative economic benefits associated with the tourism and oil and gas industries in the Kimberley and the potential relationship between tourism and oil and gas mining.

### ***Tourism Impacts***

Tourism constitutes an important component of the Kimberley and Broome economies. According to the Kimberley Development Commission (2009b), tourism represents approximately 36 % of the regional economy (\$640 million) and is responsible for 64 % of the revenue generated in the town of Broome. It directly employs about 12.5 % of the Kimberley regional workforce, and approximately 17 % of the Broome area workforce (Kimberley Development Commission 2009b). Furthermore, tourism in Broome and the Kimberley region is highly integrated where tourism activity directly influences employment in industries such as retail, accommodation, cafes and restaurants, cultural and recreational services and personal services. Including tourism associated industries such as restaurants and cafes, retail and accommodation, the combined proportion of the Kimberley workforce employed in tourism rises to 27 % (Kimberley Development Commission 2009b). Moreover, tourism operations in the West Kimberley and Broome region account for about 20 % of the Aboriginal workforce in this area (Department of Employment Education and Workplace Relations 2008).

While tourism employs a significant portion of the local workforce, it generates considerably lower revenue compared with the resource sector. However, unlike the resource sector, tourism sources much of its supplies and services from within the region, meaning less economic leakage and a proportionally higher regional economic return (Brereton et al. 2007; [Tourism and Transport Forum n.d.](#)). Economic leakage refers to revenue from an economic activity that is lost from a region. For example, an industry may use its revenue to purchase goods or services from outside the region in which it operates. This means that the revenue raised within the region is spent elsewhere and is therefore lost to that region's economy (Chen et al. 2003). Because of this loss, the region does not benefit from the subsequent rounds of economic activity that could occur if local suppliers of goods and services were used. These local providers use the revenue to subsequently pay wages or make purchases in the region, contributing to an economic multiplier effect where initial revenue and expenditure triggers subsequent rounds of expenditure in a region and across industries (Dwyer et al. 2004). The multiplier effect for respective industries can be expressed in terms of factors referred to as regional output multipliers. These are figures that represent a proportional return on each new dollar invested in the region by an industry. As indicated in [Table 9.1](#), tourism related industries have considerably higher Kimberley regional output multipliers relative to oil and gas mining. For example, accommodation, cafes and restaurants have a multiplier of 1.51. This means for every new dollar invested in this industry there is a return to the region's economy of \$1.51. The higher output multipliers reflect a greater tendency for using locally sourced goods and services and a locally resident workforce. The revenue raised in the region is thus distributed amongst members of the local community.

### *Oil and Gas Impacts*

While the Kimberley has an existing resource sector, it is smaller than the resource sector intensive Pilbara and Midwest regions of WA (Pham et al. 2013). Most activity occurs in the East Kimberley and on some islands offshore from the West Kimberley region. The resource sector employs about 7.5 % of the Kimberley workforce, significantly less than other sectors including health (14.5 %), government and defence (12 %) retail trade (11 %), education (8.5 %) and of course tourism (Kimberley Development Commission 2009a, b). In contrast, revenue raised by mining oil and gas significantly outstrips other sectors in the region (Kimberley Development Commission 2009a, b). Government figures indicate that the Kimberly resource sector generates almost \$1.6 billion annually. However, according to the WA Department of State Development (2009), at least 40 % of revenue from the sale of resources leaks out of the region. Sutherland and Johnson (2001) found the oil and gas industry regional output multiplier for the Kimberley is 1.18 (see [Table 9.1](#)). That is, for every new dollar invested by the oil and gas industry in the Kimberley, the region receives a return of \$1.18, a low rate of return

**Table 9.1** Selected output multipliers for the Kimberley region

Resource extraction related Industries	Regional multiplier	Tourism related industries	Regional multiplier
Oil and gas	1.18	Accommodation cafes and restaurants	1.51
Other mining	1.19	Sport gambling and recreation services	1.67
Services to mining	1.33	Libraries museums and the arts	1.57
		Personal services	1.5

*Source:* Sutherland and Johnson (2001)

compared with tourism related industries. However, the services to mining regional multiplier is slightly higher (1.33), indicating a higher proportion of locally sourced equipment, labor and supplies relative to the oil and gas industry.

The oil and gas output multiplier is a function of the Kimberley region's remoteness, small, socio-economically disadvantaged population and a limited manufacturing base (Department of Employment Education and Workplace Relations 2012). In contrast, the oil and gas industry requires a highly skilled and experienced workforce and specialist equipment and supplies. In other words, the Kimberley does not have adequate numbers of locally resident skilled workers or available goods and services necessary for operation of the oil and gas sector. Thus, operations in these remote areas rely on sourcing a workforce from outside the region in order to access the necessary range of skills and expertise. These workers are flown into the region to work for a period of time (usually 2 weeks), then are flown home for a similar period of time for a break from lengthy shifts. This phenomenon is referred to as the fly-in/fly-out (FIFO) workforce. For example, an LNG facility in Darwin, a city in the north of Australia, operates with 75 % of workers as FIFO in order to access the skills and experience required to operate the facility because these are not available within the region. This is despite Darwin being a sizable, though remote, city (Department of State Development 2009).

While the Broome and West Kimberley communities hold a diverse range of views regarding the development of the LNG facility and associated industry (Botsman 2012), a common concern amongst all community members was that they did not want 'another Pilbara' (Department of State Development 2009). This refers to the limited socio-economic benefits and significant negative impacts local communities have experienced regarding the development of the resource sector in this region over the past half-century. The 'boom' in resource extraction in the Pilbara has reportedly achieved little in terms of enhancing the socio-economic welfare of local communities, particularly Aboriginal communities in the region (Taylor and Scambary 2005; Hajkowicz et al. 2011). This relates to the relatively low regional return on investment but also the increased costs of living, significant income disparity and itinerant FIFO workforce affecting sense of community and social networks. Thus, while communities in the region receive limited economic benefit, they are hampered by increased costs of living. Other chapters in this book address these issues in more depth (see Chaps. 1, 5 and 7).



## *Broome and the West Kimberley Tourism and Oil and Gas*

The paucity of studies on the effect of introducing an onshore oil and gas industry to established tourism regions (Butler 2010) means there are few precedents to draw on when discussing the James Price Point proposal. For example, the Kimberley is somewhat different to Kakadu and Weipa in terms of tourism development and the type of industry, as the latter regions involved mineral extraction and had established mining industries prior to development of tourism in the respective regions. There are parallels, in terms of the facilities and location, with the Shetlands case, although the tourism product and market in the West Kimberley and Broome are at a more developed stage relative to tourism in the Shetland Islands in the 1970s.

The development of mining in the Kakadu region, although fraught with conflict, improved accessibility to the region for tourists through the construction of roads and development of town sites (Weiler and Davis 1992). While the development arguably facilitated tourism, the conflict related to the authoritarian manner in which the industry proponent and government treated the local community along with the perceived threat to environmental and sociocultural values (Fox et al. 1977; Hamilton 1996). In this regard, there are similarities with the James Price Point proposal. The WA State Government effectively proclaimed itself as a proponent for the project. This meant that the government favored those groups in support of the development and took actions, including steps toward compulsory acquisition of land and payments to community members in favor of the development, as a means to facilitate approval of the project (Botsman 2012).

This stance was also evident in a government-commissioned tourism impact assessment demonstrating support for the development based on findings that it would have minimal impact on tourism in the region (KPP Business Development 2009). However, the tourism impact assessment had an extremely narrow brief (defined by the state government), only considering the construction of the LNG plant itself with no reference to the broader supporting industrial activity required for the operation of the LNG plant and the construction and operation of a large port to export the LNG. Furthermore, the tourism impact study included misleading information, leading questions and faulty analysis of results (Hughes 2010, 2012). The biased approach appeared intentionally designed to obtain evidence in support of the LNG proposal despite evidence of potentially negative impacts on the tourism sector in the region. As noted by WorleyParsons (2009: 57), during the community consultation process:

... adverse impact[s] on tourism were seen as key issues ... The population impact and FIFO personnel was seen as potentially adverse. There was fear of affecting the "sense of place" and Broome becoming an industrial town. This was being considered with respect to Broome being one of the three known tourism marketing points for Western Australia.

Based on the evidence, construction and operation of an LNG processing plant and supply base to support oil and gas extraction in the West Kimberley would negatively impact on the rugged, remote, 'pristine' brand of the region. Industrialisation

of the region for LNG production would inevitably result in visual impacts from air, land and sea, increased sightings and sounds of heavy haulage trucks, increased air traffic, increased sightings in and around Broome of LNG uniformed staff and industry vehicles and congregations of off-work staff, increased air pollution (vehicular and from the LNG processing plant itself) and increased presence of commercially-attired business people at hotels and 'holiday' resorts (WorleyParsons 2009). For example, while the LNG development workforce may be accommodated onsite at James Price Point, Broome functions as a hub for the region, providing for entertainment, food and recreation. An influx of workers into Broome and surrounding recreational areas would alter the defining character of the town and region (Department of State Development 2009). Because of this, the psychological and experiential brand elements associated with Broome and the West Kimberley would likely increasingly diverge, causing dissonance or 'disconnection' in the minds of loyal and first-time visitors. This could potentially downgrade Broome relative to alternative destinations that remain holiday destinations without industrial overtones.

## Conclusion

Until recently, the wide open spaces in regional Australia meant that land traditionally valued for different uses were generally separated by considerable distance (Holmes 2006; Hughes and Jones 2010). However, it seems the dominance of the resources sector and the developmentalism that pervades government policy in WA (Beresford 2001) has opened up new frontiers for land use conflict. The decision about which sector, mining or tourism, is privileged or even appointed to use the land raises important political, economic, social, cultural and environmental questions.

Both the Australian Commonwealth and WA State Governments have identified Broome and the Kimberley region as highly significant in terms of natural and cultural assets and the associated tourism sector. The Kimberley and Broome brand is an iconic part of the Western Australian image. This image is based on the perception of strong Aboriginal culture; rugged, remote wilderness; and the perception of untouched coastlines. Broome is also perceived as a relaxed destination with a strong multicultural element. It is synonymous with Western Australia as a holiday destination.

Evidence indicates that development of an LNG hub and expansion of the supply base with associated support infrastructure would impact on the Broome and Kimberley brand, potentially damaging the regional image and tourism's significant contribution to social and economic values (WorleyParsons 2009; Hughes 2010; Butler and Fennel 1994; Botsman 2012). There is concern Broome could consequently be viewed as an industrial town similar to those in the Pilbara region. This would likely also bring with it the social and economic impacts evident in the Pilbara and other resource rich regions.

Recent fiscal events in 2013, such as the slowing of economic growth in China along with a downturn in the WA mining sector more broadly, have led to some key stakeholders reversing their decision to develop James Price Point. Nonetheless, the resource sector still dominates the WA economy although tourism is also identified as a significant component. While the resource sector generates a significantly higher level of revenue in the Kimberley region, it affords relatively fewer benefits to local regions in terms of economic return and employment. It also has significant impacts on the local and regional environment and has a finite life span, generally a few decades depending on market forces and economic viability. For regions and towns that have become economically dependent on resource extraction, a downturn or closure can result in the loss of jobs and economic and social decline. In contrast, carefully managed tourism can function to create long-term benefits as part of a diversified regional economy, raise awareness of the unique natural and cultural values in the Kimberley and contribute to their conservation for the benefit of future generations. It appears that this case demonstrates an example of government and industry focusing on short-term financial gain while disregarding longer-term consequences for local communities.

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# Chapter 10

## Geotourism: A Sustainable Development Alternative for Remote Locations in Western Australia?

Christof Pforr, Ross Dowling, and David Newsome

**Abstract** Currently, Western Australia (WA) is experiencing its biggest ever mining boom in history with predictions about the resource sector underpinning the state's economic development well into the future. Built on WA's rich natural resources, the mining sector has traditionally been a pillar of any government's economic policy, and indeed much of WA's socio-economic history is associated with its mineral wealth, discoveries and exploitation. From a purely economic viewpoint WA's landscapes are at times portrayed as not much more than a 'big quarry' to exploit, and undeniably, past and present mining and exploration activities have left visible and often irreversible scars scattered across Western Australia.

The broader impacts of mining in the state will provide the requisite background in this chapter, which explores the potential of tourism as a sustainable development alternative in some locations with particular focus on the role of geotourism.

### Introduction: Resource Extraction vs. Conservation Values

As has been highlighted throughout this volume, Western Australia's (WA) economy is strongly mineral dependent. In other words, the state is characterised by a narrow-based, fragile and vulnerable economy that relies heavily

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on the mining of minerals and the extraction of oil and gas. Resource extraction has always gone hand in hand with economic development and has thus played a pivotal role in the state's economy and the generation of state revenue. On the other hand, as has been discussed in detail in other contributions to this volume, the extraction of primary materials has inevitably also been linked to negative socio-cultural impacts (see Chaps. 15 and 16) as well as environmental degradation (see Chaps. 12, 13 and 14). Consequently, the mining sector's sustainability has been questioned, in particular with respect to the environmental aspect of the sustainability trias. The fact that non-renewable resources are extracted on a large scale makes mining, in principle, incompatible with the idea of development for the benefit not only of the present but also future generations. In 2003, the Gallop Labor government in Western Australia addressed aspects of this debate with its State Sustainability Strategy. It proposed that the state's natural resources ought to be "conserved, protected, managed and used sustainably for the common good" (Government of Western Australia 2003: 108).

Whilst it could be argued that site specific impacts of mining activities and the imprint they leave on the landscape translate into relatively minor effects on Western Australia as a whole, the current level and extent of natural resource extraction in the state is nonetheless of increasing concern (Brueckner et al. 2013). Nicol (2006: 133), for example, argues that this poses "a threat to the biodiversity and landscapes that define Western Australia". It is the particular impact of mining on the abiotic nature which is often overlooked or ignored, although resource extraction can have a significant impact on the geodiversity of a region. This "natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (land form processes) and soil features" (Grey 2004: 8) is valuable as it underpins "biological, cultural and landscape diversity by [forming] the abiotic foundation for life" (European Association for the Conservation of the Geological Heritage 2009).

Although the term geodiversity is only about two decades old, the concept has quickly evolved as a component of natural heritage not at least since the international adoption of the Convention on Biodiversity at the Earth Summit in Rio de Janeiro in 1992 (Grey 2004). Obviously, geological heritage cannot be replaced if lost, which underpins the necessity to pay stronger attention to its conservation (Grey 2004). Mining can, for instance, pose a threat to important landforms. As Majer (Chap. 13) argues:

particular geological features, such as banded ironstone formations . . . often support a characteristic flora and fauna. If all of these areas were ultimately to be mined, this could threaten or lead to the loss of entire ecosystems associated with these formations.

Similarly, Gibson et al. (2012) highlight that in particular an increased exploration and mining activity in WA's Midwest ironstone ranges, which is fuelled by a rapidly growing global demand for natural resources, poses a considerable threat to these areas of high conservation value and ultimately to the natural diversity of the region. This will present considerable future challenges with resource development and conservation values being at odds.

The critical importance of landscape diversity for biodiversity and thus the necessity to protect geodiversity is increasingly recognised. This is, for example, illustrated with two recent recommendations by WA's Environmental Protection Authority. Although WA's *Mining Act 1978* permits the issuing of mining titles in some conservation reserves, the Authority advised the state government not to allow mining in the banded ironstone formations at Mt Gibson and Mt Manning nature reserves as they were considered biodiversity hotspots (EPA 2006, 2007). Ironically, as Gibson et al. (2012) point out, most existing or proposed mine sites to date are found within areas like these. With two-thirds of Australia's national biodiversity hotspots found in the state, Western Australia features many regions that are unique in their rich endemic terrestrial and marine flora and fauna. Finding the right balance between conservation and resource extraction will therefore be an increasingly difficult task for the state in the future (Beard et al. 2000; Shepherd et al. 2002; CALM 2004).

In today's neoliberal economic policy context it appears difficult to argue the case for the conservation of natural resources based purely on ecological principles or ethical considerations (Weaver 2008). For instance, to counterbalance the economic attractiveness of mining and the potential conflict between resource development and conservation values, sustainable development strategies need to be identified which allow the preservation of a region's natural heritage whilst at the same time providing economic opportunities for local communities. In this context, tourism is often heralded as a desirable form of regional economic development (Pforr 2007) as, compared to mining, it might have a greater potential for more environmentally and socially sustainable outcomes (see Chap. 9).

This chapter focuses on geotourism, which arguably has the potential not only to support economic development but also to create awareness and understanding of the Earth's heritage and promote geoconservation. According to Newsome and Dowling (2010: 4) geotourism is "a form of natural area tourism that specifically focuses on landscape and geology. It promotes tourism to geosites and the conservation of geodiversity and an understanding of Earth sciences through appreciation and learning." Thus, geotourism is portrayed as being more than just a new tourism product or a new facet of economic development. As a development strategy it has the potential to contribute to geoconservation and sustainable development in a region and thus might be able to reconcile the contradiction between economic development policies and conservation principles.

Based on a review of relevant academic literature as well as other secondary data sources (e.g. government publications and specialist reports) this chapter offers insights into the nature of geotourism as an emerging form of natural area tourism. The above briefly outlined contradictions between exploitation of natural resources and conservation values provide the requisite background to explore the potential of geotourism as an alternative to extractive industries, not necessarily in narrow economic terms but more holistically as a more sustainable option of utilising the georesources of Western Australia. We will highlight, with the case example of the Western Australian geotourism attraction of Wave Rock in Hyden, how a georesource can be successfully developed into a geoattraction. Whilst in this



case the natural resource was not necessarily developed with the objective of providing an alternative to mining in the region, it still illustrates geotourism's potential as an economic activity to further diversify a regional economy, which in the case of Hyden to a large extent relies traditionally on grain and wool production.

Individual cases which illustrate geotourism's potential as a sustainable development alternative to primary resource extraction are very sparse, more so even in the specific context of Western Australia. Due to this lack of empirical data we are not in a position to conclusively answer the question put forward whether geotourism can provide an alternative sustainable development path to mining, but the chapter nonetheless presents a convincing case that geotourism should be considered as being more than just a new niche of regional tourism development. It is argued here that it can contribute to the conservation and sustainable management of natural resources in a region, similar to the way nature-based tourism is promoted in WA as an alternative to the logging of old growth forests (Brueckner and Pforr 2011) or like ecotourism can give value to a marine resource and thus can provide an economic incentive for its alternative use (e.g. whale watching instead of whaling) (Weaver 2008; Garrod and Wilson 2003).

## **Geotourism: A New Form of Natural Area Tourism**

In a geological context, an early definition by Hose (1995) described geotourism as providing interpretive and service facilities to enable tourists to acquire knowledge and understanding of the geology and geomorphology of a site (including its contribution to the development of the Earth sciences) beyond the level of mere aesthetic appreciation. More recently, geotourism has been defined as a form of natural area tourism that specifically focuses on geology and landscape (Dowling and Newsome 2006). As such it promotes tourism to geosites, the conservation of geodiversity, and an understanding of Earth sciences through appreciation and learning. This is achieved through independent visits to geological features, use of geotrails and view points, guided tours, geoactivities and patronage of geosite visitor centres (Newsome and Dowling 2010). A recent refinement of the definition has seen the inclusion of built environments as potential settings for geotourism (Newsome et al. 2012). Thus, geotourism is geologically based and can occur in a range of environments from natural to built, it fosters geoheritage conservation through appropriate sustainability measures, advances sound geological understanding through interpretation and education, and generates tourist or visitor satisfaction (Dowling 2009).

Examples of geotourism development are found around the world (Dowling 2009, 2010, 2011). In Australia, the National Heritage List is a Commonwealth administered inventory established in 2003 to recognise, protect and celebrate places of outstanding heritage significance to Australia. High on the list are the Australian Fossil Mammal Sites of Riversleigh (Queensland) and Naracoorte (South Australia), which were inscribed on the World Heritage List in 1994 for

their geoheritage (palaeontological) significance. Other Australian World Heritage sites, which incorporate geoheritage values, include both Purnululu and Shark Bay (Western Australia), the Great Barrier Reef and Fraser Island (Queensland), the Tasmanian Wilderness and Macquarie Island (Tasmania) and the Heard and McDonald Islands (Commonwealth) (WHC 2013). In 2012 a subcommittee of the Standing Committee for Geological Heritage of the Geological Society of Australia (GSA) was established on geotourism. Its charter is to recognise that geotourism, in addition to its role in promoting tourism to geosites, raises public awareness and appreciation of geodiversity (GSA 2013). The GSA notes that geotourism should foster geoheritage conservation through appropriate sustainability measures and that geotourism activities should advance sound understanding of geoheritage including landforms, geology and associated processes through quality interpretation. It also takes into account Indigenous cultural values in the interpretation of geosites subject to geotourism activity. The group also provides advice to the Standing Committee about how best geotourism can be nurtured within declared National Landscape, World Heritage and National Heritage areas as well as within national parks and reserves.

As mentioned above, Western Australia has a number of established geotourism destinations. They include the World Heritage regions of Purnululu National Park, Shark Bay, and the Ningaloo Coast. Other iconic sites are the Kimberley Coast, Wolfe Creek Crater, Karijini National Park and the Hamersley Range, Mount Augustus, Kalbarri National Park, The Pinnacles (Nambung National Park), Wave Rock (Hyden), the Augusta-Margaret River Cave Formations, the Stirling Range and the Porongorups (Majer 2009). While WA's major geological sites are well known and are already major tourist attractions, generally there is little formal development of geotourism in the form of facilitating learning about geomorphology, geology and landscapes. So, despite the fact that on a global scale geotourism has emerged as a rapidly growing form of tourism since the late 1990s, in Western Australia it is still in its infancy.

One recently developed geotourism attraction can be found in the Porongorup National Park in the southern part of the state. Known as the Granite Skywalk, the attraction, which opened in April 2011, is a suspended walkway perched on a steep granite rock face near the summit of Castle Rock (Field 2012). The skywalk is at the end of a 2 km uphill walk which includes interpretive signage on the surrounding environment. The design of the facility aims to enrich visitors' experiences and enhances their appreciation of the area's landforms and geology.

## Successful and Potential Future Geotourism Attractions in Western Australia

Wave Rock near the Wheatbelt town of Hyden has become one of the most widely recognised geological features in Western Australia (Fig. 10.1). During the 1950s it was a focal point for recreation activities undertaken by the local community and was modified as a water catchment area before its tourism potential became internationally recognised. Following the appearance of photographs of Wave Rock in the *National Geographic* magazine in 1967 (Murdoch University 2005) tourists started visiting the 12 m overhanging wall of granite which extends for a length of about 100 m. Since the 1970s tourism facilities and infrastructure have been developed and have been expanded into a motel, resort and caravan park that provide accommodation for up to 200 people. Wave Rock is also serviced via an airstrip, and local services in nearby Hyden have benefitted from the tourism activity.

Over time, and despite its remote location, Wave Rock has become a geotourism icon with around 140,000 visitors per annum. During the last 15 years or so the Wave Rock experience has been enhanced by the development of walk trails and interpretation of the geology and landscape. Enhancement of the enjoyment of Wave Rock beyond straightforward photography has been achieved via informative interpretive panels that are designed to engage the visitor in terms of why the landscape and geology looks like it does. Guidebooks are also available that explain the geology in detail, and there is a guided walk trail that goes around and over the upper surface of Wave Rock, where stopping points are indicated with numbers. Visitors who are walking the trail can then refer to an illustrated book that explains the geology at the indicated location. Such an educational approach to tourism and engagement of the visitor with geology gives Wave Rock and similar granite outcrops much more value as landscape features. Where ecological and human use information are added to such geotourism sites, as in the case of Wave Rock, a wider appreciation and understanding plus holistic appreciation of the environment can be fostered. This not only adds tourism value to a landscape but also allows for appreciation of the connection of geology with soils, vegetation and people's lives.

The case of Wave Rock provides good evidence that geological features and geoheritage can be readily valued as tourism resources and that such tourism can be successful in remote locations. As previously indicated in this chapter there are other such successful examples of geotourism in Western Australia. Moreover, there are many more sites that could be recognised for their geoheritage value and geotourism potential. Such sites include the dinosaur fossil sites in the Kimberley, the geobotanical sites in the Goldfields and sandplain quarries of the Swan Coastal Plain and Victoria Plateau near Geraldton, north of Perth.

In the Kimberley, for example, tracks of sauropods (brontosaurus type dinosaurs), theropods (e.g. allosaurs), ornithopods (medium to large plant eating dinosaurs) and thyreophorans (e.g. stegosaurs) occur in the Broome Sandstone in the Dampier Peninsula north of Broome (Thulborn 2012; Tyler 1996). These dinosaur

**Fig. 10.1** Wave Rock, Western Australia



footprints and trackways have been recognised as the most diverse in Australia and some of the most diverse in the world (Siverson 2010). They represent an exceptional geotourism resource with exceptional natural heritage values and possibilities for remote area tourism. For tourism to succeed, however, there needs to be a geotourism development plan and an investment strategy. South Korea also has world-class dinosaur footprints and trackways and considerable investment has been made in developing these into high standard geotourism attractions. In South Korea much has been done to recognise, document and protect dinosaur footprints. One such example is at the Goseong Dinosaur site where extensive visitor centre facilities have been developed which display life sized models and fossils of dinosaurs. Goseong is also located on a scenic coastline where dinosaur tracks can be viewed. As noted by Paik et al. (2010) many of the tracks exhibit sauropod and ornithopod trackways that indicate gregarious behaviour. Such information makes provision for strong and powerful interpretive content that can be supplied onsite as educational panels.

South Korea has made considerable progress in preserving its fossil heritage with many sites protected by enclosed viewing structures and supported with visitor centres and other educational facilities and infrastructure. This approach could be a vision for the Kimberley of Western Australia. However, as highlighted by Norman (2011) concerns and caution have been expressed about potential mining (bauxite and uranium) activities, the exploitation of gas reserves and environmental impacts associated with the development of liquefied natural gas processing. Coastal development has the potential to destroy areas of dinosaur footprints, and inland resource development has the potential to degrade the value of existing and as yet unrecognised nature-based tourism attractions in the region.

There are also valuable geological resources in the Goldfields of Western Australia comprising banded ironstones (DEC 2007). The ironstone formations represent ancient iron rich sedimentary rocks with substantial landscape values. Furthermore, the ironstones have acted as biogeographic islands and contain unique

and endemic assemblages of plants. The geology, topographical expression and geobotany of these sites confer substantial nature-based tourism values. With vision there could be the prospect of a Goldfields Geopark that could be linked in with granite outcrop sites such as at Wave Rock. This is a concept that could gain international recognition in which the objective could be to develop and maintain a sustainable tourism product that at least gives rise to some geological and landscape features being valued as an alternative to extractive purposes. Many, if not most, banded ironstone formations are nevertheless under the threat of being mined out resulting in the degradation of landscape values, destruction of the banded ironstone geology and loss of associated floras (DEC 2007). The vision could be for the development of geotours and botanical excursions. Remote areas can be linked together via the creation of regional trails. This is already happening in Western Australia with the development of the discovery trail network of the Pilbara Region. There is a guidebook that describes six drive trails up to a distance of 215 km (Van Kranendonk and Johnston 2009). Each trail is described using GPS coordinates, descriptive text, and illustrative material supported with icons showing the type of feature that is being viewed. The educational theme is ‘a window into deep time’ where some of the oldest rocks in the world are described. This concept is capitalising on the growth of independent travellers touring in off-road vehicles often with caravans.

Given the vital role of education and interpretation in bringing geology alive there is a lot of scope for valuing features in the landscape that remain overlooked and that are currently undervalued as tourism resources. Even the end products of mining and quarrying can provide opportunities. One example of this could be the creation of sand pit reserves on the Swan Coastal Plain and at places like Yuna and Moonyoonooka quarries in the Geraldton region north of Perth. Such quarries provide the opportunity for us to appreciate that not all sand is the same. Perth sand quarries illustrate the deposition of sand by wind when shorelines in the Perth region were different from today. Here is the scope for a powerful story about environmental change to be enunciated. By contrast the Yuna and Moonyoonooka quarries represent the breakdown of rocks on site (Newsome 2000). In both cases it would be possible to articulate the issues surrounding why we need sand, where it comes from and ultimately the value of recycling glass—this is the story of sand and one of the real connections between geotourism, resource extraction and consumption and sustainable living.

## Conclusion

Focusing on geotourism and geopark development and their future potential for Western Australia, a core objective of the chapter has been to explore ways of protecting geoheritage whilst at the same time providing economic opportunities in remote locations. We have highlighted that geotourism might offer such an opportunity as it not only stimulates regional development but at the same time promotes

geoconservation. Mining in contrast appreciates georesources primarily for their economic rather than conservation values. This provides the context for the question whether, for some communities in regional and remote Western Australia, geotourism might offer a more sustainable development path and an alternative to resource extraction.

Using a number of case examples the chapter has highlighted a relatively novel area of research in Australia. The Kimberley, for example, has been recognised as a significant natural heritage and tourism resource for Western Australia (AHC 2011; Government of Western Australia 2011), but at the same time there are concerns that much of the remote landscapes of Western Australia are simply viewed as mining resources. To develop geotourism in these places will take imagination, investment and also political will but the case of Wave Rock described earlier illustrates the point that it is indeed possible to successfully develop remote area locations for geotourism. For this to happen we must, however, value our geology beyond the extractive and recognise what we have and its geotourism potential. It is hoped that this chapter will stimulate further research interest in this emerging field and that in the future more empirical data will strengthen the case for geotourism as a vehicle for geoconservation and the sustainable management of natural georesources.

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# Part V

## On the Environmental Dimensions of Mining

Resource extraction invariably leads to environmental impacts, which occur before, during and after mining operations. Impacts such as pollution to land, water and air resources, land degradation and biodiversity loss—if poorly regulated and managed—are known to have deleterious long-term consequences for the quality of environmental systems and the communities who depend on them (MMSD Project 2002). The impacts of mining, whilst often seen to be geographically isolated (see Chap. 13 by Majer), have cumulative effects and thus the potential to cover an area larger than that occupied by current mining operations. The industry's harm potential coupled with society's growing appreciation of the natural environment and increasing environmental literacy have been a trigger for public concerns about mining (see Chap. 4 by Wesley).

Against this background, the authors contributing to this section address the environmental dimensions of mining, sketching the sector's key impacts and evaluating the efficacy of regulatory responses to them. The environment has long been the Achilles heel of mining companies' social license to operate due to the often very visible landscape alterations associated with mining and the potential for attendant psychosocial and biomedical impacts on nearby communities (e.g. Albrecht et al. 2007). Growing environmental stakes and rising concerns about future resource availability globally add to the environmental management problem for both mining companies and regulatory authorities. This section sheds light on how effectively these aspects are addressed in the Western Australian context.

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# Chapter 11

## Regulating the Resource Juggernaut

Lisa Chandler

**Abstract** Resource extraction has been a driver of economic growth and development in Western Australia (WA) practically since settlement in the nineteenth century. Over time, the scale and complexity of the mining industry have grown, as has the state's reliance on the economic contribution of the sector. Mining and petroleum currently account for over 90 % of WA's export income. But the sector is not universally trusted: public outrage over real or perceived industry impacts on human health and environmental quality have become commonplace. Government policy-making and regulation have long been used to guard against the potential adverse impacts of extractive industry. Environmental Impact Assessments (EIAs) have been a pre-condition for project approval and establishment for nearly three decades. But how effective is the WA regulatory regime in conserving the environment and protecting social values? Is it politically possible to regulate an industry that has become so dominant in the state's economy? This chapter examines the effectiveness of industry regulation in Western Australia in terms of its ability to adequately address the impacts of the resource sector and to find the requisite balance between the interests of industry and social and environmental concerns.

*Juggernaut: a massive, inexorable force or object that crushes whatever is in its path.* The term 'juggernaut' is taken from a Hindi word used to describe a huge wagon used to transport images of the Hindu deity Krishna in processions. Krishna is a manifestation of the supreme god Vishnu "the maintainer or preserver" of the cosmos (Hefner GA n.d.)

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## How Big Is the Issue?

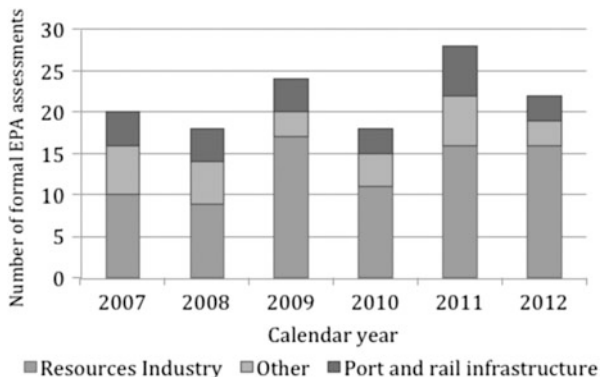
There is no disputing the importance of the resource sector in the Western Australian and Australian economies. In 2011–2012 mineral and petroleum exports comprised 91 % of Western Australia’s total merchandise exports and accounted for 46 % of Australia’s total merchandise exports (DMP 2013a). According to the Australian Bureau of Statistics (2013), sales and service income for the mining industry in WA amounted to some \$112.1 billion in 2011–2012. Nearly 97,000 people were directly employed by the WA mining industry in 2011–2012. Royalties paid to the state by mineral and petroleum producers during that period amounted to some \$5.3 billion (DMP 2013a) (see also Chap. 1). This sum does not include an estimated \$0.76 billion of petroleum resource rent tax paid to the Commonwealth by operating oil fields in Commonwealth waters off the WA coast (DMP 2013a). For these and other reasons, the state has an obvious interest in supporting the efficient and timely assessment of resource projects, including infrastructure projects required for the delivery of mining and petroleum enterprises.

The dominant influence of the minerals and petroleum sector is reflected in the number of environmental assessments conducted for mining and petroleum projects and for related infrastructure. In recent years mining and petroleum projects have typically accounted for about 60 % of the major projects assessed by the Environmental Protection Authority (EPA). If resource industry related infrastructure projects are taken into account, the resource sector easily accounts for more than two-thirds of EPA assessments (see Fig. 11.1).

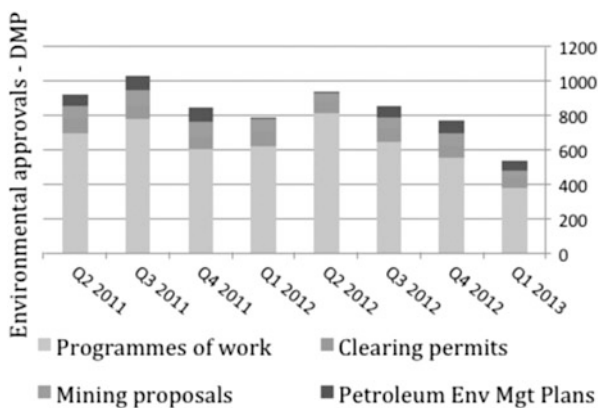
The major projects assessments carried out by the EPA, which currently average about 22 per year (not including assessments related to project modifications or changes to approval conditions) represent a small proportion of the regulatory effort related to environmental impact assessments for mining and petroleum activities. In the 2 years to the end of March 2013, the number of environmental assessments completed by the WA Department of Mines and Petroleum (DMP) for exploration, mining and petroleum activities averaged over 800 per quarter (see Fig. 11.2).

Additional environmental assessments are conducted by the Department of Water (water licensing), Department of Environment Regulation (industry licensing) and Department of Aboriginal Affairs (impacts on Aboriginal sites).

**Fig. 11.1** Environmental assessments of major projects in Western Australia, 2007–2012. Data derived from EPA WA (EPA 2013b) annual reports for the years shown



**Fig. 11.2** Environmental assessments completed by DMP, 2011–2013. Data for compiled from DMP approvals performance reports for the periods shown (DMP 2013d)



## Overview of Regulatory Control

Regulation of environmental aspects of the resource sector in Western Australia is administered by multiple agencies under a number of Acts, regulations and policies. The key Acts used in regulating the environmental impacts of the mining sector in Western Australia are listed in Table 11.1.

The regulatory framework in Western Australia comprises a wide array of statutory tools for managing environmental impacts of minerals and petroleum activities, including, but not limited to, provisions for:

- Policy development and implementation;
- Conducting investigations and research into environmental and related matters;
- Establishing and promulgating environmental standards, criteria and methods;
- Conducting environmental impact assessments;
- Monitoring compliance with approval conditions; and
- Implementing enforcement actions in cases where legislative requirements or approval conditions are not adhered to.

**Table 11.1** Key statutes for regulating environmental aspects of mining (WA)

Act	Environmental application	Administering agency
Environmental Protection Act 1986 (Part IV)	Environmental impact assessment; policy development; compliance monitoring	EPA/Office of the Environmental Protection Authority
Environmental Protection Act 1986 (Part V)	Licensing of prescribed premises; regulation of vegetation clearing; waste management, regulation of emissions and discharges to the environment; contaminated sites	Department of Parks and Wildlife; Department of Environment Regulation
Mining Act 1978	Land tenure, environmental assessments and inspection, mine rehabilitation and closure	Department of Mines and Petroleum
Rights in Water and Irrigation Act 1914	Licensing of water abstraction; works on beds and banks of watercourses	Department of Water
Wildlife Conservation Act 1950	Protection of endangered or other listed flora or fauna	Department of Parks and Wildlife
Aboriginal Heritage Act 1972	Protection of Aboriginal heritage sites	Department of Aboriginal Affairs
Various State Agreement Acts under the Government Agreements Act 1979	Facilitation and administration of major long-term projects	Department of State Development

### *Assessment and Permitting of Resource Projects*

In contrast to many other Australian jurisdictions, the Western Australian *Environmental Protection Act* 1986 (EP Act) takes precedence over other legislation, including (in most instances) Commonwealth environmental legislation, in the assessment and authorisation of environmentally significant projects. The tests for what constitutes “significance” under the EP Act are set out in the *Environmental Impact Assessment (Part IV Division 1 and 2) Administrative Procedures* 2012. In determining whether or not a project might be environmentally significant, the EPA may take into account many environmental aspects, including cumulative impacts with other projects and public concern about the proposal. The notion of ‘public concern’ as a factor in defining environmental significance is a distinctive feature of the WA system, and one that has important implications for the resource sector, as the EP Act does not require formal environmental impact assessment of all projects—only of ‘environmentally significant’ proposals.

The EP Act and the administrative procedures that support its implementation make specific provision for stakeholder participation in the assessment of proposals. Any person may refer a significant proposal for assessment by the EPA. There have been a number of recent cases, most notably the Vasse Coal Project,

in which a project formally assessed by the EPA was referred by a third party, rather than by the project proponent. The general public has always had the opportunity to comment on projects being considered for assessment by the EPA. In 2012, the Office of the EPA made public input to the environmental impact assessment process much more accessible by establishing an online consultation hub (see EPA 2013a) to enable the general public to comment on projects. Of the 44 matters posted on EPA's consultation hub between August 2012 and May 2013, half have been in relation to impact assessment for resource projects or infrastructure required for resource projects. The EPA received public comment on fewer than half of the resource-related projects posted on the consultation hub between August 2012 and May 2013.

Under the EP Act, the concept of 'environment' is defined very broadly. It includes the biophysical environment, social surroundings and the interactions between these. This definition, together with the environmental protection principles referenced in Clause 4A of the Act (precautionary principle; inter-generational equity; conservation of biological diversity and ecological integrity; waste minimisation; use of pricing, valuation and incentive mechanisms to further environmental objectives) give regulators considerable latitude in setting the scope for those projects that are formally assessed by the EPA and, more generally, for developing policies and standards to guide environmental practices.

A relatively small number of resource projects are formally assessed by the EPA in any year. In any given year, only about 10 % of the number of projects referred to the EPA are assigned a formal level of assessment. Irrespective of whether or not a resource project is formally assessed by the EPA, all mining and petroleum projects are subject to environmental impact assessment by the Department of Mines and Petroleum under the provisions of WA's *Mining Act 1978*, or comparable legislation governing the energy sector, for example, the *Petroleum (Submerged Lands) Act 1982*. In recent years, the DMP has completed in the order of 3,000 environmental assessments for mining and petroleum projects per year. No mining or petroleum project may proceed without some form of environmental impact assessment. Although some special conditions apply to large projects for which State Agreement Acts are in place, such projects are not exempt from assessment under the EP Act. Proposals for resource activities to be conducted under a State Agreement Act cannot be approved until all primary environmental approvals, native title agreements, and heritage clearances are in place. Environmental Impact Assessment reports ('mining proposals') submitted to the DMP are publicly available via the DMP website, as are the conditions imposed on the projects under each project's tenement conditions.

Resource projects which are not assessed by the EPA require an approval through the DMP and most will also require additional environmental consents, for example, permits to clear native vegetation, licences to abstract groundwater and licences for a range of industrial activities, such as the treatment of ore or storage of tailings. The Department of Environment and Conservation (DEC 2012: 31), now the Department of Environment Regulation, reports that it received and processed 148 works' approvals for major resource projects in 2011–2012, compared to 150 in 2010–2011 and 71 in 2009–2010.

Virtually all of the forms of environmental approval in WA include some provision for appeal by third parties. In most circumstances, a project may not proceed until all appeals have been resolved. There are effectively no legal constraints on the time that may be taken to resolve an appeal, although the Office of the Appeals Convenor seeks to resolve appeals related to licences, vegetation clearing permits and assessments of environmentally significant projects within a nominal 6-week period from the time of lodgement. In December 2012, the DMP estimated that an average of 28 months was required to gain approval for a mine in Western Australia, not including time required for grant of tenure.<sup>1</sup>

Although the grant of tenure under the Mining Act is a not matter that has conventionally formed part of the environmental assessment framework for resource industry regulation, a number of recent decisions in the WA Warden's Court have underscored the link between environmental interests and decisions on tenure. For example, in 2012 objectors to the grant of an exploration tenement in the South West region of Western Australia successfully argued that tenure should not be granted on the grounds that exploration would necessarily lead to mining and that both exploration and mining were unacceptable at the proposed location in that such activities were incompatible with existing land uses (agriculture, forestry, horticulture and tourism), would contribute to cumulative environmental impacts and exacerbate existing environmental pressures (erosion, salinity and die-back), would not result in economic or social benefits to local communities and would generally constitute inappropriate development (*Darling Range South P/L -v- Ferrell & Ors* [2012] WAMW 12). There are other recent examples such as *Poelina -v- Blackfin P/L* [2012] WAMW 34, *Mineralogy P/L -v- Kuruma Marthudundera NTC* [2012] WAMW 2, where grant of tenure has been stayed or refused on environmental and other public interest grounds, including consideration of both biophysical impacts and social or cultural impacts of proposed mining or exploration activities.

### ***Post-approval Regulation***

Conditions imposed on mining projects at the time of regulatory approval (including ministerial conditions, licence conditions and tenement conditions) are legally binding. The key statutes under which mining activities are approved in WA include explicit provision for regulatory scrutiny and enforcement of compliance with approvals conditions, although such regulatory oversight by administering agencies is not obligatory. For example, Section 48(1) of the EP Act says that the CEO of the administering agency 'may'—not 'must'—monitor implementation of

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<sup>1</sup> In Western Australia, with few exceptions, minerals are the property of the Crown. A mining title must be obtained before conducting ground-disturbing activities (exploration or mining). The normal term of a mining lease is 21 years (and can be extended) (DMP 2013c).

a proposal, or cause it to be monitored, for the purpose for determining whether the implementation conditions relating to the proposal are being complied with.

Effectively all mining and petroleum operations are required to lodge annual environmental reports to the DMP. Many operations are also required to lodge regular compliance reports in connection with approvals issued by the Department of Water and the Department of Environment Regulation. Projects assessed by the EPA are usually required<sup>2</sup> to lodge annual compliance reports and may also be required to lodge (at less frequent intervals) performance review reports. The EPA may require that such reports be made publicly available.

In addition to standard requirements for routine reporting, resource project proponents may be required to participate in regulatory audits or inspections. In most instances such assessments are conducted by government agencies, although it is possible for regulators to involve third party auditors in compliance or performance reviews.

In the event that approval holders are found—through annual reports, audits or other means—to be in breach of approval conditions, each of the key Acts makes provision for enforcement actions. A range of penalties is available—these include, but are not limited to: forfeiture of the mining tenement; fines; modification to the approval conditions; direct intervention by the minister to prevent control or abate environmental harm or pollution; and forced cessation of the approved activity for up to 24 h.

There is no clear statutory obligation on the EPA or on the agencies responsible for regulating environmental impacts of mining to review or to report on the effectiveness of the regulatory regime or to conduct other analysis or public reporting on the individual or cumulative environmental effects of activities conducted by the resource sector. The state government periodically issues *State of the Environment* reports, the most recent of which was prepared by the EPA and released in 2007. The *State of the Environment* report includes a section on mining and petroleum. However, at the time of the most recent report, the EPA identified that it could not draw a conclusion on the extent of land disturbed by mining between 2002 and 2007 or on the compliance of mining projects with approval conditions because the systems used by the agencies responsible for regulating environmental aspects of mining were not capable of providing the information (EPA 2007). In relation to sustainability matters, the EPA concluded that there had been “significant progress at the individual business level” in relation to the use of environmental management systems, but that “a uniform sector approach to sustainability is lacking” (EPA 2007: 6). The *State of the Environment* report specifically noted that sustainability indicators, targets and limits relevant to the mining and petroleum sectors were inadequately developed.

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<sup>2</sup> At the discretion of the minister and subject to recommendations by the EPA.

## Political Barriers to Regulating the Resource Industry

It is sometimes suggested that powerful industry interests stand in the way of a robust regulatory regime and discourage enforcement of environmental rules. The influence of the resource sector presumably arises from its dominance in the WA economy and, potentially, through political donations. According to Keane (2012) mining company donations to the WA Liberal Party, which currently holds about 53 % of the seats in the WA Legislative Assembly and 47 % of the seats in the WA Legislative Council, have increased more than an order of magnitude in the past decade, from less than \$100,000 in the mid-2000s to over \$1.2 million in 2010 and 2011, representing about 20 % of the party's current revenue. But what is the evidence that the resource sector deters proper environmental regulation?

Of the many facets of regulation (establishment of legislation and policies, granting of approvals, monitoring of compliance, enforcement of statutory requirements) it is in the making and revision of laws, regulations and policies that resource interests have the most direct opportunity to exert political influence, through corporate or collective representations to government. Arguably, it would be in the interests of the mining sector to actively hinder the expansion of environmental controls arising from new policies or legislation. How then can one explain recent developments such as the introduction in WA (in 2010) of amendments to the Mining Act to mandate the preparation, regular review and public availability of mine closure plans? Or the introduction of the *Mining Rehabilitation Fund Act 2012* to enable the imposition of a new levy aimed at creating a pooled fund to provide for rehabilitation of abandoned mines and legacy mine sites? These new laws squarely target the resource sector and have no direct parallel applicable to other sectors that also conduct land clearing or other industrial activities which may give rise to the need for land rehabilitation.

It is true that the resource sector takes an active interest in environmental policy matters. The mining industry is currently a vocal participant in the development of a new environmental offsets policy in WA. However, the public discussion papers prepared by industry bodies are not arguing against the implementation of a biodiversity offset policy. Rather, the chief focus of key industry submissions on the draft offset policy relate to the need for procedural fairness, mechanisms to ensure accountability and transparency and adequate resourcing to enable timely assessments (CME and AMEC 2013).

Do mining interests deter proper environmental regulation by collectively exerting pressure on public servants involved in the assessment of applications, monitoring of compliance or enforcement of environmental rules? In reality, there is little opportunity for sectoral participation in regulation of individual projects. These aspects of regulation are administered through one-on-one interactions between agencies and individual companies.

It is undoubtedly true that governments may be predisposed to grant environmental approvals to certain large and lucrative projects. Moreover, neither the Minister for the Environment nor the government is obliged to act in accordance



with recommendations made by the EPA as to whether a particular project should or should not be approved. For example, the original EPA assessment of Chevron's Gorgon Gas Project (EPA Report 1221, 2006) recommended against approval of the Gorgon Project, which has nonetheless been granted approvals. Nonetheless, there are circumstances where even a favourable EPA assessment and government support for a major project cannot prevail against other interests, as a recent WA Supreme Court decision in relation to Woodside Energy's proposed Browse LNG Precinct at James Price Point has demonstrated (*The Wilderness Society of WA (Inc) -v- Minister for the Environment* [2013] WASC307).

Indeed, WA has a particularly liberal approach to public participation in environmental regulation, especially in the area of environmental impact assessment. The Environmental Impact Assessment Administrative Procedures 2012 explicitly recognise "public concern about the likely effect of the proposal, if implemented" among the tests of "significance" to be applied when deciding whether or not a project should be formally assessed. No conditions are applied to who may comment on a project referred to the EPA, and no special standing or interest requirements are applied to those who wish to object to an EPA report or to a ministerial decision to grant project approval. A range of other appeal procedures is available to third parties in relation to the grant of other environmental consents (licences and clearing permits, for example). Overall, the regulatory systems in WA provide both express access and implicit support for those inclined to deny approvals or to require imposition of regulatory controls on resource proposals.

If there exists a political barrier to environmental regulation of the mining sector in WA, it may arise from the fact that environmental considerations are not currently among the major concerns expressed by the Australian population. For some years, concern for environmental matters has declined in the level of importance accorded it, relative to issues such as the economy, job security, health care and education. A national survey conducted by EMC Essential Vision (2013) found that only 13 % of the 1,913 people surveyed included "protection of the environment" in their top three concerns. Similarly, a national "youth survey" of 806 young people aged 17–25 years conducted by the Australia Institute (2013) found that fewer than 25 % of respondents included "mining" in the top five issues that might influence their voting choices (jobs and housing affordability were the highest ranking issues). Administrators of environmental regulations cannot help but be aware that the general level of public interest in environmental matters is waning and that, accordingly, there is relatively less reputational advantage to pursuing strict approaches to environmental assessment, surveillance and enforcement.

## **How Effective Is Regulation of the Mining and Petroleum Sector in WA?**

A report prepared by the WA Auditor General in 2011 provides the most reliable and pragmatic answer to the question of how effectively the resource sector is regulated in Western Australia: no one knows. The extent to which agencies check on compliance or performance of resource activities varies, but it is evident that the resourcing of post-approval surveillance is substantially less than that allocated to project assessments and permitting. The Auditor General's report concluded that while there are adequate statutory powers in place to support rigorous scrutiny of the environmental performance of the mining sector, agencies have generally not developed or implemented an effective framework to provide assurance on the overall levels of compliance with conditions, or whether the conditions deliver the desired outcomes (Auditor General 2011). That is, agencies are not able to assess whether approval conditions are being adhered to and—if they are being adhered to—whether the environmental outcomes targeted by the conditions are being achieved.

Although the key regulatory agencies involved in administering environmental aspects of the resource sector now include some information on their compliance activities in annual reports, the audit reports themselves are not publicly available, even for sector-based audits. The DMP provides summary statistics of its inspection and audit activities and has reported consistently high levels of industry compliance with approval conditions. In the three reporting years from 2009, DMP reports that 89 % or more of the sites it inspected were 'compliant' in that that Department did not take an enforcement action such as issuing a 'Direction to Modify', a 'Stop Work Order', a fine in lieu of forfeiture of tenure or written instructions to improve the site within a specified timeframe (DMP 2013b). The number of sites inspected is not reported.

The Office of the EPA (OEPA) reports similar high compliance levels. In its 2011–2012 annual report, the OEPA reported that it had conducted 55 audits, 87 % of which met all approval conditions (EPA 2012). The number of mining or petroleum projects included in the 55 audits is not specified. The resulting audit reports are have not yet been made publicly available, although OEPA states that the results of industry sector reviews will be analysed and reported on in 2012–2013.

## **What Is Required for More Effective Regulation?**

WA legislation provides a strong and comprehensive basis for regulating the environmental impacts of mining. But legislation alone cannot guarantee an effective regulatory regime. An effective system to regulate the resource sector—and other activities with the potential to cause environmental harm—requires

appropriate administrative tools, a supportive political environment and a balanced understanding of environmental management. At present, the WA regulatory approach is heavily focussed on environmental impact assessment. Other facets of the management cycle—monitoring the effectiveness of environmental conditions and the development of meaningful criteria by which to assess the effectiveness of environmental practices—are inadequately developed.

Until very recent times, there has been little emphasis in WA on post-approval surveillance of compliance or performance. There is still poor transparency in this aspect of resource industry regulation. The key government agencies accountable for regulating the resource sector have not yet developed and implemented effective information systems for using the large amounts of environmental monitoring information supplied by approval holders. This is a major impediment which prevents those responsible for administering environmental protection from evaluating the effectiveness of their work: those who are responsible for setting conditions on mining activities do not have sufficient access to evidence of the effectiveness—or otherwise—of those conditions. The underdeveloped state of information management in WA regulatory agencies is also a serious constraint to the assessment of cumulative impacts.

Unlike some other Australian jurisdictions (for example, South Australia), there has been little emphasis in WA on using tools such as benchmarking to help assess industry performance and the effectiveness of regulatory practices. Why is this the case? The relative lack of effort in surveillance of compliance and performance cannot be explained by a lack of statutory authority. Existing legislation provides a sufficient basis for establishing comprehensive assurance systems. The low priority assigned to monitoring and reporting on compliance and performance in the resource sector cannot be fully explained by a lack of resourcing of government agencies. The wording of the EP Act in relation to post-surveillance monitoring, “CEO may monitor *or cause to be monitored*. . . [emphasis added]”, lends itself readily to a system in which mining entities could be required to periodically participate in third-party audits by suitably qualified and experienced auditors, the results of which would be submitted to the government (and potentially made available to the public). There is nothing in current legislation to say that the full burden of checking on the outcomes of implementing resource projects needs to fall to government agencies.

The absence of an active and transparent system of industry surveillance undermines public confidence and leads to exceedingly cumbersome systems for environmental assessment and approvals, as stakeholders seek to use the approvals’ system to frustrate development or at the least to impose detailed and prescriptive approval conditions that will somehow ensure good environmental behaviour even in the absence of any post-approval regulatory oversight.

In order for a system of compliance and performance checks to be effective, there must be a set of agreed measures by which to judge what constitutes an acceptable outcome. At present, there is a conspicuous lack of meaningful, measureable sustainability indicators relevant to the resource sector. The development and promulgation of environmental standards is not an easy task, as it involves

complex technical considerations and must take into account a range of cultural and political factors. There is nonetheless a pressing need for government to formalise a clear set of standards to guide discussions of what constitutes an acceptable level of social and biophysical impact from mining. In the absence of such standards, the resource industry will be increasingly exposed to the use of alternative systems, such as the Mining Warden's Court, to adjudicate on what constitutes appropriate development and reasonable impact at a particular location. Although the EPA has recently introduced new methods to facilitate public participation in environmental impact assessment decisions, there is not yet clear evidence that the general public has embraced this consultation approach as one that offers stakeholders a substantive level of participation.

## Summary and Conclusions

The mining and petroleum sectors dominate the WA economy and it is often assumed that the environmental impacts of the resource sector are commensurately great. This is not a proposition that can be tested under current administrative arrangements. The application of WA's established and comprehensive legal framework for regulating the resource sector has been uneven, focussing on environmental impact assessments, while neglecting necessary work on developing standards and implementing periodic checks of the effectiveness of regulatory systems. The lack of transparent auditing of the resource sector against an agreed set of impact criteria has undermined public confidence in the regulatory system and hinders the development of an objective and evidence-based understanding of cumulative impacts (see Chaps. 12 and 13).

The resource sector is literally the juggernaut that carries the businesses that maintain the WA economy. There are ample regulatory powers to control the mining sector. Whether or not the environmental and social impacts of mining *will* be regulated in a way that is fair and appropriate relies on the way in which regulatory authority is applied. At present, there are significant imbalances in the system of environmental administration, to the detriment of both the industry and the environment.

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# Chapter 12

## An Overview of Mining and the Environment in Western Australia

Charles Roche and Gavin Mudd

**Abstract** This chapter identifies and explores the common environmental effects of mining in Western Australia (WA). Utilising unique state-specific data, we examine site-specific factors with reference to metals, mine life cycle, cumulative impacts and temporal disturbance. Emerging trends are discussed with specific reference to WA including in relation to production, ore grades, waste, scale, socio-environmental issues and mine legacy impacts. Finally we explore the constraints on effective environmental management imposed by the WA approach to mining development and discuss challenges for the effective environmental management of mining.

### Introduction

Since settlement the approach to managing the impacts of mining in Western Australia (WA) has changed, with a gradual adoption of environmental standards since the 1970s, following similar trends across Australia (see Mulligan 1996). More recently, Western Australians, like citizens in other jurisdictions throughout the world, are rethinking their attitude to mining and demanding a more thorough assessment and evaluation of the impacts, risks and benefits of the mining industry (Hobbs 2011; Brueckner and Mamun 2010; Nicol 2006). The environmental impacts of mining are, at one level, local, and site-specific—issues a typical Environmental Impact Statement (EIS) might focus on. A different view, however, sees environmental impacts as increasing, cumulative and driven by industry

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trends. The dominant development ideology affecting how the industry is viewed, assessed and described to some extent predetermines how we identify, regulate and resolve environmental impacts.

This chapter brings together these divergent ways of thinking about environmental impacts of mining. First, typical impacts are presented with reference to the stages of mining, spatial and cumulative impacts and the longevity of disturbance. Second, we offer an exploration of trends in mining, both physical and conceptual, that can shed light on likely future impacts and how the approach to managing environmental impacts in WA defines our focus and shapes our solutions.

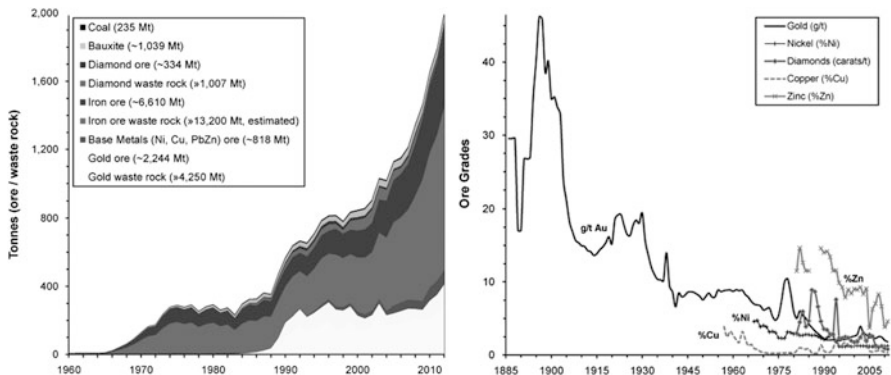
## Western Australia

WA is a mining state. From the early gold rushes near Coolgardie, to the more recent massive expansion of iron ore and gas, the state is dominated by mining: it influences finance, policy, politics and even our identity. The expansion of mining in WA is captured in the ore and waste tonnages (see Fig. 12.1), where the industrialisation and massive increase in the scale of activity in the 1960s and continuing strong growth since the 1990s can be seen. This increase in activity has been supported by government policies that have shaped the way society sees, interprets and manages the growing environmental impacts of mining.

## Common Environmental Impacts of Mining

Environmental impacts can be assessed under, and divided into, a number of frameworks. The most common are direct and immediate impacts related to mining, such as land clearing, noise, dust, wildlife morbidity, tailings, water resources, land clearing, waste management, biodiversity and ecosystem changes, and air-water-soil pollution issues. Over time these have become the staple ingredients in environmental impact assessment (EIA) and regulation (see Chap. 11). More recently, with increasing demands on the state's water supply from mining, agriculture and domestic uses, the use and contamination of water has become increasingly important (see Chap. 14). Similarly, increasing local and global awareness of biodiversity loss has resulted in close examination of this aspect of mining, particularly under the *Environment Protection and Biodiversity Conservation Act 1999* (see Chap. 13).

In addition to direct and local impacts, there is a growing awareness of long-term risks and impacts from changed landscapes, pollution events, climate change and transport. For example, open-cut mines are often left as open voids and are rarely ever backfilled (eg. Nicol 2006; Mudd 2009), leading to cumulative impacts on the landscape which affect post-closure land use and ecosystems. With respect to climate change, future trends in rainfall patterns and temperature will affect the



**Fig. 12.1** Historical trends for some sectors of the Western Australian mining industry—ore and/or waste rock for coal, bauxite, diamonds, iron ore, base metals (Cu, Ni, Pb–Zn) and gold (cumulative tonnages in brackets) (*left*); ore grades for gold, nickel, copper, zinc and diamonds (*right*) (Notes: iron ore waste rock is assumed to be 2:1 with saleable ore due to lack of reported data; no consistent data available either for bauxite and coal; %Cu–%Zn shown from start of large-scale mines only)

hydrologic behaviour of different areas (eg. Holper 2007), leading to adaptive changes in biodiversity and ecosystems in combination with any changes due to mining.

When considering a specific mine, it is important to consider not only the local impacts in relation to environmental resilience and capacity, but also the long-term bioregional, environmental and social contexts. In other words, it is critical to think through cumulative impacts from all mines in a region (along with other activity, such as agriculture) as well as the long-term risks that mining brings such as erosion of, or seepage from, mine tailings and waste rock. There is a real need to move beyond scientific reductionism in the assessment process to a more holistic management of mining risks and impacts (Franks et al. 2013). Even without detailed or specific knowledge of impacts, the scale of mining in WA and the need for cumulative and regional assessments is evident in Fig. 1.1 (see Chap. 1), which clearly illustrates the extent of the industry in the Pilbara and the Goldfields.

While a detailed discussion of environmental impacts is beyond the brief of this chapter, common<sup>1</sup> impacts have been presented in Table 12.1, organised with reference to: (1) type, whether it is biological, physical or chemical; (2) the relative importance of the three stages of mining, exploration, extraction and post closure against these impacts; (3) spatial and cumulative impacts; and (4) estimated time scale at which impacts might be relevant.

<sup>1</sup> Specific or potential industry sectors such as uranium, rare earths, salt, mineral sands and others have additional/unique impacts (e.g. radiation exposure and radioactive waste).



**Table 12.1** Common environmental impacts of mining

Stage of mining		Risks and impacts	Spatial and cumulative impacts	Time scale of disturbance (years)
Exploration	Post Extraction closure			
***	**	<i>Introduction of fire, weeds and ferals</i>	Local-regional	<50
***	*	<i>Habitat loss and fragmentation</i>	Local-regional	<50–100s
–	***	<i>Permanent land alienation from open-cut and underground mines and dumps</i>	Local-regional-state	10,000s
*	***	<i>Land use changes, waste rocks dumps, tailings dams</i>	Local-regional	<500–1000s
*	***	<i>Inadequate remediation and rehabilitation</i>	Local-regional	<500–1,000s
*	**	<i>Groundwater and surface water abstraction and interactions</i>	Regional	<50–10,000s
*	**	<i>Sedimentation, changes in river and lake morphology</i>	Local-regional	<500–10,000s
*	**	<i>Modified surface water hydrology</i>	Local	<500–1,000s
*	*	<i>Greenhouse gases</i>	State-global	1,000s
*	***	<b>Contaminated groundwater and surface water</b>	Local-regional	<50–1,000s
*	***	<b>Acid and metalliferous drainage</b>	Local	<50–1,000s
*	*	<b>Release of contaminants from mining, processing and transport</b>	Local-regional	<50
*	**	<b>Air pollutants and fugitive emissions</b>	Local-regional	<500
**	**	<u>Wildlife [incl. invertebrates and stygofauna] mortality from habitat change, injury, pollutants, exploration holes</u>	Local-regional	<50–100s
*	**	<u>Stress on and loss of biodiversity, ecosystem function/fragmentation</u>	Local-regional	<500

\*Minor, \*\*Intermediate, \*\*\*Significant; texts in underline—biological, italic—physical, bold—chemical (with thanks to Frost and Mensik 1991; Spitz and Trudinger 2009; Bridge 2004)

## Mineral Case Studies of West Australian Mining

The mining industry across WA has grown considerably in recent decades, especially in response to the iron ore, nickel and gold booms. These are outlined below with brief histories related to increasing environmental impacts and their increasingly cumulative spatial and temporal scale.

### *Gold*

Gold has been a cornerstone of the WA mining industry for well over a century, beginning with the initial 1890s boom centering around Coolgardie–Kalgoorlie and its near neighbours, continuing in the 1930s Depression-era mini-rush and then the 1980s mega-boom which, since then, has produced more than double the gold mined in the previous century (data updated from Mudd 2007, 2009). The early years were dominated by prospectors and underground mines, sometimes using mercury or cyanide, but on a local scale. The 1980s saw the emergence of carbon-in-pulp (CIP) cyanide-based ore processing technology combined with a 10-fold increase in the price of gold—creating a giant boom which propelled gold to a dominant export commodity again. This latest boom, however, has seen large-scale mining development due to the lower ore grades which CIP can process, combined with cheap diesel and the rise of open-cut mining. Just as the production of gold has reached record levels, so too has the production of mine wastes and environmental impacts (Mudd 2007).

The various underground and small open-cut mines along the Golden Mile at Kalgoorlie were bought together under one project and converted to a super-sized open-cut mine in 1989—known as the SuperPit. At the site, 60–70 million tonnes (Mt) of rock are mined per year, of which 11–12 Mt of ore are processed with a grade of approximately 2.3 grams per tonne (g/t) gold. Since 1989, the SuperPit has produced some 460.6 tonnes of gold (~14.8 million ounces), 228 Mt of tailings and 1,257 Mt of waste rock (data updated from Mudd 2009). The pit creeps ever closer to the twin towns of Kalgoorlie–Boulder, and the local community has raised concerns over rock debris flying from blasting, seismic events causing damage to houses or infrastructure (e.g. associated with blasting of old underground mines), long-term rehabilitation, dust build-up in homes and rainwater tanks, tailings dam seepage impacts on the groundwater beneath and adjacent to the tailings dams, as well as sulfur dioxide (SO<sub>2</sub>) emitted from the Gidji Roaster (which was moved 20 km north of town to minimise SO<sub>2</sub> impacts on the town) (see Cooke 2004). While the extent of these impacts and their significance can be debated, Kalgoorlie residents and visitors are confronted by a mountainous horizon of waste rock sitting behind the town. It is important to remember that such significant changes to the landscape—such as the ever deepening open-cut, waste rock dumps and tailings dams—will effectively be permanent structures (unless rehabilitation requirements

change), forever altering the character of Kalgoorlie–Boulder. Over what time frame and spatial scale should the management of such changes be examined? Such a question has yet to be answered for the SuperPit.

## ***Iron Ore***

The iron ore industry continues to dominate WA's mining industry in terms of scale; by 2012 the export of iron ore from the Pilbara was Australia's biggest single export earner. Rapid development of iron ore mining from the early 1960s has not significantly depleted the Pilbara's still massive mineral resources which are extracted by the three big companies of Rio Tinto, BHP Billiton and, more recently, Fortescue Metals Group. A range of junior to mid-tier companies have also operated across the Pilbara and there are smaller projects in central, mid-west and southern WA.

The Pilbara iron ore industry now comprises three railway lines, dozens of open-cut mines intermeshed with national parks, small towns, pastoralism and other smaller industries such as tourism. In taking a more holistic approach, there were good strategic environmental grounds to allow the Rio Tinto and BHP Billiton mines to merge in the Pilbara, since this would have reduced the need for infrastructure duplication, joined together fractured mining leases, optimized energy costs, minimised land disturbance and potentially reduced the total environmental footprint from iron ore mining. Market concerns, however, precluded such a merger of giants and thus an opportunity to implement a more holistic approach to environmental planning across the Pilbara was missed.

Apart from the issues noted above, the amount of mine waste remains poorly documented in the Pilbara, since only saleable iron ore<sup>2</sup> is reported by Rio Tinto and BHP Billiton but not raw ore and the associated waste rock. Fortescue and other smaller miners report both ore processed and waste rock. How can we understand the long-term risks from waste rock and tailings in the absence of robust data?

In the Pilbara, projects have changed from mining the mountains above the plains to digging deeper open-cuts and many mines now operate below the water table—leading to changes in the nature of the waste rock. Below the water table, the shales, which occur with the iron ore, contain a small fraction of pyrite, or iron sulfide. When pyrite is exposed in the surface environment to water and oxygen it reacts to form sulfuric acid, which in turn dissolves salts and heavy metals—forming a toxic seepage known commonly as acid and metalliferous drainage (or acid mine drainage, also AMD). As such, AMD risks are a relatively recent but significant environmental development in the Pilbara as mining proceeds below the regional water table (see DRD 1999; ECS 2004).

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<sup>2</sup> Saleable iron ore is raw iron ore that has been beneficiated or processed to remove impurities, increase iron grade or allow blending of different ore types.

At Mt Whaleback, AMD was first observed by BHP in 1995 and, given the highly reactive geochemical nature of the pyritic shales, it requires very active assessment and management. Porterfield et al. (2003) stated that at that time there were 200 Mt of acid-generating shales still to mine, while total waste rock for the mine life was estimated to be some 4,000 Mt. However a full account of waste rock has never been published for Mt Whaleback—let alone for all other sites in the Pilbara. There are identical pyritic shale AMD issues at Rio Tinto's Mt Tom Price iron ore mine in the Pilbara (Taylor and Pape 2007).

As observed at mines across Australia and around the world, sulfide oxidation and AMD can last for decades to centuries or more (Taylor and Pape 2007; Mudd 2010a, 2011). AMD can contain concentrations of heavy metals tens of thousands of times higher than water quality guideline values for freshwater ecosystems, human health (recreation or drinking) or public infrastructure, meaning it is a very serious cumulative risk which needs detailed scrutiny—yet most of the data remains elusive and outside the public realm (Mudd 2009, 2010a).

Finally, the WA Environmental Protection Authority, in a very rare decision against development, did not approve the development of an expanded iron ore mine at Windarling, part of the Koolyanobbing project near Southern Cross, due to the high biodiversity values of the site. Yet this was simply overturned by the WA Government and the site has now been mined (see Nicol 2006). The Windarling case highlights the real conflicts between biodiversity protection and iron ore mining—a tension which is present across the iron ore sector.

## *Nickel*

Western Australia's substantial nickel (Ni) reserves were ignored until the discovery at Kambalda in 1966, which set in motion the great nickel boom with deposits also discovered across central WA and elsewhere. There were essentially three types of deposits—small high grade Ni sulfides, large low grade Ni sulfides, and large low grade Ni laterite deposits. The 1960s–1970s were dominated by high grade mines around Kambalda and Kalgoorlie, while from the 1990s large low grade Ni sulfide and laterite projects were developed. Some of the concentrates are processed locally at the Kalgoorlie Ni smelter, with Ni further refined at Kwinana, while for Ni laterite projects they produce a refined Ni metal along with cobalt. Laterite projects are considerably more energy intensive than sulfide projects, and thereby also more carbon intensive (see Mudd 2010b).

About two-thirds of WA's Ni resources are in Ni laterites, such as Murrin Murrin, with most of the remaining Ni sulfides in low grade ores. Based on reported Ni resources, it is clear that the Ni sector can grow substantially over the next few decades if laterite deposits become fully developed (see Mudd and Mohr 2010) although there will be a growing energy and carbon intensity in the longer term due to this evolving ore mix. In the context of climate change, at the same time the world is trying to find ways to lower carbon footprints, WA's Ni industry will face

the challenge of increasing energy intensity for Ni mining while trying to find low carbon energy sources. At present there is little evidence to suggest the Ni industry understands the full gravity of this challenge, let alone the broader mining sector (see Mudd 2010b).

Other increasingly important aspects are complex ore mineralogy (such as Ni laterites) and toxic impurities, with the best example being the failure of the Armstrong Ni mine near Kambalda at the height of the recent Ni boom (Giurco et al. 2009). The Armstrong deposit was never developed by Western Mining Corporation due to the high arsenic content and low iron to magnesium oxide ratio of the ore. Junior miner Titan Resources began open-cut mining in mid-2004, only to find that the ore exceeded agreed tolerances for sale to the Kambalda mill—and (then) WMC promptly rejected all Armstrong ore. The collapse of the project almost sent Titan Resources bankrupt—and the mine still remains in mothballs in 2013. The issue of toxic impurities in ores, such as arsenic or even minor asbestos in some ores, will only grow in importance with respect to environmental and occupational health and safety issues.

## **Trends in Mining**

There are four key trends influencing the future of the WA mining industry and the management of its environmental impacts. Collectively, they present a future for WA where the scale of mining increases, ore–waste ratios decline, community expectations rise and negative environmental mining legacies continue to grow in number and scale. In short, managing impacts is going to be increasingly complex and challenging, demanding a fundamental change in their evaluation, regulation, monitoring and management.

### ***Increasing Production and Resources in WA***

Mining in Western Australia has been dominated by a select group of commodities, initially gold in central WA from the 1890s, followed by the rise of iron ore, nickel, and bauxite–alumina in the 1950s–1960s. Other commodities have also made important contributions, such as mineral sands, diamonds, coal and base metals. In general, there is ongoing success in expanding mineral resources at existing mines or making new discoveries (e.g. Tropicana gold or De Grussa copper deposits). A compilation of production and economic resource statistics given in Table 12.2 demonstrates WA's dominance in iron ore, diamonds, nickel, cobalt, gold, ilmenite, zircon and bauxite–alumina.

**Table 12.2** The 2012 and cumulative production statistics plus economic mineral resources for WA

Mineral/ metal	Units	Cumulative production	%		Economic resources	Years remaining <sup>a</sup>
			Australian production	2012 production		
Iron ore	Mt Fe ore conc.	6,610	92.95	476.2	96,234	202.1
Copper	kt Cu	1,735.6	7.23	179.3	8,841	49.3
Lead	kt Pb	909.0	2.27	8.7	10,923	1,255.5
Zinc	kt Zn	3,322.6	6.19	57.1	7,531	131.9
Gold	t Au	6,902.5	54.45	180.88	6,309	34.9
Silver	t Ag	2,584	2.8	128.5	8,876.8	69.1
Coal	Mt coal	235	<0.001	7.46	3,999.0	536.1
Bauxite	Mt bauxite	1,046	~59.6	45.08	4,533	100.6
Alumina	Mt alumina	302.1	67.90	12.81	~1,471	114.8
Diamonds	Mcarats	809.3	99.93	9.88	302.6	30.6
Ilmenite	Mt ilmenite conc.	42.62	~84.2	0.303	199.2	657.4
Rutile	kt rutile conc.	3.43	~24.6	~0.051	7.74	151.8
Zircon	Mt zircon conc.	12.20	~55.7	0.163	23.55	144.5
Manganese ore	Mt Mn ore conc.	12.04	11.56	0.700	~314 <sup>b</sup>	448.6
Nickel	kt Ni	4,933.6	93.71	231.5	37,628.6	162.5
Cobalt	kt Co	72.0	81.43	5.88	1,666.1	283.4
Tin	kt Sn	~66.9	7.97	~0.3	~2.55	8.5

Cumulative production data updated from Mudd (2009); 2012 production data from DMP (2013a); economic mineral resources from MINEDEX reports on 5 May 2013 (DMP 2013b)

<sup>a</sup>Assuming 2012 constant production rates only; conc.—concentrate (i.e. saleable)

<sup>b</sup>Manganese ore only

## *Declining Ore Grade, Increasing Waste*

Two related factors affecting mining in WA are declining ore grades (or quality) and increasing mine wastes. The available data, extracted and updated to 2012 from Mudd (2009), is shown in Fig. 12.1.

The long-term decline in ore grades is clearly evident—with gold being perhaps the most pronounced. Based on reported mineral resources across WA (see data from DMP 2013b), future declines in ore grades will be more gradual, and individual mining projects are more likely to face constraints such as impurities (e.g. arsenic in some Kambalda Ni ores, some high phosphorous iron ores in the Pilbara), mineralogy (e.g. disseminated Ni sulfide versus Ni laterites, or magnetite versus hematite for iron ore) or processing characteristics (e.g. fine grained ores) rather than ore grade alone.

The quantity of ore is generally that reported as processed and is close to covering 95 % or more of reported metal production. For waste rock, however, not all mines or companies report this data; gold is a minimum only, diamonds are actual, while iron ore assumes a 2:1 ratio from saleable ore (which is probably a

significant underestimate). For nickel–copper–zinc (base metals), coal and bauxite there are no reported data (or only the rare year). The cumulative data are also given in Fig. 12.1, showing that in WA alone annual mine waste has now reached the order of 2 billion tonnes (Gt) per year—since 2000, cumulative mine waste to 2012 was some 16.4 Gt while the century to 2000 was only some 13.3 Gt. Given the missing data, these approximations are clearly an under-estimate.

What is clear is that the scale of mining in WA has changed with a four-fold increase in tonnages since the late 1980s - transforming the economy. Such an increase in scale, when combined with declining grades and increasing waste, has increased the social and environmental impacts of mining. Current regulatory systems, especially as they relate to administration and enforcement, have thus far failed to address industry-wide, regional or cumulative impacts and seem ill-prepared to respond to the challenges of a scaled-up industry. In an Australian context, the need for change to address increasing impacts and resource depletion is recognised by industry stakeholders. Prior et al. (2013) make a compelling case for reform to reduce impacts and leverage more value from the mining industry while diversifying to other sectors.

## *Society and the Environment*

The change in attitudes to mining and related environmental and human impacts in Australia (Prior et al. 2013; Hobbs 2011; Brueckner and Mamun 2010; McColl 1980) is encapsulated in the 2006 Magellan lead incident. After less than 2 years of exporting from the Esperance Port, 9,500 bird deaths led to human, bird, soil, water and sediment testing for lead contamination. The subsequent inquiry by the Education and Health Standing Committee (2007: 14) found that the events were foreseeable, foreseen and very predictable:

From the outset, clear advice was given about the danger of the Magellan product; the concerns about the transport route, and the risks of inadequate handling systems and environmental monitoring at the Port.

The foreseeable and thereby avoidable nature of the contamination eroded public confidence in the industry and the ability of the government to regulate it. While the strong findings in the inquiry and the government response may have satisfied some concerns, subsequent pollution scares when exporting through Fremantle reinforced negative public perceptions of the industry and its regulators (EPA 2011; WA Government 2007; Parliamentary Committee 2007).

The lack of a coherent policy and adequate regulatory system at both a federal and state level results in poor environmental stewardship and creates uncertainty for the resource industry, which has troubled the sector over many decades (Frost and Mensik 1991). Ad-hoc decisions, or specific negotiated agreements, tend to be obscure, giving little guidance for future projects and increasing social concerns. Similarly, international (Whitmore 2004) and local analysis (Brueckner and

Mamun 2010) of industry codes and practices have demonstrated significant problems as well as practical and theoretical concerns with the domination of industry in voluntary industry processes.

Internationally, the increasing importance of traditionally ‘non-core’ social and environmental issues for the mining industry demonstrates how far the industry has come and the new challenges it faces. Of the ten business risks facing mines and metals in 2012–2013, three are socio-environmental factors, namely sharing the benefits, fraud and corruption, and maintaining a social license to operate. While fraud is less of a problem in WA than in some developing countries, there is no doubt that sections of the community are arguing for more benefits and expecting less impacts (Ernst and Young 2012).

In some ways the developmentalism of WA has hidden or slowed the pace of change that has been increasingly promoted and accepted in other regions. McMahon and Van der Veen (2009), respectively a World Bank mining specialist and mining consultant, describe four strategic drivers/phases of the mining industry: in phase 1 profits were the primary driver; then in phase 2 environmental pressures commenced in the 1960s; followed by phase 3, sustainable development, social and cultural issues; and finally into the current fourth phase whereby mining, in addition to earlier drivers, has to contribute as an ‘engine of growth’ for local and regional economies. Perhaps the question for WA should be: do we have the systems in place to ensure that the state develops its economy from this ‘engine’ or are we merely the purveyors of commodities? Alternatively, what is the return for the loss of natural resources and ongoing environmental impacts?

### *Mining Legacies*

The WA Department of Mines used to compile detailed statistics on mining infrastructure across the state—as shown in Table 12.3. Although this information is very useful, it is no longer being collated and synthesized. In addition, although the cumulative area of mined land which has been rehabilitated was included in this assessment, the data alone do not allow any assessment of the success of rehabilitation. That is, have issues such as wind erosion, water seepage and biodiversity or ecosystem recovery been addressed in an acceptable manner? At some former mines in WA, despite some rehabilitation works being undertaken following mine closure, ongoing pollution risks and problems can remain. For example, the 1980s copper–zinc mine at Teutonic Bore, north of Kalgoorlie, was generating acid mine drainage only a decade after closure (see Johnston and Murray 1997), and the tailings dam from the old Gidgee gold mine was allowing substantial wind erosion events causing major dust nuisance problems to adjacent pastoral properties (MPI 2013).

Given the enormous scale of modern mine wastes and infrastructure—and the fact that it continues to grow exponentially (see Fig. 12.1)—closer attention must be given to the potential for mining legacies to develop, whereby old mines, even if



**Table 12.3** Extent of rehabilitation of mine sites in Western Australia (ha)

Activity	2003				Cumulative total to 31 Dec 2003			
	Disturbed by mining	Preliminary rehabilitation	Revegetation	Disturbed by mining	Revegetation	Preliminary rehabilitation	Revegetation	
Borefields and pipelines	9	4	6	1,930	6	415	85	
Camp site	8	3	2	1,366	2	394	304	
Exploration	57	15	6	4,980	6	1,513	836	
Mine infrastructure	395	182	166	51,171	166	5,263	4,037	
Open-cuts	655	285	109	35,678	109	8,815	6,105	
Tailings dams/evaporation dams	271	319	278	33,693	278	2,753	2,117	
Waste rock dumps/heap leach piles	632	695	828	36,222	828	17,799	11,639	
Total	2,027	1,503	1,395	165,040	1,395	36,952	25,123	

Data courtesy of WA Department of Industry and Resources (WADoIR) (Email—J Gregory, 9 March 2004)

rehabilitated, can lead to ongoing environmental pollution and/or public safety impacts.

## Managing Landscape and Development

While mining's impacts on the environment can be understood as discrete biological, physical and chemical effects, their cumulative nature and industry trends combine to present WA with growing, interrelated and complex environment and industry management challenges. These existing and future challenges are a direct result of, and will be determined by, WA's management response, either directly by government actions or by other actors responding to government policies, processes, legislation and regulation. This places the ideology of developmentalism (see Chap. 2), that has dominated Western Australia's approach to mining development since the 1950s, at the forefront of determining the state's response to environmental impacts.

As detailed in Harman and Head (1982) WA has a history of large-scale government investment in, and intervention on behalf of, the mining industry starting with the Mundaring to Kalgoorlie pipeline, expanding with the development of the Kwinana industrial area and continuing with gas projects at Barrow Island, the Burrup Peninsula and the now abandoned gas hub proposed at James Price Point. According to Pick et al. (2008) the 'facilitation' role of the government is well enshrined in policy in the Pilbara and represents a neoliberal approach to development.

Whether this results from increasingly shared political ideologies, dominant autocratic and unquestioning development-centered leadership under a succession of premiers (Bolton 1982; see also Chap. 2) or is a result of WA being a 'client state' of transnational corporations (TNC) (Crough and Wheelwright 1982: 98) the result is the same: an almost unquestioning support for mining/processing mega-projects as the preferred development path for WA and a strong alignment of government and TNC interests. The consequence for the environment is the domination of the state's development role over its responsibilities to protect and manage the environment.

The ability of societies to question or even understand the extent to which developmentalism has affected attitudes to planning for development in WA is affected by the state's development history and dominant ideologies. Trigger (1997) identifies thought patterns where a 'hole in the ground' is seen as moral progress, the Australian landscape is only complete after development, and the natural environment becomes 'overburden' or 'waste'. The result is a world view where, in Trigger's words (1997: 176) "resource development is understood so routinely to have moral priority that alternate ways of viewing the land appear esoteric, impractical and without cultural foundation".

While this subjugation of the environment to development needs could be seen as just a phase in WA's history, it could also be a dominant theme that is set to

continue under current and subsequent governments (see Chap. 2). Regardless, achieving the conceptual change that would allow, or indeed, promote a more balanced approach to what are seen as competing priorities is at the heart of an effective response to mining's environmental impacts. This could prove difficult given the influence of the mining industry and TNCs over the development agenda in WA and the dominance of developmentalism as an ideology across politics and, indeed, society.

## Conclusion

For several decades now, the mining industry, government and society have worked to identify and manage the impact of the mining industry on the environment in WA. While our knowledge of specific impacts has increased it has also become apparent that impacts are interrelated, cumulative and long-lasting. As shown above, the increasing scale of production, long-term impacts and increasing waste now combine to present an ever-increasing problem at a time when society is questioning both the industry's influence over, and impact on, the state of WA. Similarly, as mining legacies grow in number and scale, it is vital that a national or state-based system is empowered and funded to reduce and ameliorate the ongoing environmental impacts from abandoned sites.

The impacts and trends are the challenges that the mining industry and its regulators must overcome if we are to balance environmental management with industry. While advances in science and practice will assist in reducing impacts, it is also clear that cumulative current impacts and future trends demand a change in conceptual thinking. A new approach is required, one that will support the introduction of holistic management of the impact on the environment within a socio-ecological context and ensure that all Western Australians, current and future, benefit from WA's natural resources.

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# Chapter 13

## Mining and Biodiversity: Are They Compatible?

Jonathan D. Majer

**Abstract** The growth and success of the Western Australian mining, oil and gas industries has brought massive financial benefits to the state, and to the nation as a whole. But what has been the impact on Australia's biodiversity? Application of the Biodiversity Integrity Index (BII) to five major land uses in Western Australia (namely, agricultural clearing, rangeland grazing, urbanisation, transport corridors and mining) results in a figure that indicates the degree of alienation ('product of loss times area affected') caused by each type of land use. An examination of the extent of this land alienation indicates that mining has by far the least impact (the state being considered as a whole). However, it should be remembered that there are multiplier effects impacting outside the mined area, and that mining also repeatedly targets particular geological formations with their associated ecosystems. This means that impacts are cumulative through time, and points to the fact that certain ecosystems will increasingly be threatened. These factors, and the escalating pace of mine site development, suggest that it is time to ask: what is important to us in Australia?

### Introduction

Western Australia (WA) is 'the mining state' of Australia, with its minerals and other natural resources meeting peak demand in recent times, largely due to the emerging strength of the Chinese economy. As an official state government pamphlet explains, WA:

is one of the great mineral provinces of the world and hosts an impressive 540 commercial mineral projects with 968 operating mine sites that produce over 50 different minerals. It [mining] is the largest contributor to the WA economy, representing around 30 % of Gross State Product and is a key driver of economic growth in Australia. As a result, WA was

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Australia's largest exporter in 2010/11, contributing 46 % (\$112.5 billion) to Australia's total Merchandise Exports" (Department of Mines and Petroleum 2012).

There is no doubt that this demand has been a bonanza for the Australian economy, but is this happening at the expense of our biodiversity? If this is shown to be the case, we should discuss and possibly rethink our priorities.

This chapter examines the impact of the WA mining, oil and gas industries on Australia's biodiversity. Most members of the public would be concerned to hear if our 'charismatic megafauna'—birds, mammals, reptiles and amphibians—are being adversely impacted by mining. However, any development that threatens a species with extinction, be it a vertebrate, invertebrate, plant or fungus, is regarded as causing significant environmental harm under the WA Environmental Protection Act. Furthermore, if the organism is a listed species, it will prompt special protection under the WA *Wildlife Conservation Act 1950*, and the matter would be considered of national significance under the Commonwealth Environment Protection and Biodiversity Conservation Act. There is also the importance of biodiversity in ecosystem functioning. Without the presence of certain organisms, our ecosystems would not function or could even face collapse (Wilson 1987). There is plenty of scope for mining to inadvertently, or due to misfortune, fail to meet the requirements of these Acts or to interfere with the functioning of our ecosystems. A topical example of this comes from Queensland, where the recent flooding has resulted in the release from mine dumps of toxic minerals and acidic materials into rivers, despite these dumps having been designed to prevent this from happening. How great is the impact of mining likely to be? It has been determined that around 1,500–2,000 km<sup>2</sup> of the WA land surface have been disturbed by mining and associated infrastructure (Department of Mines and Petroleum personal communication, November 2012). Although this is minute when compared with a total land area of around 2.5 million km<sup>2</sup> for the entire state (Geoscience Australia 2013), there could be unexpected and unwanted consequences.

## Biodiversity Integrity

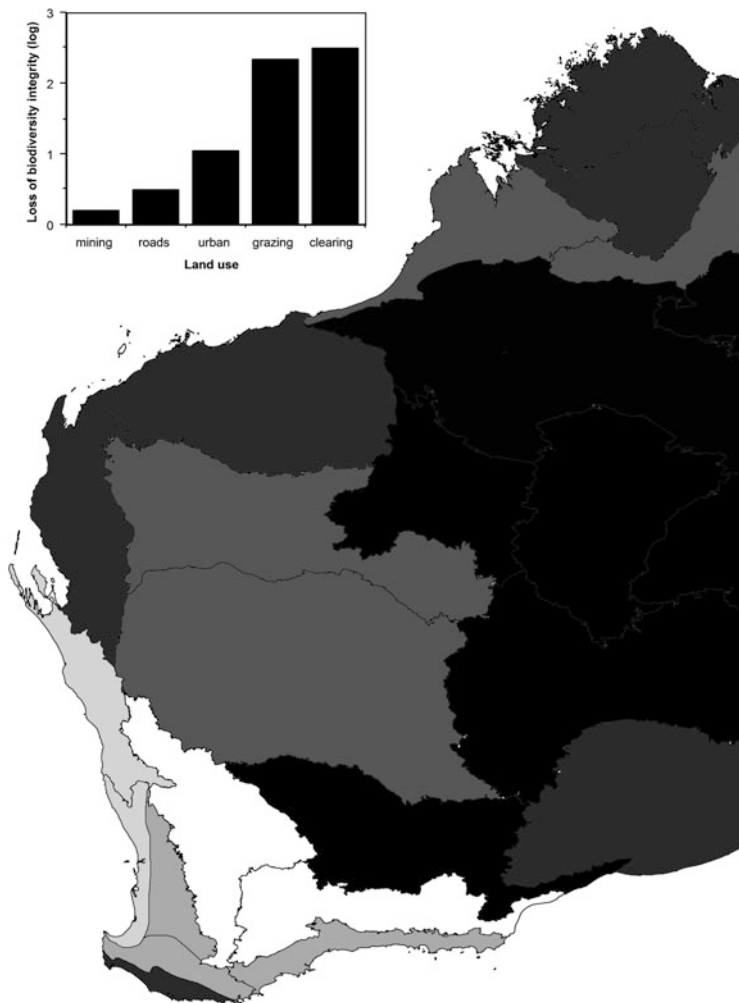
We can quantify the impact of mining by measuring the reduction in biodiversity from a particular land use and multiplying this by the extent of that type of disturbance. Majer and Beeston (1996) developed a Biodiversity Integrity Index (BII) to provide a measure of the intactness or integrity of the original species' richness or species' composition associated with a particular land use. This can be summed up over a range of regions to obtain overall impact, which can be compared with other land uses. Imagine a hypothetical region divided into four habitat units. Biodiversity is set at unity if it is in a 'pristine' condition, and all habitat units are assigned 100 area units, with no additional weighting being assigned to large regions. Thus, habitat unit 1 is in a pristine state and receives a BII value of  $100 \times 1 = 100$ . Habitat unit 2 contains a mine that occupies 10 % of

the area, and biodiversity has dropped to 0.5 in the mined and subsequently rehabilitated area; the remainder of the habitat is pristine. Thus, BII is  $(10 \times 0.5) + (90 \times 1) = 95$ . Habitat unit 3 is also mined over 10 % of its area but has also been cleared for farming over 45 % of the area, wherefore its diversity value drops to 0.33. Thus, BII is now  $(10 \times 0.5) + (45 \times 0.33) + (45 \times 1) = 65$ . The final habitat unit is totally cleared for farming, so BII drops to  $(100 \times 0.33) = 33$ . The resulting figures can be used to compare biodiversity loss in different regions and also to assess the contribution of different land uses to the loss of this biodiversity.

Majer and Beeston (1996) used Beard's (1990) 24 WA phytogeographic regions as the habitat units and ascribed 100 area units to each, with no weighting for differing sizes of each region. The major land uses were determined as agricultural clearing, rangeland grazing, urbanisation, transport corridors, mining and uncleared. The latter was assumed, albeit simplistically, to be in a pristine state. The proportion of each phytogeographic unit under each land use was determined from various data sources. Ants were selected in order to provide a metric of biodiversity because they have been well studied in WA, and information on the impact of the various land uses on their diversity is available. A problem arose because diversity (when measured as species' richness) actually increased above unity in the rangeland grazed areas. This is probably because the original vegetation was still largely intact, thereby supporting much of the original fauna, but had been sufficiently disturbed to allow a number of opportunists and disturbance specialists to enter the area; thus two faunal components existed side-by-side. To resolve the problem of disturbance apparently 'improving' biodiversity, Majer and Beeston (1996) used an additional approach of measuring the degree of change in species composition from the pristine state. This was achieved by the use of multivariate analyses of similarity of species' composition between the various land uses, whereby branching tree-like diagrams were produced which show the affinity of the fauna within each of the different land uses. The length of the branch between the pristine uncleared areas and the respective land use was taken as a measure of the degree of alteration of the faunal assemblage due to that particular land use. The response values obtained by this method suggest a more intense alteration in ant fauna values under all land uses than that suggested by reductions in species' richness alone. Using this metric, negative effects of rangeland grazing were also evident.

Figure 13.1 below shows the BII values of each land use on the phytogeographic regions, derived using the change in the ant species' composition metric, with decreasing tone representing progressive loss of biodiversity integrity. It clearly shows that loss is greatest in the Wheatbelt region, with additional moderate losses on the Swan Coastal Plain and in the Southern Kimberley. The interior of the state is relatively intact as far as biodiversity integrity is concerned, although reductions can be seen in the mining-intensive regions of the Pilbara (predominantly iron ore) and in the Goldfields (predominantly gold and nickel). Although these values have been derived using ants, the exercise was repeated using reptiles (Bracken 1985) and similar results were obtained. Thus, losses in biodiversity of vertebrates and





**Fig. 13.1** Biodiversity Integrity Index (BII) values in the 24 phylogeographic regions of Western Australia. *Lighter colours* signify greater losses of biodiversity integrity, with the greatest loss being in the WA Wheatbelt. *Inset* shows loss of biodiversity integrity (BII) values across all 24 regions (maximum loss =  $24 \times 100$  BI units = 2,400) as a result of five broad land uses in Western Australia. *Source*: Based on data in Majer and Beeston (1996)

invertebrates reveal similar trends, and the results probably apply to other components of the biota as well.

The procedure can also be used to provide a statement on the relative impact of different land uses on BII (Fig. 13.1 inset). State-wide, agricultural clearing, followed by rangeland grazing, have the greatest impact on loss of biodiversity integrity, with lower losses due to urbanisation and transport corridors and, lastly, mining. Although this puts mining in perspective against other land uses, its impact

on biodiversity is nevertheless appreciable, and there are other implications that are explored below.

## **Ecosystem Services**

The various components of biodiversity provide essential ecosystem services, the value of which to the environment and to humans can be enormous (Daily 1997). This point can be illustrated by reference to certain groups of invertebrates. Changes in soil fauna, such as ants, termites and beetles, can interfere with soil formation and porosity, reduce water infiltration and possibly cause sheet flooding (Andrés and Mateos 2006). If these groups are eliminated, their loss could also be associated with reduced nutrient cycling (Ward et al. 1991), which may impede plant growth. Changes in the ant fauna could disrupt the important ant-mediated seed dispersal process (Bakker et al. 1996), leading to failures in the next generation of plants. Losses of certain species-specific pollinators, including certain wasps and flies, could similarly interfere with the reproductive processes of plants, possibly leading to a failure of certain plant species to reproduce themselves in rehabilitated areas (Dixon 2009). These are just a few examples of the vital importance of fauna in ecosystem functioning and the ecological services they provide; there are many more. This highlights the fact that it may not just be a matter of considering losses or changes in diversity; there may be unexpected flow-on effects, which may result in unexpected and far-reaching changes in the environment.

## **Multiplier Effects**

Additional factors that should also be considered in relation to the resource industries include the multiplier impacts of exploration, haul roads, general edge-effects and the impact of town sites, infrastructure, and so on. Of course, the land-take of below-ground mining may differ from mining at the surface, but even below-ground mining has substantial space requirements due to the need for spoil and overburden dumps, as well as the usual mining infrastructure. In 1991, Majer and Athanasoff performed a spatial analysis of Alcoa's Jarrahdale mine sites number 1 and 2, both of which are pod-type surface mines, whereby scattered, discrete patches of high level ore are mined. The researchers measured the area mined (both rehabilitated and unrehabilitated) and also the area cleared for haul roads and railways. Taking a 1 km<sup>2</sup> boundary around the entire mining area, they found that 37.8 % of the area had been mined but, significantly, almost half as much again had been cleared for transport corridors. Furthermore, 59.5 % of the forest in the mining envelope was represented by fragments of less than 5 ha and 74.9 % by patches of less than 10 ha. The existence of forest in such small patches is likely to affect the composition of species occurring there, possibly in detrimental ways (Harris 1984).

For instance, movement of small, desiccation-prone animals such as snails and millipedes may be prevented by the surrounding open roads, and the confining of organisms to small fragments of habitat may result in sizes of their population being below the minimum that will guarantee long-term survival (Parker and MacNally 2002). Thus, although the area of a mine can seemingly be quite restricted, the impact of its operation in the region can be diffuse and can change the ecological characteristics and general ambience of the region considerably.

In addition to the physical installations associated with a mine, there are also other implications of the associated workforce being brought into the area. Workers require recreational facilities, and the use of off-road vehicles is common. Anyone who has flown over the Pilbara near mine sites will have seen the criss-crossing of tracks through the mulga and spinifex. This can cause a multitude of environmental impacts, including soil compaction, death of plants and animals and fragmentation of habitat (Webb and Wilshire 1983). As well as this, mine personnel may bring pets such as dogs and cats, which might pose particular problems in newly opened up areas, which have been relatively free of such animals. Both types of pet have the capacity to become feral, and both, but cats in particular, are extremely effective predators of wildlife (Bradshaw et al. 2007). Fortunately, restrictions or bans are now generally placed on pets and off-road vehicle use in sensitive regions as part of the current environmental approval process; however, the problem persists in older areas where mining takes place.

## Impact on Specific Ecosystems and Species

Mining in WA tends to be concentrated in particular regions, most notably the Pilbara, Murchison, Coolgardie, Jarrah Forest and Swan Coastal Plain regions, so it is here that the greatest threat to biodiversity exists. Compounding this, minerals tend to be deposited in or beneath particular geological features, such as banded ironstone formations, which often support a characteristic flora and fauna. If all of these areas were ultimately to be mined, this could threaten or lead to the loss of entire ecosystems associated with these formations. This may not be so much of a problem in the Pilbara, where such formations are extensive. However, it could be a more serious issue in the Midwest, where banded ironstones are sparse but conspicuous features in a more subdued landscape, but still a target for mining activity (Gibson et al. 2012). This is of additional concern, since areas of elevated topography may provide a more mild, or buffered, climate and hence act as refugia and safe havens for biodiversity during future changes in climate (Keppel et al. 2011).

In some areas, such as the limestone formations of the Cape Range or the ironstones of the Pilbara, there is a threat to short-range endemics (SREs), for example subterranean fauna living in water or air spaces. According to Harvey (2002), SREs are species whose range is less than 10,000 km<sup>2</sup>. Eberhard et al. (2007) outline an even more restricted criterion of range that is less than 1,000 km<sup>2</sup>. Whichever criterion one accepts, it follows that species in such localised

areas are particularly vulnerable to extinction if their range is impacted by human development. This would be an unacceptable outcome under the state and Commonwealth Acts mentioned earlier in this chapter.

The presence of a SRE posed an obstacle in 2007 to a proposed iron ore mining site in the Pilbara region of WA. The area concerned contains a series of flat-topped mesas, which represent patches of the original land surface, separated from each other by eroded land surfaces. The company concerned wished to mine banded ironstones in a particular mesa, and was first required by the WA state government to carry out a survey of subterranean fauna. In this case the fauna were present in air filled spaces and, like cave fauna, these are referred to as troglofauna. Bore holes were drilled and a range of invertebrates were found, including a spider-like schizomid arachnid that was subsequently described as *Paradraculoides anachoretus* (Harvey et al. 2008). Most mesas in the chain had their own species of schizomid and, unfortunately for the company, *D. anachoretus* was only present on this mesa, the proposed site for mining. In view of the obvious threat to this species, the Environmental Protection Authority recommended against the company's application to mine in this area until evidence could be provided that the schizomid occurred elsewhere or mining could be carried out without threatening the species. This represented a threat to \$12 billion of revenue from the proposed mine. The company employed consultants to carry out further surveys and, although the schizomid was not found outside of the mesa, mapping of its distribution in a series of purpose-drilled boreholes enabled a new mining footprint to be designed that would hopefully allow for the survival of a subset of the population. After expenditure well in excess of \$1 million, approval was eventually granted to mine this mesa.

## Biodiversity and People

Most WA resource-based projects take place in remote parts of the state, areas that attract tourists due to their landscape, biodiversity or wilderness values. The general public tends to judge a landscape in terms of human disturbance and presence of built structures more than the ecological integrity or status of biodiversity, two features which they do not necessarily understand or have the ability to detect (Ergin et al. 2004; Moore and Polley 2007). Therefore, those seeking wilderness- or nature-based experiences react most negatively to human generated disturbance and built structures like buildings, roads, open-cut mines and litter. They also tend to react negatively to ordered landscapes—for example where forest blocks of trees are of the same age and/or have been planted in rows as part of certain types of mine site rehabilitation (Hughes 2013). The loss of, or changes in, biodiversity may well reduce the attraction of the area to tourists. However, the overall effect on tourism remains to be quantified, although it cannot be denied that the existence of mining or other resource industries in these areas would detract from the wilderness qualities of such areas, a feature that is of considerable attraction to some visitors

and no doubt to the income from national and overseas tourists (see Chaps. 9 and 10).

## Cumulative Impacts

The impact of mining and associated aspects of resource development present even more cause for concern if we consider the long-term cumulative impacts of certain types of mining. We tend to consider the current extent of mining, all of which has been carried out in the past 250 or so years, and most of which has been carried out only in the past 50 years. When thinking about impacts, we tend not to take into account the fact that the impact of mining will continue to spread, or new areas might be opened up for mining for scores or even hundreds of years. Scaling the area mined in the past 50 years to that which might be mined during the next five centuries makes it clear that, although an impact at the moment may appear quite localised, it could one day affect an entire region.

## Amelioration of Impacts

All of this assumes that mining and other resource developments irreversibly change the ecological characteristics of an area. As outlined in the response to Majer and Athanasoff's (1991) paper, the mining industry thinks otherwise (Nichols and Slessar 1991), stating that quality rehabilitation can lead to levels of biodiversity comparable with the pre-mining situation. Is this a correct assumption? There are certainly documented instances of fauna diversity in rehabilitation reaching, or even exceeding, levels in the undisturbed vegetation (e.g. Nichols and Nichols 2003). This claim needs to be tempered by the fact that the presence of pioneer or generalist species in the rehabilitation tends to mask losses in species that can only be found in undisturbed areas. Therefore, claims that rehabilitation results in return of the original biodiversity levels can only be validated if species composition, as well as diversity or richness, are taken into account. That said, it must be acknowledged that the standard of some mine site restoration in this state is world-class, as exemplified by Alcoa being listed on the United Nation's Environment Programme Global 500 Roll of Honour in 1990 for its rehabilitation work. Throughout the state, restoration technology is continually improving, with efforts being made to facilitate the return of as much of the biota as possible, often with outside assistance from universities and organisations such as Perth's Kings Park and Botanic Gardens. However, there are still companies who do the bare minimum or who do not have the expertise to carry out quality restoration. This is particularly the case with smaller companies or those with low-value mineral mines: both situations prevent the employment of teams of environmental staff. Such companies, and the environmental staff or consultants they employ, are also vulnerable to

downturns in the economy, such as we saw with the intermittent downturn in the iron ore price in 2012. The resulting redundancies provide cause for concern that companies may not honour their environmental responsibilities during times of financial stress.

This situation is about to change, as the state government has recently introduced a requirement for proponents of new mine developments to produce mine closure plans prior to commencement of their projects (Department of Mines and Petroleum and Environmental Protection Authority 2011). These plans will require close evaluation before approval, hopefully meaning that only mines that promise to be adequately rehabilitated will be approved. In addition to this, companies are required to outlay bonds, based on the areas mined or disturbed by other means (Department of Mines and Petroleum 2010). These bonds are not returned until certain completion criteria have been met, providing an additional incentive for companies to rehabilitate to the required standard. Whether this proves to be an effective measure for ensuring effective restoration is too early to say.

Completion criteria are metrics for assessing the end product of rehabilitation (Mills et al. 1992) and are defined as rehabilitation performance objectives (Tacey and Treloar 1994). In WA, completion criteria are not formally nominated, but appear in various conditions of project approval under three classes of controlling Acts, namely, the Environmental Protection Act, the Mining Act, and various agreement Acts which pertain to the project being developed (Mills et al. 1992). Because of the wide range of possible final land uses and of variation in soil conditions and climate, there are no general standards for creating such performance objectives (Waggitt and McQuade 1994). The performance indicators, therefore, are site-specific, and include physical and biological factors, as well as water quality and safety measures. Such indicators should allow government and other agencies, as well as mining companies, to evaluate the quality of rehabilitation techniques employed. They also allow an evaluation of the success of the rehabilitation in reaching a self-sustaining ecosystem that is suitable for the agreed final land use, hopefully with conservation of biodiversity in mind. To assist with this process, the Environmental Protection Authority has produced a draft guidance statement on rehabilitation of terrestrial ecosystems (Environmental Protection Authority 2006).

## Conclusions

On the face of it, the Biodiversity Integrity Index values portray mining as a relatively benign land use when matched up against other uses such as agriculture, and the continuation of a vigorous mining industry is an essential cornerstone for sustaining the Australian economy. However, Australia has the seventh highest per capita ecological footprint of any country in the world (WWF 2000). The impacts of are cumulative, despite the extensive and sophisticated measures that are taken to restore the impacted areas. Although high standards of restoration are often

achieved, the full range of biodiversity is not necessarily returned and full ecosystem functioning is not necessarily guaranteed. Government initiatives, such as mine closure plans, completion criteria and rehabilitation bonds will contribute to ensuring that the best possible environmental outcomes are achieved, but it is too early to say whether some of the objectives of rehabilitation are achievable or whether these initiatives will be adhered to. For these reasons, we need to intensify our research efforts to understand the impacts of mining and its associated infrastructure on biodiversity and find ways to protect and restore biodiversity in ways that all companies, not just the largest ones, can put into practice. If this is not done, extensive areas of WA could become denuded of much of the biodiversity that gives it its charm and which provides the essential ecosystem services that are vital for its sustainability.

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# Chapter 14

## Sustainability Mining: Water for Mining, and Mining Water

Gemma Broderick and Pierre Horwitz

**Abstract** This chapter examines the multifaceted nature of the relationship between water and mining. Several perspectives are offered. Mines are located to gain access to the mineral, but this is always in the context of water. The conditions under which the water has carved a catchment are strongly influenced by the climatic regime and the geological foundations under which the soil has been formed and vegetation has evolved. Mining is an embedded activity, located unambiguously in a landscape shaped by water. Mining as an activity must have a strategy for accessing, disposing of and using water. Mining relies on water for its operation, often using it intensively to achieve its production quota.

This chapter also explores the relationship between mining and the use of water in the urban setting. Engineering feats, technological developments and regulatory frameworks facilitated by a history of mining in Western Australia (WA) have led to accessibility and exploitation of water for other purposes. How water is extracted can be likened to ‘mining water’ and how the treatment of water for human consumption uses mining by-products is considered.

These perspectives highlight societal vulnerabilities to the environmental, psychological, sociocultural and political impacts of mining, that go beyond traditional perspectives of the advantages or disadvantages and cost benefit analysis of mining in society. The consequence of this traditional perspective is that water can be treated solely as a commodity, while other values of water are overlooked. Reconsidering the fundamental value and importance of water to society together with the embedded nature of mines in the landscape enables an insightful perspective on the contribution that mining and water make to society. Secondly, recognising the influence that mining has on patterns of water use, regulation and distribution may enable further consideration of sustainable water use in other settings.

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## Introduction

Common rhetoric posits that in developed societies we underestimate the contribution mining makes to the lives and lifestyles of people who benefit. There are similar arguments when water is considered in the context of health and well-being—we underestimate its fundamental value and importance to society. We can easily establish a relationship between mining and water: water is very much a part of the mining process, and mining occurs in a landscape shaped by water, and a culturescape where water is related to people's attachment to place, sense of community, and security, since water is needed for lifestyles and livelihoods.

A sustainability world view seeks to ensure that environmental, social, economic and cultural perspectives are not marginalised and are brought to bear on decisions regarding sectors like water and mining. This chapter will incorporate these perspectives using WA as an example and discuss how relationships between mining and water should be made (more) explicit to facilitate sustainable development.

## Water, Well-Being and Mining

A considerable body of literature deals with the direct and indirect links between humans, their ecosystems, lifestyles and livelihoods, with the presence of water (Parkes and Horwitz 2009; Goeft 2008; Cole et al. 1999). Parkes and Horwitz (2009) argue that water is human society's principal natural resource, and its distribution and abundance is the basis of human settlement, the growth of urban areas, the provision of those metropolises with food, and the expulsion of their wastes. Societies engineer the delivery of water and wastes, further structuring community spaces and personal lives, as well as protecting us from the immediacy of extremes of water availability like floods and droughts (Parkes and Horwitz 2009).

These central features of water can be well understood by people everywhere (Goeft 2008) and create concerning implications if they are overlooked. Goeft (2008) describes the need for 'water centrality', a paradigmatic shift in thinking and governing that foregrounds water in decision-making at all levels. Kemp et al. (2010) state that access to water is "indispensable for leading a life with dignity" (Kemp et al. 2010: 1553) and link water and sanitation intimately with the fulfillment of human rights. Indeed:

Developing understanding of the role of freshwater ... and its relation to the dynamic interactions between water security, environmental security, and food security is needed urgently if prosperous societal development is to be achieved within a sustainable biosphere (Falkenmark and Folke 2002: 2).

Places where minerals are found are places where water occurs, in one way or another, and "no mine operates without managing water" (Department of

Resources, Energy and Tourism 2008: 5). The location of water, whether surface water or groundwater aquifers, can be considered an adequate surrogate for the distribution of all natural resources. An understanding of water and how water is distributed in the environment can assist an understanding of other natural resources in the region. The conditions under which the water has carved a catchment (or defined an aquifer's sediment) are strongly influenced by the climatic regime and the geological foundations, and these are the same regional conditions under which the soil has been formed, and vegetation has evolved. Under some circumstances, surface water distribution is a proxy for the current distribution of natural resources, and the organisation of local and regional societies will to a certain extent reflect that distribution. It is frequently argued that the local and regional appropriateness of development, particularly where it affects natural resources, land use and climate, is best determined by foregrounding water and applying a catchment management approach (Syme et al. 2008; Goeft 2008).

The cultural, social, biophysical and political natures of water and access to it are evident across the world today (and arguably across human time too). Water sources and the water-influenced landscape are the physical backdrop for cultural or community identity and sense of place, as well as long-standing connections that are reflected by traditional knowledge (Department of Resources, Energy and Tourism 2008). In WA an example is the Gnangara Groundwater System which provides the city of Perth with over 50 % of its potable water, but it also provides water for the iconic flora and fauna, and the setting for the considerable Indigenous values of the region (Macdonald et al. 2005). The Gnangara Groundwater System has been overcommitted and is under increasing pressure, and a significant draw-down has caused a myriad of impacts on groundwater dependent ecosystems like banksia woodland (Groom et al. 2000), aquatic communities in caves (Jasinska and Knott 2000) and wetlands (Sommer and Horwitz 2009). Deliberation in WA over where to access water into the future has been controversial; this debate is largely attributable to the emotive and economic attachment that people have to their local water sources and a growing acknowledgement that water extraction can have adverse effects on peoples' sense of place, livelihoods and environmental flows. Water sources are integral to the places, people and societies that rely on them and can become politically contentious; in short, "where we are and who we are", relates to water access, and how it flows and cycles.

Mining is inherently and unambiguously located in a physical setting—a place. When mining occurs on a huge scale, as it does in the Pilbara in WA, attitudes that emphasise the economic value of mining and underestimate the value of water become pervasive and problematic, and have the potential to diminish the 'place'. The approach to managing water in these contexts is dominated by engineering rather than by catchment or systems management of water, relegating water to that which must be extracted and disposed, or used to make access and processing achievable. Kemp et al. (2010) illustrate the disconnectedness between water use by mining and human rights. Foregrounding water, because it defines the landscape and is the setting for humanity, and acknowledging the embedded and interdependent nature of mining and water, provides an alternative perspective

that could be used by mining. This perspective accounts for a range of social, cultural, spiritual, environmental, and aesthetic values that is associated with water in places, valuing these in a way that can be integrated into decision-making.

## The Use of Water by Mining

To put mining in context, the Australian Bureau of Statistics' (2012) Water Account Australia for 2010–2011 revealed that water consumption in WA was 1,369 GL. The mining industry consumed 19 % or 264 GL of total state water consumption, slightly less than agriculture, and household consumption (23 % and 22 % respectively). In terms of exports in the 2011–2012 period for WA, the mining industry's use of water can be somewhat justified as minerals and petroleum account for 91 %, with wheat, wool, wood chips, live animals, seafood, meat, pearls and other agricultural and manufactured items making up the other 9 % (Department of Mines and Petroleum 2012). For Australia as a whole, the mining sector consumed 4 % of total national water consumption, proportionately much less than that for WA. However, in the WA context this is expected due to the lower levels of population and a large mining sector. Whilst the proportion of water used by mining is relatively low by national standards, and the economic advantage is obvious, mining is often situated in regional and remote areas where water is scarce, water consumption is a major community concern and mining is a primary water consumer (National Water Commission 2010).

Most formal considerations of water consumption by mining include water consumed on the mine site; this can reflect uses including human consumption, processing, waste removal, dust suppression and cleaning of equipment (Kemp et al. 2010). A key driver for water consumption efficiency is cost; however, many mines that cannot access water within close proximity transport water over long distances. For example, the newly established Karara mine in WA's Midwest has a water pipeline of approximately 135 km, while its Kalgoorlie Goldfield region relies on a 500 km pipeline (see Fig. 14.1). This transportation of water dramatically increases costs. However, it is common for the industry, or government, to absorb these costs without conducting cost analysis of the water or understanding the true value and resultant changes to operational or processing costs (Department of Resources, Energy and Tourism 2008). Leading practice includes the assessment not only of operational and technical water requirements and costs but also of an "account for the economic impacts on other parties and organisations, as well as non-financial social and environmental impacts" (Department of Resources, Energy and Tourism 2008: 53). An inclusion of these costs into the overall cost benefit analysis would account for the true value of water and enable the introduction of water efficiency initiatives based on accurate cost analysis.

The impacts of water consumption in mining accrue from the problem of too much or too little water, and the catchment-scale and inter-catchment scale

**Fig. 14.1** Western Australia’s water pipelines (Adapted from Ghassemi and White 2007: 66, 170, 156). The three water pipeline routes from the Kimberley were initially proposed in 1988 to bring water from the Timor Sea basin to the South West Coast basin. The Goldfields Water Supply pipeline was established in 1903 transferring water from the South West Coast basin to the arid Western Plateau. The Karara water pipeline was completed in 2011 and transfers water from the Indian Ocean basin to the northern section of the South West Coast basin



cumulative impacts of changes to water regimes. Impacts of these problems are varied and can be a result of:

- Depletion of the water resource;
- Changes to the geological/geomorphological nature of the aquifer or surface water body that has been intercepted;
- Hydrological change that has occurred as a result of the interception;
- Quality of the water in the aquifer or surface water body; and
- Biological characteristics of the aquifer or surface water body.

The impacts then extend to the quality and quantity of discharge, usually to a surface water body that has not experienced this type of discharge in its geomorphological history. The impacts then extend further to a hydrological regime change and all that goes with it, including different patterns of flooding, erosion and deposition, and biological changes.

Another problem that arises is that water use may not be measured adequately. The consumption statistics provided above are likely to be incomplete and underestimate the amount of water involved in mining activities. Mudd (2008) examined the water reported to have been used by a range of various mineral commodities and

compared it to mine production data to assess and quantify the ‘embodied water’ of mineral products. Embodied water is defined as “the total water required to produce a good or service” (Mudd 2008: 136). In order to assess the total water required to produce milled ore, Mudd (2008) examined the:

- Total withdrawal by source;
- Percentage and total volume of water recycled and re-used; and
- Water resources significantly affected by withdrawal of water.

He said that the last mentioned was “rather vague; in addition to native water resources (e.g. streams, ponds), tailings water, ground water abstractions not used in processing, impacted surface or ground water resources, and the like could conceivably be reported” (Mudd 2008: 139).

These details and statistics concerning the scope of impacts and water consumption rates are based on the assumption that water consumption and impacts in mineral production end at mine closure. This is not necessarily the case, and it may in fact represent a boundary to water management that obscures much broader and relevant considerations. Mudd (2008: 144) demonstrates this in terms of production of minerals and metals:

Mining is the first stage . . . To produce a given tonne of pure metal (or mineral), there is often significant additional water required by the smelting and refinery stages. The choice of smelting technology significantly affects the embodied water for numerous metals . . . For complete life cycle assessments of the embodied water of metals and minerals, it is critical to ensure that all relevant stages are assessed, although this is often beyond the scope of mining companies alone.

Even these extensions may not be enough; workforce aspects also need to be considered. Off site, mineworkers consume water, change the regional demand for water, and planning for mining may in future be asked to consider local water resources for miners and their families. Is there sufficient water at ports or towns to cater for mineworkers? Embodied water could extend to including these considerations.

Accounting for water is one thing, minimising the impacts of water use in mining is another. The Western Australian Department of Water (2012) has developed draft guidelines that seek to minimise the adverse effects of the abstraction and release of water on environmental, social and cultural values. Of principal importance seems to be ensuring that mining activity does not adversely affect the quality and quantity of public-and-private potable water supplies. The guidelines encourage companies to maximise water use efficiencies, minimise releases to the environment, consider cumulative effects, and use monitoring and evaluation processes to adaptively manage the effects of abstractions and releases on the water regime. Additional considerations are for water management planning of mine voids after mining operations cease, and the effects of a highly variable climate (Department of Water 2012). Mining companies are expected to use the guidelines in developing and implementing their water management approach but, as guidelines, they have little incentive by way of regulatory or market forces.

The Australian Government's National Water Commission (2010) recognised significant challenges the mining industry faces in water management. Principal among them was "increasing community concerns regarding the cumulative impacts of mining on water resources" (National Water Commission 2010: 1). It is concerning that the position statement regards the 'increasing community concerns' as the challenge rather than the cumulative impacts themselves. This also demonstrates that the community may play a vital leadership role in the stewardship of water resources. Other challenges stated were more regulatory and market oriented (National Water Commission 2010: 1), focusing on:

- 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.

Seen in their broadest sense, and when dealt with together, these impacts of mining on water resources require careful regulation. At this stage, apart from licensing water consumption and requiring environmental approvals for water discharges, ongoing mine water planning and management is largely self-regulated and governed by non-statutory guidelines or standards such as the above mentioned water in mining draft guidelines (Department of Water 2012), the Leading Practice Sustainable Development Program for the Mining Industry—Water Management (Department of Resources, Energy and Tourism 2008), the ISO 14001 Environmental Management System Standard (Standards Australia/Standards New Zealand 2004) and the Cyanide Code (International Cyanide Management Institute 2011). The voluntary nature of management and accounting and the lack of explicit inclusion of all water sources and impacts means that consumption is still likely to be underestimated and analysis of embodied water inaccurate.

## Mining By-Products in Water

Mining and intensive resource extraction is intimately entwined with society's principal resource, and a special case of this is offered by considering mining by-products, which are added to purify water to enable its use or reuse. For potable water these by-products famously include alum as a flocculent in water purification treatments enabling sedimentation and filtration, and fluoride for public health (the latter from aluminium or phosphorus mining and processing). These chemicals will, "in some form or other, be transported to the consumer" (Keller and Wilson 1992: 4). Wendling and Douglas (2009) review the rationale and potential for the use of abundant, low-cost mining and industrial by-products as treatment media for the

effective removal of nutrients and trace metals from industrial, agricultural and domestic wastewater. They argue that the primary advantages to using by-products as environmental amendments are low costs and waste reduction. These examples show at least a potential for Australia's regulatory frameworks, water infrastructure, management of environmental contaminants and even the supply of drinking water to be geared towards assisting the mining industry to establish, and find viable uses for its waste products. An obvious question that follows is the dependence that gets established on this relationship, and whether that dependence might then cloud societal judgements on costs and benefits.

## The Capacity to Mine Water

In Australia, particularly WA, historical and ongoing mineral resource discovery has created the demand for adequate economic, legal and bureaucratic structures to allow for mine development. Ultimately the political orientation has been consistent with this momentum, and mainstream societal attitudes have accepted this uncritically and viewed mining development as normal. Along the way, technical challenges have underpinned mine operations, so much so that they have become the subject of political debate. Engineering feats have enabled mining where apparent barriers of depth and distance of the resource and inhospitable conditions (to non-Indigenous people in particular) seemed insurmountable.

A WA example is etched in the state's history with the construction of the Goldfields Water Supply in the mid-nineteenth century (see Fig. 14.1). The discovery of gold in Coolgardie in 1892 and Kalgoorlie in 1893 (Ghassemi and White 2007), attracted thousands of people to the western goldfields. Considerable economic expectations were held for the development of these gold resources. They occurred, of course, on the land of Indigenous peoples, and in a part of WA where rainfall, and known water resources, were insufficient to support the expanding population, and for mining process requirements (Le Page 1986; Ghassemi and White 2007). Unless the water issues were resolved, those economic and societal expectations would not be met. To solve the problem, the engineering requirements were for a known, reliable supply of water to be transported to the site of the population, and the mines. The technological know-how to build a dam capable of supplying the water was available, and the location was settled—the Helena River on the Darling Range near Perth where the rainfall and stream run-off was sufficient to fill a dam (Ghassemi and White 2007). The Mundaring Weir was constructed to fulfil this requirement. To transport the water 500 km was a different matter; it required eight pumping stations, adequate energy supply, pipes, and pipe joinery, none of which was technologically certain and reliable at the time. The political debate concerning the technical and economic viability of the Goldfields Water Supply project was intense, and much of the pressure rested on the shoulders of the State Engineer, Charles Yelverton O'Connor (CY O'Connor) (Le Page 1986). The cost of the project and the risk of it being unsuccessful were heavily criticised in the



media at the time, which is understood to have led to CY O'Connor committing suicide. The eventual success of the project and the death of CY O'Connor have dominated the account of this mining-water resource development.

Biogeographic and continental realities concerning water availability and the demand for water have rarely been seen as barriers since. Ghassemi and White (2007) detail many inter-basin, large-scale water transfer initiatives. These include proposals to transport water from the Kimberley in the far north, or from the Yarragadee aquifer in the far south (Ghassemi and White 2007) to solve Perth's water shortages. Public commentary and political debate about these proposals regularly appear in WA media, if not in water resource planning.

Dewatering and other mining technologies developed in the early twentieth century were fostered by the Goldfields Water Supply project and further engineering 'solutions' were, and still are, provided to WA utilising this early technology. Dewatering of large expanses of land subject to seasonal flooding on the Swan Coastal Plain was undertaken at this time for agriculture, urban development and reliable land transport. The same technology allowed for large open pit mines to gain access to ores. A proposal handed down in 1990 by the Infrastructure Development Corporation, a group commissioned by the Water Authority of Western Australia to undertake a feasibility study to transfer water from the Kimberley to Perth, used principles and specifications "commonly used in the oil and gas transmission industry" (Ghassemi and White 2007: 172).

In WA, this knowledge of hydrogeology, technical expertise, engineering capabilities, societal expectations and political influence, was gained from dam construction on the Darling Range, draining water on and near the Swan Coastal Plain, and providing water to populations and mines. This was often done over considerable distances and at considerable cost. Profound consequences for the water resources and reliant ecosystems of the south-western region have been the result. Together, the ability to engineer solutions to the problem of not enough, or too much water, and an attitude that views water as a commodity has ultimately led to unsustainable use of water.

The Gnamptara Groundwater System, mentioned earlier, is a good example. It consists of an unconfined aquifer contained in a series of coastal dune systems, and several deeper confined aquifers, which contain water that in some cases is over 40,000 years old (McFarlane et al. 2012). This indicates that aquifer recharge may take place over many thousands of years. The capacity to extract water from these aquifers, and the inability to correct extraction rates in the face of local and regional reductions in rainfall, and land use changes, has resulted in a strong downward trend in the groundwater storage volumes. It is estimated a deficit of over 700 GL was accrued between 1979 and 2009 (McFarlane et al. 2012).

The capacity to extract large volumes of water from underground sources is beginning to have profound local, regional and global impacts. Locally, over-extraction of groundwater can result in declines in groundwater levels (as noted above for the Gnamptara Groundwater System), and saltwater intrusion close to the coast. Konikow and Kendy (2005: 318) note other consequences worldwide:

Land subsidence can result from irreversible compaction of low permeability materials in or adjacent to the developed aquifer as fluid pressure declines because of groundwater withdrawals. Extensive subsidence has been well documented in Mexico City, Bangkok, Shanghai, and elsewhere.

Wada et al. (2012) have shown that groundwater extraction, particularly those large-scale operations for irrigation, drinking water or industry, is contributing to around one quarter of the total annual sea level rise. Wada et al. (2012) suggest that most of the water ultimately finds its way to the sea, and this will offset water retention by large dams and other terrestrial sources in the twenty-first century. Konikow and Kendy (2005: 318) state that the groundwater extracted from the High Plains aquifer in the central US, equates to about 0.5 % of the sea level rise in the twentieth century.

This form of resource use is consistent with mining. Indeed, 'mining water' is defined by some as the extraction of fossil water for human use, just as others use the term to incite political action (see Fig. 14.2). Where extraction goes beyond storage volumes and their recharge rates, this might also constitute 'mining'. Konikow and Kendy (2005: 317) state "[i]n cases of fossil or compacting aquifers, where recharge is either unavailable or unable to refill drained pore spaces, depletion effectively constitutes permanent groundwater mining. In renewable aquifers, depletion is indicated by persistent and substantial head declines."

The only concept that is inconsistent with mining is that water is devalued once it has been extracted, polished and supplied. Water supplied to the Goldfields costs \$3.71 per kilolitre; however it was subsidised by the government and sold for \$1 per kilolitre (Ghassemi and White 2007). The inquiry into Australia's urban water management published in 2002 reveals that water was supplied on average at \$1 per kilolitre which "compared with other countries and with other products is very low and as such is not providing any incentive to households for water conservation" (The Parliament of the Commonwealth of Australia 2002: xiii). The document goes on to state the reasons why water costs have been kept so low: "neither the costs of taking water from the environment nor of protecting the catchments from which it is collected are required to be included in the current 'full cost recovery' pricing regime" (The Parliament of the Commonwealth of Australia 2002: xiii). In other words, environmental externalities are not being incorporated into the cost of water; this could be extended to social and cultural values of water that are also not included. This historical paradigm conceals the seriousness of the challenges that Australians face in water security for the future and impedes the development of water conservation technologies and improved water management approaches.

## **Societal Constructions of Water Problems**

The economic, legal and bureaucratic structures that have allowed for mine development and assisted the mining industry to establish in WA may have also influenced how water resources are perceived and managed. The people of WA



**Fig. 14.2** Protest sign in Mingenew (reproduced with permission from Diss 2011: 1). This sign was erected by farmers in Mingenew who were aggrieved that a mining company was issued a license from the Department of Water to abstract water from the Parmelia aquifer in Mingenew and to transport it via a 136 km pipeline to the Karara mine

historically have viewed mining development as normal, necessary and consistent with economic goals. However, assuming an attitude and regulatory framework that considers water as a commodity similar to other mined products ignores its fundamental nature and importance to ecological health, including human health and well-being. Extracting water at unsustainable rates and supplying it at costs that are incommensurable with its value undermine future water security for both ecosystems and human use.

The historical successes in the building of the state of WA (Le Page 1986) have created a narrative that persists in the attitude of Western Australians, and other western cultures, of water as a resource (Syme et al. 2008). This can be likened to a perspective of technological fundamentalism: technology will provide a solution to any problems faced.

In WA, household water consumption per capita in the 2010–2011 period was the third highest of any state or territory at 132 kL per person, well above the Australian average of 75 kL per person, while the price for water was \$1.75 kL, well below the Australian average of \$2.44 kL (Australian Bureau of Statistics 2012), a reflection of the state's wealth, arguably attributable to mining. A growing population in the 2010s has been driven by a mining boom. This has resulted in a concomitant rise in water demand and the need for new technologies to provide access to water resources. This is occurring at a time of declining rainfall which means that surface water resources (dams), and unconfined aquifers (such as, parts of the Gnamptara Groundwater system), are unlikely to satisfy that level of consumption.

## **Mining Embedded and Water Embodied: Policy Direction**

The consideration of the intimate and tangled relationship between mining and water highlights the need for policy development from two directions.

Policy can emphasise the embedded nature of mining, where mining is perceived as 'undetached' from, and located within, the physical and human landscape. This policy development will make it difficult to isolate mining from its effects on water, and make explicit the influence it has on the place, its resources and its traditional values. Hopefully it will provide guidance for how mining explicitly contributes to better the lives of local people, rather than alienating them from their place, and show how miners should be encouraged to develop a stronger sense of belonging and attachment to that place.

Secondly, and more tangibly, the mining and government sectors should be encouraged to embrace water accounting in a substantive way, through policy development. Seeing water as embodied in mineral products and use of full life cycle assessments, will help to reduce impacts of mining on water resources, and make the assessment of mining accountable in terms of societal costs and benefits. An informed consumer can then also make choices associated with mining products, and go some way at least to address more widespread attitudes to water that result in its overuse, and the sanctity of mining in some quarters.

## **Conclusion**

It is too long a bow to lay the blame for unsustainable water resource practices at the feet of the mining sector. Nevertheless, a connection between mining and the exploitation of water can be posited, and the situation in WA can be used as an example. Mining consumes significant amounts of water; generally the amount used is underestimated. Hydrogeological technical expertise developed for land use, adapted for mining, and applied to water resource development has allowed water to be extracted from deeper and otherwise more challenging circumstances, and created a need and a technology to transport water further. Pervasive attitudes that extend a priority for mineral extraction to water resources, and commodify water, contribute to an undervaluation of water. Seeing mines as embedded in a peopled landscape and waterscape, and water as embodied in mineral products, will improve accountability and help to reduce impacts of mining on water resources.

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## Part VI

# Living the Resource Boom

Discussions in Western Australia about the social impacts surrounding mining operations and resource-based development per se have received only recently concerted academic input, and methodologies for the effective and holistic assessment of the broad range of potential social impacts are still in their infancy. In addition, development-related social impacts are often masked by economic assumptions made about, and indicators produced of, the employment and income potential development is believed to deliver. These are often portrayed to be outweighing the potentially adverse social consequences of economic pursuits, proving difficult the task of challenging the dominant narrative.

At the same time, resource-led development has long been understood to produce economic winners and losers in light of the concomitant income disparities and centre–periphery dualisms it is prone to create (Harman and Head 1982). National debates about the country’s two-speed, or even three-speed, economy have been triggered by the boom experienced recently in the resource sector. Western Australia, the nation’s primary natural resource developer, thus received considerable attention in this regard (Langton 2010; Denniss 2007; Tucak 2006; Western Australian Council of Social Service 2009).

The contributions in this section address some of the social fallout from Western Australia’s recent economic success whilst also acknowledging its potential benefits and potentials. The insights presented here will inform a later discussion (see Chap. 18) about the sustainability of development in Western Australia, associated problems and opportunities.

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# Chapter 15

## Mining and (Sustainable) Local Communities: Transforming Ravensthorpe, Western Australia

Robyn Mayes

**Abstract** This chapter examines local community experiences, understandings and changes attending the presence of mining activity, in particular as occurred in the Shire of Ravensthorpe in the South West of Western Australia (WA). It does so by drawing on an extensive ethnographic study spanning the development, opening, and closure of BHP Billiton’s Ravensthorpe Nickel Operation (RNO). Given that the negative consequences of mining activity are most evident and complex at the local level, it is crucial that we understand and address how communities (and the individuals and families who are both part of and are shaped by communities) experience the impacts of mining. Though difficult to measure, social and cultural dimensions of mining at the local scale, as this chapter demonstrates, are central to our understanding of mining as a curse or cure.

### Introduction

Mining refers to heterogeneous activities, for example in terms of the mined resource and its particular production characteristics, the stage of the mine life cycle, the specificities of a given workforce, and individual mining company attributes and community engagement strategies. Local communities are also variously shaped by demography, size, geography, history, community identity and values and, in relation to mining, the level of resource dependence, historical relationships to mining, pace of development, governance structures and institutions, and the organisation of mining labour. In addition, ‘community’ is a complex and deeply subjective concept and experience (Joseph 2002; Mayes et al. in press). The degree of heterogeneity this heralds makes discussion of the relationships between mining activity and local communities both difficult and complex. This

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is particularly so in relation to the contested benefits and negative consequences, which often go hand in hand and are experienced differentially not only across but also within communities (Mayes 2008; Petkova et al. 2009). Notably, negative impacts are particularly evident and complex at the local level and concentrated in particular social groups (Petkova et al. 2009; Hajkowicz et al. 2011). Similarly, power imbalances are most pronounced at the level of local community engagement with what are often multinational mining corporations enjoying substantial state support (Mayes et al. 2013). While the degree of economic and social upheaval experienced varies from mining community to mining community, local communities carry significant mining-related burdens (Petkova et al. 2009; Mayes et al. 2013; McDonald et al. 2012).

This chapter examines this burden as experienced in the Shire of Ravensthorpe in the South West of Western Australia (WA). In doing so it contributes to our understanding of the resource curse thesis as fundamentally inadequate in its focus on and privileging of economics over social, political and cultural dimensions of mining (Pick et al. 2008; see Chap. 1) In particular, this chapter foregrounds the role of scale and the politics of ‘measurement’ in the evaluation of social and cultural dimensions of mining. In order to do so, it draws on a substantial ethnography of the Shire of Ravensthorpe spanning the development, opening and closure of BHP Billiton’s Ravensthorpe Nickel Operation (RNO) and encompassing over 120 interviews with a diverse range of community members including pre- and post-mine residents, and members of local government and local community groups. Corporate media including RNO community newsletters are also utilised along with published work from this data.

First, the chapter examines recent, comparative, socio-economic analyses of the impacts of mining and the politics and complexities of the evaluation of community impacts. It then introduces the Shire of Ravensthorpe and RNO as exemplifying the ‘boom and bust’ cycle characterising the minerals industry. Thereafter the chapter examines three key dimensions of this local experience of mining activity: the transformative capacities of mining and its benefits and costs; community-mining company relations; and issues of sustainability, not least in the context of mine closure. The chapter concludes with a discussion of the centrality of the local-scale experience of mining to evaluations of mining as a curse or cure.

## **Measuring (and Masking) the Socio-economic Impacts of Mining**

The impact of mining on Australian communities has recently been examined through the use of readily-available, quantifiable, socio-economic ‘quality of life indicators’. For example, Hajkowicz et al. (2011: 30) examined 71 Australian local government areas which contain mining activities to determine “the relationship between quality of life indicators and the gross value of minerals production from

Australian regions". The study used the following indicators: household income, housing affordability, access to communication services, educational attainment, life expectancy, and unemployment. Similarly, Lawrie et al. (2011: 139) focussed on the WA resource-dependent 'boom towns' of Kalgoorlie–Boulder, Port Hedland and Karratha–Dampier to examine the relationship between socio-economic well-being and resource dependence. Their study used indicators such as income, cost of living, housing affordability, welfare receipts, unemployment, population mobility, recorded crime, and participation in a volunteer group.

Hajkowicz et al. (2011: 37) find that "mining is positively associated with income, housing affordability, communication access, educational attainment, and employment at Australian regional scales". On the basis of these regional level findings the authors (2011: 37) conclude that there is no "evidence of a 'resource curse' in Australia's mining regions at the whole of local government scale". At the same time, the authors stress that they have merely established a statistical link between mining and these indicators and that other factors may be causing these associations. Similarly, identified inequalities in income distribution is noted as indicative of complexities and disadvantage "beneath [the] statistical aggregates" (Hajkowicz et al. 2011: 36). Lawrie et al.'s (2011: 159) findings confirm the heterogeneity of mining communities and that "the socio-economic trajectories of boomtowns are highly nuanced"; while these trajectories are "not always negative," resource dependent boom towns are not without problems particularly in times of rapid growth (Lawrie et al. 2011: 159). This work challenges the 'social disruption thesis' which posits major social and psychological dislocation and community breakdown, including a rise in crime, as an inevitable outcome of rapid growth in mining boom towns. Using recorded crime and volunteering statistics respectively as measures of social disruption and of social engagement in the three selected boom towns, Lawrie et al. (2011) argue that claims of severe social disruption should be treated with caution. While these studies suggest that mining towns are not necessarily severely dysfunctional (see also Petkova et al. 2009) they confirm the importance of nuanced and local-scale understandings of the conditions and consequences of mining activity. Such local understandings are important not least in that benefits at the regional scale appear to be "masking highly localised inequalities and disadvantages" (Hajkowicz et al. 2011: 30).

Despite the unruly heterogeneity and complexity of local-scale experiences and impacts of mining, it is precisely through attention to this scale that rich understandings of the everyday effects are possible. Without such ongoing analysis, our understanding of mining as a resource curse and/or cure is at best incomplete. Attention to the local scale is not only about determining highly localised inequalities; it is also about more fully understanding the way that socio-economic changes intersect with and inform day-to-day well-being and quality of life. As this makes clear, qualitative research from the local community perspective is necessarily a core component of nuanced local-scale analyses. In particular, local perspectives and voices, though not readily measurable, are valuable as 'questioning' and 'evaluating' assessments of local changes (Cheyney et al. 2002). Coming to grips with local impacts and experiences in this way is far from straightforward. In trying

to grapple with the range and distribution of community impacts, one long-term Shire of Ravensthorpe resident who had experienced firsthand the four, quite distinct, phases of exploration, construction, operation and closure of RNO, critically reflected:

One of the baseline studies that we talked about for some time and that we wanted to do was to try and capture people's impressions of how it was affecting them personally over the planning stage and then construction stage and then getting into the operation but we could never come to an agreement about how this should happen or how we should do it. It was too hard. It was easy to test vegetation and the soil and the water and, you know, all the other things, but getting into personal things like that was difficult so we never really decided how to do that.

This reflection highlights both the complexity of local experiences of mining and the difficulties encountered in trying to gain a collective sense of the social economy of mining activity. In particular, it signals how assessment of personal and community effects does not lend itself to measurement and testing and thus becomes 'too hard'. Rural communities are not only diverse but also differentially experienced according to social differences around, for example, gender, ethnicity and class (Panelli 2001). Meanings attached to changes taking place in the Shire of Ravensthorpe and elsewhere from mining activity, and their direct and indirect impacts along with local responses, are specific to particular groups, situations and times. Importantly, these meanings are contested and signify uneven power relations around, for example, the validity and importance of 'measurement' and what 'can' and 'should' be measured—and thus what 'matters'. This is of course also an issue in regard to seemingly objective socio-economic indicators. For example, socio-economic indicators other than those commonly used may show different outcomes (Lawrie et al. 2011). Similarly, Ivanova et al. (2007: 211 emphasis added), in attempting to determine "how the social and economic impacts *should* be assessed and negotiated with local and regional communities", show how various commonly used tools such as social and economic impact assessments are biased toward the identification of either negative or positive impacts.

It is in this fundamentally political context that the chapter introduces the Ravensthorpe experience before examining three key aspects of the local impact of mining activity, namely, the ways in which mining is understood and experienced as transformative, the broad contours of corporate community engagement, and the conceptualisation of sustainable communities.

## **Boom and Bust in Ravensthorpe**

Following a lengthy evaluation process begun in 1997, RNO was approved for construction in 2004 and officially opened in May 2008. During this time ownership of the nickel mine changed from Comet Resources to BHP and then, through corporate merger, to BHP Billiton. Consisting of an open-cut mine and hydromet-allurgical process plant, RNO was Australia's largest nickel-laterite project

requiring an operating staff of 650. Ultimately the ore produced at RNO was further refined at BHP Billiton's Queensland Yabulu plant. Combined, RNO and Yabulu constituted the largest single investment in BHP Billiton's history (Department of Industry and Resources 2008). In response to BHP Billiton's efforts to establish a residential workforce, 300 employees and their families had moved to the region by May 2008 (RNO 2008), the majority of whom relocated to the Shire of Ravensthorpe, in particular to the small coastal community of Hopetoun. Indeed, the incoming workforce more than doubled the pre-mine Hopetoun population (Landcorp n.d.). The rest of the workforce was employed on fly-in/fly-out (FIFO), and bus-in/bus-out (BIBO) rosters.

The development of this mine heralded substantial, externally-driven, forced changes in the Shire of Ravensthorpe. Throughout its lifespan BHP Billiton's RNO was a pervasive aspect of everyday life in the shire and a watershed in local community life (Mayes 2008). Much local energy went into coming to terms with the presence of RNO and many local 'pre-mine' residents commented on this. For example:

Probably going back 12 months ago a lot of the locals were quite negative about the impact [of RNO] but I think people are sort of getting used to it. I think people have accepted the changes and ... there's nothing you can do. It's happening.

As others pointed out, "It's going to be here for 25 years; you might as well face it".

Though a 25-year estimated lifespan was repeatedly asserted by BHP Billiton, in January 2009, just 8 months after the official opening, BHP Billiton, literally overnight, commenced RNO's immediate closure, and also the closure of the Yabulu processing plant with a loss of some 1,800 jobs (BHP Billiton 2009). The demand for nickel began to fall in the second half of 2007 and the nickel price, renowned for its marked volatility over the last four decades, fell dramatically from a high in 2004 of US\$45,000/t, and a peak in May 2007 of US\$52,000/t, to just US\$10,000/t by the end of 2008 (International Nickel Study Group 2013). BHP Billiton announced the closure as "largely the result of the diminished prospects for profitability" (BHP Billiton 2009). This closure, as was the case with the arrival of the mine, had a profound impact on local communities (Pini et al. 2010; McDonald et al. 2012).

The Shire of Ravensthorpe encompasses four, distinct, place-based communities each of which were affected differently by RNO: Ravensthorpe (seat of local government and service centre to the surrounding agricultural industry); Hopetoun (small coastal retirement community and home to the majority of residential mineworkers); Jerdacuttup (farming community with its own school and hall, and location of the mine site); and Munglinup (farming community, part of both the Shire of Ravensthorpe and the neighbouring Shire of Esperance).<sup>1</sup> Importantly,

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<sup>1</sup> While this chapter presents the Shire of Ravensthorpe as consisting of four discrete and unified place-based communities, it is important to keep in mind that many local communities may simultaneously exist in one location. The idea of community as neatly contained by place is

communities are not static; rather they are continually in the making, shaped by ongoing social and political contexts (see Panelli and Welch 2005), such as the arrival and departure of a large-scale mining operation.

## Transforming the Shire of Ravensthorpe

The social, economic and environmental effects of mining, irrespective of positive or negative interpretation, are most often described as transformative processes (Bridge 2004). This is certainly true of government and industry perspectives on the social and economic effects of RNO. The WA Department of Industry and Resources, for example, in June 2008 (p. 2) announced that:

The transformation of Western Australia's Shire of Ravensthorpe from sleepy farming district to prosperous mining hub is complete following the opening of BHP Billiton US \$2.1 billion Ravensthorpe Nickel project near Hopetoun in May.

This transformation is presented as inherently positive. The development of the mine is also about 'regional' development (Department of Industry and Resources 2008: 2): "The successful opening of this project is as much about the development of regional Western Australian communities as it is about the State's buoyant resources industry." Similarly, BHP Billiton promoted the project as creating "a unique opportunity to advance regional development" (BHP Billiton 2004). A company publication celebrating the opening of the mine commended the Shire's ability to adapt to social change on a scale greater than that experienced anywhere else in WA in 2007–2008 (BHP Billiton 2008: 29). Readers are also assured that as a result of BHP Billiton's presence "we will continue to see this region transform in the coming years" (BHP Billiton 2008: 29). Evaluations of mining's impact on local communities in Australia also tend to accept and represent mining activity as synonymous with (positive) local development (for example, Owen and Kemp 2012) and understand the 'problem' or 'challenge' as one of enhancing benefits for local communities and mining companies, and managing negative consequences in the interests of reducing business risk (for example, Ivanova et al. 2007).

Often, these transformations refer quite narrowly to population change, employment opportunities and new infrastructure. Once RNO received the green light, the consequent "massive capital and population influx" saw the Shire of Ravensthorpe become one of the "fastest growing local government areas in Australia" (Department of Industry and Resources 2008: 2). During construction and operation phases mining dominated the local economy. Operational requirements such as the need for improved roads on which to transport ore together with the decision to establish a residential workforce ensured substantial infrastructure development. This 'multi-

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more an analytical device than a reality (Massey 2005). For further discussion of the way that mining industry corporate social responsibility practices tend to construct and privilege place-based communities see Mayes et al. (in press).

user' infrastructure was funded by the federal government (A\$9.4million), state government (A\$18 million) and BHP Billiton (A\$9.5 million) (Department of Industry and Resources 2008) and included an airport, improvements to local and state roads, and a primary school in Hopetoun (Western Australian Technology and Industry Council 2004).

This transformation, however, is about far more than infrastructure, population growth and employment opportunities for some (see Chaps. 5 and 8). While Ravensthorpe may have been designated by outsiders as a 'prosperous mining hub', local residents contested this new identity. Jerdacuttup residents publically resisted the way that Jerdacuttup was increasingly seen as synonymous with RNO and Hopetoun pre-mine interviewees consistently referred to the overwhelming ubiquitous presence of "orange uniforms" in local public places, the beeping of mine vehicles, and the way the town felt 'taken over' (Mayes 2008) (see Fig. 15.1).<sup>2</sup> Indeed, for many interviewed pre-mine residents, the presence of RNO was pervasively experienced as a "sense of loss of control and marginalisation" (Mayes 2008: 25). This local sense of marginalisation and powerlessness (also see Cheyney et al. 2002) has significant implications for individual and community well-being and quality of life, as is discussed below in the particular context of mine closure.

At the same time, a fundamental reconfiguration of these four communities and their relationships to each other took place (Mayes 2008). For example, the new primary school in Hopetoun meant that student numbers in Ravensthorpe declined affecting funding and the long-term viability of the Ravensthorpe Primary School. RNO's decision to provide financial incentives to attract businesses to Hopetoun to assist in the retention of residential mine staff weakened Ravensthorpe's standing as the business centre and changed what local residents saw as Hopetoun's character. Further, the comparatively large residential area constructed by BHP Billiton primarily for mine employees restructured Hopetoun community dynamics. Hopetoun interviewees described a strong spatial and cultural division between what they saw as 'old Hopetoun and new Hopetoun'.<sup>3</sup> While local inter-place rivalry and competition, if not animosity, pre-existed the arrival of the mine, RNO's presence introduced new tensions and inequalities frequently and vehemently commented on by local interviewees. This had much to do with uneven distribution of benefits and costs, but was also to do with the way the communities were rapidly changing according to the needs of (unstable) multinational capital.

The new infrastructure and fundamental transformations of the physical environment, however, were designed primarily to facilitate mining and to accommodate the needs and desires of new residents. Local benefits were thus secondary. From the local perspective, transformations also centred on opportunities for employment in the local area and social vibrancy due to the influx of young families

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<sup>2</sup>This is a reference to personal protective equipment (PPE) worn by mine employees in Australia and which includes fluorescent orange safety vests. Similarly, reversing mine vehicles 'beep' as a safety mechanism.

<sup>3</sup>There were, of course, other more evocative descriptions of this division.



**Fig. 15.1** The main street of Hopetoun showing the prevalence of mining vehicles Mayes (2008)

(Mayes 2008). The expectation of increased local employment, as interviewees repeatedly pointed out, did not substantially eventuate. The use of employment and income statistics in this instance would be questionable indicators given that the boost to local employment and income was largely centred on incoming workers just as local pre-mine residents were largely unable to secure the specialised jobs attracting higher pay and better conditions. At the same time the cost of housing in the Shire rose dramatically forcing those on lower incomes to leave. This in turn could manifest in a reduction in welfare spend in the area (and a rise elsewhere). As Ravensthorpe interviewees made very clear, the lived experience and community transformations attending the resource boom are more than (a far from benign) access to infrastructure and amenities, and indeed pivot on the transformation of community in both meaning and practice (Mayes 2008; Mayes et al. in press).

## Mining-Community Relations

Local communities over the last decade are credited with having a ‘better’ understanding of their rights and as “placing more demands on governments and companies to ensure fair benefits from mineral activities” (Buxton 2012: 19). In some instances communities in Australia have been credited with having “significant influence on the outcomes of mining proposals”, including decisions to halt particular projects (Cheyney et al. 2002: 3; Buxton 2012). Not surprisingly, winning local community support has become a business imperative (see Humphreys 2000).

Mining corporations see relationships with local communities as an important component of their corporate social responsibility (CSR) strategies (Kapelus 2002: 275). In short, local communities are a key site of corporate legitimisation crucial to a project's smooth functioning (Mayes et al. 2013). The concept of the social license to operate is central to this. This concept emphasises social acceptability as fundamental to successful business and centres on meeting/managing the social and environmental expectations of local communities and the wider society. A social license to operate in the particular context of the resource industries can be a core component of corporate strategic risk management and a central determinant of invaluable reputational capital (see, for example, Humphreys 2000). Who confers this license and the means by which it is awarded is difficult to ascertain. The model assumes that communities and other social groups have the desire and capacity to effectively articulate, and negotiate, the unwritten conditions of acceptance (see, for example, Gunningham et al. 2004).

Importantly, the rise of CSR in the mining industry signals a shift from generalised philanthropy (as a means to ward off or offset criticism) to direct community engagement in ways directly aligned with core business goals (Humphreys 2000). The need for such engagement has long been recognised within and outside the industry, as has the benefits to industry from the "positive contribution which communities can make in the forms of labour, local knowledge, and assistance in access" (see, for example, Denoon et al. 1995: iii). In practice, this direct corporate engagement of/with local communities is far from participatory (Cheyney et al. 2002; Mayes et al. 2013), and a growing body of work seeks to improve corporate engagement and community development practices (see, for example, Owen and Kemp 2012). On another level, however, community engagement in practice is convincingly critiqued as fundamentally business-centric and concerned to manage local communities in ways supporting industry goals as opposed to better understanding the social consequences of mining (Banerjee 2008; Mayes et al. 2013). As part of this managerial approach mining companies position local communities as 'stakeholders,' which not only excludes a range of individuals and groups (Cheyney et al. 2002) but also belies power imbalances between communities and corporations (Bridge 2004; Banerjee 2008; Mayes et al. 2013). Such power relations must be included in examining local experiences of change. These encompass not only power relations between the local community and the mining company but also those internal to the local community (Panelli 2001).

The community engagement processes and strategies BHP Billiton implemented in Ravensthorpe were showcased by BHP Billiton as evidence of best practice, and of 'successful' community engagement (see, for example, RNO 2008). Three interrelated components constituted the RNO CSR community engagement strategy: namely, two formalised RNO-convened and controlled committees, regular community newsletters, and cash community development grants dispersed by one of the formal committees. A close analysis of these three components demonstrated how they were initiated and modified in response to market pressures, as opposed to community needs or demands (Mayes et al. in press). Importantly, these strategies sought to achieve community *adaptation* to the changes wrought by RNO and to



develop local communities, particularly Hopetoun, as a stable base for RNO and its workforce. The emphasis on ‘partnerships’ and ‘win-win outcomes’ evident in RNO/BHP Billiton discourse and practice, and also more widely in the mining industry, limited community benefits and concessions to those that also served the interests of capital; whether something of benefit to the community is supported or not is directly tied to whether or not this something also benefits the corporation (see Mayes et al. 2013). Importantly, the local adoption of a ‘partnership’ approach, itself a pre-condition of engagement, enables corporate appropriation of local labour, creativity and knowledge in securing a successful mine. For example, local residents contributed free labour and expertise (for example, serving on committees) which involved significant personal expense in terms of time, money and emotional stress (Mayes et al. 2013).

The consequences of privileging business-centric goals and the political positioning of the local communities as ‘mutual beneficiaries’ and ‘partners’ are made amply clear in an analysis of RNO’s (lack of) community engagement upon closure of the mine (Pini et al. 2010; McDonald et al. 2012; Mayes et al. 2013). Local criticism of BHP Billiton’s handling of the closure in particular focused on the company’s failure to honour the partner relationship by failing to ‘work together’ to either avoid or minimize the impact of closing RNO. Further, analysis of CSR approaches and practices in the Shire of Ravensthorpe suggests that engaging with mining corporations is of questionable value for local communities, not only in relation to free labour wasted in advancing corporate goals in the hope of securing community goals closely aligned with those of the corporation. Cheyney et al (2002: 21) in their Australian study of community perceptions of corporate ‘participatory processes’, also found a level of “disempowerment through participation”. While they see this as the result of *inadequate* processes, this outcome is arguably systemic and inherent in a process which sees corporations at the centre of the engagement process.

## Sustainable (Mining) Communities

Mining corporations also come to stand at the centre of community sustainability. The minerals industry, both internationally and in Australia, invokes ‘sustainable community’ as closely linked to industry-driven (economic) development (ICMM 2010). The principal function of the powerful national industry peak organisation, the Minerals Council of Australia (MCA),<sup>4</sup> is to promote the industry’s contribution to sustainable development in tandem with the notion that “the future of the

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<sup>4</sup> According to its website, the MCA is a national industry body representing 48 companies, which together account for 85 % of mineral production in Australia and which include the two largest transnational mining corporations, BHP Billiton and Rio Tinto.

Australian minerals industry is inseparable from the global pursuit of sustainable development” (MCA n.d.), specifically (MCA 2005: 2):

To the [Australian] minerals industry ‘social licence to operate’ is about operating in a manner that is attuned to community expectations and which acknowledges that businesses have a shared responsibility with government, and more broadly society, to help facilitate the development of strong and sustainable communities.

Further, the recently released MCA (2013: 7) report “Analysis of the Changing Resident Demographic Profile of Australia’s Mining Communities” argues that “Part of the story in developing sustainable communities includes developing a strong economic base. For many of the regions investigated in this study, mining has provided this economic base.” Industry commentary emphasises the business case arguing that “industry’s adoption of the more sustainable practices *will require*, and could even promote, *improved returns to capital in mining*” (Humphreys 2001: 107, emphasis added). ‘Sustainable communities’ and ‘mining communities’ are conflated by way of sustainable mining.

This claimed connection between the (mining) economic base and strong, sustainable communities is also promoted at mine site level. RNO, for instance, regularly communicated this to the local community in its tri-annual newsletters, in claims such as (RNO 2008):

Significant progress has been made in building a strong operation and sustainable community. It is important to recognise the job is not yet done and while we are committed to seeing the job through, it will take the support of everyone involved with the site and community to achieve the challenging goals we have set ourselves.

The message is clearly that the driving force is in transforming Ravensthorpe into a sustainable community. In light of the preceding discussion of community engagement, it is important to note that the story of sustainable mining is one of partnerships and shared local goals as opposed to one of community rights (Bridge 2004). The above RNO statement not only links sustainability to strong mine operations but also reduces community agency to the provision of support for industry goals.

RNO claims that it contributed to community sustainability were met locally with scepticism; for example, an interviewee closely involved with the RNO committees dismissed RNO sustainable development plans as airy-fairy. These plans certainly become empty rhetoric upon the sudden closure of the mine. A substantial body of research around mine closure has identified a number of serious economic and social impacts dependent on the specificities of the mining operation and of the affected community (McDonald et al. 2012). In Ravensthorpe the closure had a profound effect on the local community of both pre-mine and post-mine members. Interviews with Ravensthorpe residents conducted 3 weeks after the closure of RNO with long-term pre-mine community members and also post-mine community members, demonstrate immense economic, social and emotional upheaval, including around the connections developed between mineworkers and their families and the pre-existing community (McDonald et al. 2012). Emotional impacts were powerfully evident at personal, familial and community levels (Pini

et al. 2010). Following closure, the local (forced) acceptance of RNO, and the not inconsiderable free local labour mobilised in pursuit of its success and attendant ‘win-win’ outcomes (Mayes et al. 2013) was intensely experienced as having been for nothing (Pini et al. 2010). This is not to say that Ravensthorpe was wildly dysfunctional or incapacitated by this massive disruption—though BHP Billiton excused itself from attending public meetings on the basis of its (locally-contested) assumptions that these would be dysfunctional (Mayes et al. 2013). Community members drew on their understanding of themselves as resilient farmers or robust mineworkers as fortification against the suddenly changed circumstances. What is important here is that the intense emotions publically and privately articulated in Ravensthorpe, and the widespread uncertainty about individual and community futures, at the time of the mine’s closure constitute an important dimension of local (ised) costs attending mining activity.

## Conclusions

Sustained, in-depth qualitative research in the Shire of Ravensthorpe with an emphasis on local community perspectives demonstrates how the community adapted to the RNO and how it responded to its sudden closure. What evolved was a cycle characterised by ongoing restructuring of community identity and sense of place. Australian rural communities have long been subject to major, though variously experienced, changes in the size and make-up of their populations, primary industries, levels of state social and economic support, and shifts in sociocultural values (Panelli 2001). However, this was forced, rapid change driven by transnational capital which, despite CSR programs and community engagement practices, had little sustainable responsibility or commitment beyond responding to market opportunities and constraints. RNO exemplifies the inherent uncertainty and contingency in mining operations: the sudden closure occurred in the midst of a generalised mining boom in Australia where a multinational hugely profitable company walked away from its biggest single investment and repeated public promises from BHP Billiton RNO that the mine would have a 25-year life span.

The local transformations are ongoing. After a period of significant uncertainty if not anxiety in the Shire around such issues as what would become of BHP Billiton’s relatively large local housing stock, First Quantum minerals purchased RNO in February 2010. At this point, the demand for nickel dramatically increased and prices climbed to US\$24,000/t (International Nickel Study Group). The rejuvenated operation also requires a 600-strong workforce some of whom are accommodated in the 160 Ravensthorpe houses built by BHP Billiton and acquired in the purchase. The first production of ore under FQM ownership occurred in October 2011. Here too the burden of ‘adaptation’ will be on local communities as opposed to the mining operation.

It is not the case that the local communities were passive victims, but rather that they were relatively powerless in the face of a multinational corporation with state

backing as demonstrated in the way that CSR processes forced communities to align with industry goals. In Ravensthorpe local communities actively engaged with RNO to 'make the best' of its presence and their activities helped shape the RNO operation. While there were certainly positive, though unevenly and even contradictorily experienced, aspects to the transformations of local communities in the Shire of Ravensthorpe, there was clearly an array of negative outcomes. Such outcomes tend to date to be either masked or devalued in external assessments of the social dimensions of mining, for example, through discounting social upheaval as something that lasts only for a limited time (Lawrie et al. 2011). The local experience of RNO highlights the limitations of assessments which foreground (measurable) socio-economic indicators to the exclusion of understanding places and communities as co-constructed through substantial, ongoing cultural and emotional investments from individuals and collectives (McDonald et al. 2012).

The importance of 'the local' as a scale for analysing the consequences of mining activity is made clear. Given the heterogeneity and complexities of intersections between mining and local communities, detailed local case studies are necessary for the development of nuanced context-specific understandings and the development from this of cumulative knowledge sensitive to the multifaceted contradictory nature of the relationships between mining activity and local communities (Flyvbjerg 2006). The personal, local community experiences examined here represent the intertwined material, social and economic consequences of contemporary mining and governmental pro-development policies. Such experiences are a crucial aspect of any comprehensive story of mining, not least so those directly living the boom may have a voice. Perhaps more importantly this study of Ravensthorpe demonstrates that the scale at which one 'measures' the impact of mining is central to understanding/experiencing it as either a curse or cure, just as the emphasis on what can be measured limits understandings of mining as a lived community experience.

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# Chapter 16

## On the Social Sustainability of Development in Western Australia: A Community Perspective

Martin Brueckner

**Abstract** This chapter addresses resource development in Western Australia from a social sustainability perspective. It will be shown, based on the experiences of members of a small community, that the benefits assumed to result from economic development in the name of progress and regional sustainability can fail to result in wealth and health for local people. The problems identified here serve as prompts for critical reflection on the purpose of development, and the requisite balancing of community and industry interests. An engagement with the social sustainability agenda in Western Australia is called for in light of the state's very rapid development path and the growing potential for conflict with its intended beneficiaries.

### Introduction

Since the Brundtland Commission's landmark report (World Commission on Environment and Development 1987) a dominant narrative emerged that portrays economic growth as axiomatic for environmental protection, economic prosperity and social well-being. While arguments supporting the compatibility between ecological, social and economic goals helped mainstream the political sustainability agenda (Bernstein 2002), Brundtland's broad support for economic growth also allowed the reframing of the sustainability concept. By aligning social, ecological and economic concerns sustainable development could be reconstructed in such a way that economic growth became central to securing future prosperity, a healthy environment and community well-being (Paton 2008). This necessarily attractive having-your-cake-and-eating-it-too version of sustainability (Pezzey cited in Dresner 2008) has since been advocated under the banners of 'sustainable or green growth' by bodies such the Organisation for Economic Cooperation and

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Development (1985) and the World Bank (2012), yet without reference to the environmental limits that once characterised the sustainability discourse (Beder 1996).

Australia, having championed briefly an ecologically-sustainable brand of development in the early 1990s (Christoff 1995), now also subscribes to this so-called 'weak' sustainability approach (Randall 2008) that favours sustained economic, material growth and applies uncritically this narrow conception of progress and development to both complex social and ecological systems (Mercer et al. 2007). The weak brand of sustainability is also discernible in the state of Western Australia (WA) (Brueckner and Pforr 2011) which, since foundation, has been eager to advance the growth of its economy (Kellow and Niemeyer 1999). WA's current minerals boom has given the state's economic agenda even greater prominence, which prompts this discussion on the non-economic consequences of WA's resource-led growth path.

The overall adverse environmental consequences of economic and non-economic activities in WA are relatively well understood and documented in terms of observable trends (Environmental Protection Authority 2007), mirroring the national (DSEWPac 2011) and international (United Nations Environment Programme 2007) environmental state of play. For the purpose of the ensuing discussion I accept the emerging scientific consensus on the human impact on the environment and the need for substantive political and economic course corrections to respond effectively to environmental change. Instead, this chapter focuses on the question of social sustainability and attempts to test the nexus between growth-focused development and social well-being with particular reference to the resource sector in WA. The question of resource curse or cure is addressed by analysing the sharing of the costs and benefits associated with resource-based economic development in the state. Specifically, this chapter offers insights into a long-running conflict between residents of the town of Yarloop and their corporate neighbour, Alcoa World Alumina, which the resource boom brings into sharper focus. The struggle analysed here is over social, health and environmental concerns surrounding the company's Wagerup alumina refinery. The findings presented are derived from a broader analysis of this industry–community conflict, drawing on data collected from engagements with around 500 conflict stakeholders (Brueckner and Ross 2010).<sup>1</sup> The data inform a social critique of the econo-political structures surrounding and framing the controversy (Kincheloe and McLaren 1994), which foregrounds voices of community members who were the least powerful participants in this conflict and unable to be heard in the spheres where politics and economics meet.

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<sup>1</sup>Data were collected from interviews, community workshops, and meetings with the local community, private consultants and researchers as well as representatives from industry and government departments. Participant data shown in this chapter were taken from Brueckner and Ross (2010) and Brueckner and Mamun (2010).



The conflict predates but also endures WA's recent minerals boom, serving as an exemplar of the potential for unsustainable development from a community perspective and as a prompt for critical reflection on the sides of industry and government during a time of unprecedented economic expansion. Conflict situations such as these are accentuated and aggravated during boom times and have considerable implications for regional sustainability. The story of Yarloop highlights that social sustainability matters and that there is a need to address the development-driven imbalances between people, place and profit (after Elkington 1994), which the expected future growth of the resource sector is liable to aggravate further.

## Social Sustainability and Growth-Based Development

The social dimension is the least developed dimension of the sustainability trias and often seen in conflict with economic and environmentally focused renditions of sustainability (McKenzie 2004). Social sustainability reasserts the importance of the human-centeredness of development, stressing that people ought to be the beneficiaries, and their well-being the very purpose of development (Haq 1999). Well-being and equity are critical components of social sustainability. Well-being relates to liveability and the ability of people to thrive, which include access to housing, education, health services and transport; it is about basic needs. Equity is a social justice concept which refers to fairness of access to resources and services, sharing of costs and benefits and enjoyment of political, economic and social freedoms (Falk et al. 1993). According to Beder (2000) equity ought to be seen as the minimum level (e.g. income, environmental quality) below which nobody ought to fall, an entitlement to an acceptable quality and standard of living. While material well-being in this regard is a vital aspect of human welfare (Haq 1999), social well-being overall is distinct from economism, which regards economic growth as an end in its own right and wealth accumulation as the overriding goal (Robinson and Tinker 1997).

The dominant growth-orientated brand of sustainability thus arguably runs counter to the demands of social sustainability (Magis and Shinn 2009). Economic expansion is seen as essential to wealth generation, overcoming poverty and protecting the environment. The growth project, seen as the very foundation of nation building, has now also been made the prerequisite for long-term sustainability (see United Nations General Assembly 2000; Anderson and Huggins 2004). Improvements in life expectancy, housing, employment and education are frequently used as evidence for the social efficacy of economic expansion (Anderson and Huggins 2004). Growth has become the shorthand for higher living standards and improved quality of life (Mazur 2000). This notion is open to challenge, however, in the face of empirical work that shows an increasing divergence between measures of quantitative economic growth and those of human well-being across high-income countries (Cassells et al. 2010; Cummins et al. 2009;

Lawn and Clarke 2006). In WA, alarm is also being raised about the social fallout of the current resource boom (e.g. Stilwell and Jordan 2007; Cleary 2012; Mayes 2008). Various contributors to this volume (see, for example, Chaps. 4, 5 and 15), make plain that the mining boom delivers both winners and losers as the economic benefits and associated costs are borne unevenly across society.

While chiefly people within the mining industry absorb most of the benefits from the minerals boom, albeit also bearing specific costs (for example, see FIFO in Chap. 7), the costs are often socialised and borne largely by structurally weaker, and electorally less significant, community groups (see Chap. 4). The town of Yarloop is home to one such community group adversely affected by mining and refining where the community's lived experience with the expansion of its corporate neighbour casts doubt over the social sustainability credentials of WA's approach to development (Brueckner and Ross 2010). The case of Yarloop is instructive as it (a) is not isolated; and (b) offers a vantage point from which to judge how development-related conflicts are addressed by industry and government. WA has a rich history of intense and well-publicised resource and development disputes (Brueckner et al. 2006; Lewis 2005; Morgan et al. 2006) and is prone to industry–community conflicts. As the rising global demand for natural resources and growing population levels in WA will only serve to further increase this conflict potential, the question of interest here is how equitably and effectively the state can balance the demands of development with concomitant social issues. The Yarloop experience can offer some insights in this regard.

## The Transformation of a Town

Yarloop is located about 125 km south of Perth in rich agricultural country on the coastal plain. While agriculture as well as timber and steam engine production once were the town's economic lifeblood, today the dairy industry is among the last reminders of past economic activity. As traditional industries declined, metropolitan 'lifestylers' were attracted to the area, taking advantage of its geographic location between the Indian Ocean and native forest. In the mid-1990s quality of life was considered high among Yarloop's 620 residents who enjoyed high levels of household income and home ownership (Australian Bureau of Statistics 1996a, b) and a strong sense of place and community cohesion.

By 2009 Yarloop had lost most of its local businesses including two petrol stations and its hospital, while its population has reduced with a strong shift from private home ownership to rental accommodation and a relative decline in weekly household incomes (Australian Bureau of Statistics 1996b, 2002, 2006), attesting to significant social change. Once described by residents as "a beautiful little spot" and as "just idyllic," Yarloop is now seen as "a dying town" that "doesn't seem to have any life anymore"; these changes are attributed to the presence of Alcoa's Wagerup alumina refinery, located just outside the town's boundary.

Alcoa is a US-based company trading in Australia under the name of Alcoa World Alumina. It is one of the world's largest miners of bauxite and refiners of alumina with operations in 30 countries and a global workforce of around 60,000 people (Alcoa 2013b). In WA, Alcoa employs around 4,000 people and produces around 9 million tons of alumina each year, which accounts for almost 45 % of Australia's alumina and 11 % of total world demand (Alcoa 2013a). The company promotes itself as a leader in the field of corporate social responsibility ranked by Fortune magazine as the most admired metals' company in the world for 29 years in a row (Business Wire 2012) with its commitments to social and environmental responsibility recognised nationally and internationally (Innovest Strategic Value Advisors 2008; Australian Mining 2007). The company has long been refuting claims of adversely impacting on the well-being of Yarloop residents, referring to world's best practice and a strong commitment to the health and safety of its staff and the local communities in which it operates (Alcoa 2008).

## Brief Conflict History

Alcoa began operations on its present site at Wagerup in 1984. While opposed by Perth-based environmental groups at the time, the operation was largely welcomed by local residents due to the prospect of local employment and income amidst a decline in traditional industries in the area. Industry–community relations started to change in the mid-1990s when Alcoa introduced liquor burner technology to its Wagerup refinery, which triggered community complaints about noise, smell and health problems. While Alcoa responded with attempts to fix technical problems surrounding the liquor burner, the company denied any responsibility for adverse health impacts and merely made allowances for impacts in the form of noise and smell. The conflict intensified in the early 2000s when Alcoa introduced a land management plan officially based on noise contours, effectively dividing the town of Yarloop into two different management zones. The plan not only was seen by locals as an in-principle admission to problems at the refinery but also served to split the community as residents within the two land management zones were treated differently. Alcoa created a noise buffer to avoid ongoing complaints from local residents, devising an area closest to the refinery that became known as Zone A. While the company made offers to residents in that area to buy their land and properties, residents outside Zone A initially did not receive buy-out offers. Alcoa subsequently agreed to a formal Zone B, yet buy-out offers were far less generous, leading to further community disquiet and changing the nature of the conflict. It was no longer driven exclusively by fears of impacts but also equity and financial concerns.

The conflict peaked again in 2005 and 2006 when the company sought to expand its Wagerup operation, triggering fears of larger emissions and community impacts. Despite considerable public opposition to the proposal (see Community Alliance for Positive Solutions Inc 2005; Wagerup Medical Practitioners' Forum 2005) the

WA state government approved Alcoa's expansion plan in 2006 (McGowan 2006) and subsequently renewed it in 2012 (Marmion 2012). Despite Alcoa's claims of having resolved the Wagerup conflict and its seeming success in having its expansion plans approved, community agitation continues today. Recent years saw attempts at high-profile class action against Alcoa by local residents with the help of community and environmental activist Erin Brockovich in US and WA courts. Community members also continue to lobby political leaders and government departments to help solve the Wagerup conflict. During that time Alcoa also faced the WA courts because of breaches of its license conditions and alleged negligence. Overall, despite a parliamentary inquiry (Standing Committee on Environment and Public Affairs 2004), numerous scientific studies (e.g. Cullen 2002; Mercer 2001) and a series of government intervention attempts, the conflict persisted and heightened with Alcoa's expansion plans for the Wagerup refinery.

## Local Experiences

The Wagerup controversy is complex and multifaceted and has already received detailed treatment in the literature (Brueckner and Ross 2010). Therefore, this section is restricted to a necessarily selective overview of some of the key issues driving the controversy. A subsequent discussion will then focus on the Yarloop experience through a social sustainability lens and offer pointers for more community and well-being-centred forms of development. In broad terms, the Wagerup controversy was primarily about community, health and financial impacts. At the same time it was also about process and a clash in values.

Well-documented health impacts attributed to the Wagerup refinery were the principal driver of the conflict (e.g. Standing Committee on Environment and Public Affairs 2004; Holmes 2008; Wagerup Medical Practitioners' Forum 2005). Yet, health effects were experienced very differently across the community ranging from flu-like symptoms to more severe ailments such as chronic fatigue and multiple chemical sensitivity (MCS) as recounted by local residents:

Every morning I went out . . . I used to cough until I vomited. It wasn't a good look, and you know my son and I . . . we could just be standing there talking and all of a sudden he'd get a blood nose (Yarloop resident, Zone B).

It started to rain and . . . my hair was falling out and I was getting really bad stomach pains. As I said my feet were just burning. I would get these sore throats and . . . go downhill real fast like chronic fatigue (Yarloop resident, Supplementary Buy-out Zone).

In addition, health impacts were felt unevenly, resulting in some local residents suffering from poor health while their partners, neighbours or friends displayed no symptoms, resulting in disagreements over underlying causes.

It's causing a rift between the famil[ies]. It has caused divorces, more than one or two. It has split family against family (Yarloop resident).

With the onset of what were seen to be largely emission-related problems the community gradually started to disintegrate, with residents losing family and friends, their local histories and connections to place as people began to uproot and relocate primarily out of Zone A.

The families have all broken up. People have split up and gone to different towns, different places due to the threat of pollution from Alcoa and future expansion from it and people have moved on (former Yarloop resident).

The influx of newcomers to the area—attracted by increasingly depressed property prices—served to change the make-up and dynamics of the community. Yarloop was no longer the “little piece of paradise” it was once regarded but instead was now described by residents as “a transition town” that had “no locals”.

You just don't know who's around . . . Now, it's just sad you know, you don't know anyone and there's just nothing here anymore, there's just nothing (Yarloop resident).

At one time everybody here had been here for years. Now you get these transient people who come in and you don't actually get to speak to them or say hello because they're gone the next day (Yarloop resident).

The financial fallout experienced by local residents added venom to the controversy, even though money per se was not on the local agenda when problems in town first emerged. Alcoa's buy-out formula meant that different offers were made to residents in Zones A and B, breeding resentment toward the differential treatment of residents under the Land Management Plan and towards residents who were able to realise high land and property prices.

[Alcoa] split the town. It's like they've drawn a line down the middle . . . They've made everybody argue and fight. So it's not a friendly town anymore. No one's happy (Yarloop resident).

Not only were Alcoa's buy-out offers for properties in Zone B considered anything but generous, the negative publicity surrounding the conflict also caused property prices to decline. For many residents, leaving Yarloop meant taking on considerable cost.

. . . the stigma of Yarloop, it has affected the land value (Yarloop resident).

Even the money for our land may have bought us a house block, but would never have bought a house . . . They only paid us A\$70 000, the value put on two acres of land. You are looking at half a million dollars for your two acres of land, and you get bloody A\$70 000 . . . you are pushed into it and you've got to accept it because your health problems tell you you've got to do it. You can't sit there and fight them . . . You're not going to win anyway (former Yarloop resident).

In brief, locals saw their health affected, and their community dismantled. They regarded the compensation offered as inadequate and as failing to address the fundamentals underlying community agitation. Community members wanted emission problems fixed, their lives unaffected by the refinery and their community left intact. Locals were not anti-corporate, they “[did] not want Alcoa to stop production”; they just wanted them “to be accountable”.

No-one wants to see Alcoa close down (Yarloop resident).

The majority . . . of people I know . . . actually said ‘Fix your problem’ (Yarloop resident).

. . . my husband was nearly crying and just telling them that we don’t want to leave here, fix your problem (former Yarloop resident).

Thus, Alcoa’s Land Management Plan was vehemently opposed in part because of perceived inequities but more importantly residents did not want to sell to Alcoa. Community members wanted Yarloop to flourish and their community to stay vibrant. Residents did not want to leave town even though most did eventually.

There are no willing sellers here; they’re selling because they have to (Yarloop resident).

I don’t want to move; I love this area; we’ve spent 50 years of my family’s work here to build up our family property and farms (Yarloop resident).

The data show that residents sought to protect their community, their connection to place and the lives they had built in the area to which Alcoa was increasingly being seen as a direct threat. Understandably, the proposal for refinery expansion amidst unresolved issues surrounding the facility increased community concern.

I believe if they get the expansion . . . we won’t be able to live next door to a company like that; no, it won’t be safe (Yarloop resident).

Once the expansion goes ahead, there’s going to be even more problems (Yarloop resident).

### ***Community Perceptions of Industry and Government Responses***

When community members first raised concerns about health effects following the commissioning of the liquor burner in 1997, the complaints were noted but a toxicological link to Alcoa’s operation was categorically denied. According to company management Alcoa was “not doing anything wrong” since they “haven’t . . . been able to find anything that would create a conventional health risk”. Company staff felt there “was not an issue” and health problems among residents were largely seen as “psychosomatic”.

. . . from a health perspective and particularly a public health perspective . . . it’s a very fragile thing and if people think that they’re unwell, they will be unwell (Alcoa manager).

The company accepted that it had “a great deal of difficulty in getting the plant to operate effectively”, yet operational problems onsite were not seen to be related to community complaints. It was on that basis that Alcoa intensified efforts to modify

the perception of risk in the community using in-house science, which in hindsight was recognised to have been a problem in terms of community engagement.<sup>2</sup>

. . . we didn't recognise that we had an issue so it became more of a philosophical argument than anything else. I think everybody wanted to do the right thing but the science . . . said there wasn't a problem (Alcoa manager).

Alcoa has recognised that we want to do the right thing but we don't have all the expertise to help with the social aspects because we tend to have people that look at things from a technical point of view, not a social one (Alcoa manager).

From the community's perspective "Alcoa was in denial" and using in-house science to override local experience. In terms of process, Alcoa's attempts at letting "its facts" do the talking were perceived as "arrogant", "dismissive" and "patronising".

They treat the people of Yarloop like the peasants, like they can't think for themselves or be sensible, logical people (Yarloop resident).

They treat all the Yarloop people as idiots (Yarloop resident).

The 'simple' guy on the street isn't as simple as everybody thinks. They might not have a Uni degree and they might not know this and that but they've lived and they've had their parents pass on information and they understand things in a far better way than a lot of people ever think (Yarloop resident).

Alcoa coupled its scientific defence with public relations, employing its vast arsenal of corporate communications to defend its practices and reputation, which even company staff saw as "self-praise".

[Alcoa] was focusing resources on managing the image rather than resolving the problem (Alcoa manager).

When corporate communications started to reassure the public of the company's commitment to investment in the future of the local community, and its determination to be a good neighbour (e.g. Alcoa 2002), residents felt hurt and had a sense of disbelief as references to a thriving future in Yarloop did not match their lived experience.

They do not care about people. They can say . . . 'we'll put a playground up in Yarloop, oh we'll do this for Yarloop, oh we'll do that for Yarloop'. There is no Yarloop. [They say] Yarloop is a booming town. It's not a booming town, it's a dead town; it's a dying town (former Yarloop resident).

Alcoa's land management plan was purportedly conceived as a means of diffusing tensions in town, enabling people "to leave gracefully if they wanted to" and

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<sup>2</sup> In 2002, after denying community impacts for many years, Alcoa accepted full responsibility for the complete and effective resolution of environmental issues at its Wagerup refinery and offered an unreserved apology (Standing Committee on Environment and Public Affairs 2004). However, these steps towards reconciliation were followed immediately by plans to expand the refinery based on claims that past issues had successfully been addressed (Alcoa 2002).

to ensure that “land use around the plant was compatible with refinery operations”. Yet, Alcoa management conceded that “the reality was [that] it only made things worse” for the finalised management plan had unintended consequences: (a) residents did not see leaving as a solution to their problems, and (b) different buy-out offers made to local residents within the different zones served to divide the town.

Alcoa was trying to do the right thing but if you were living there you felt like they’d just made it worse (Alcoa manager).

There may have been an offer to pay 100 per cent of market value for people and in some cases that can be literally one side of the street versus the other and so that hurt people (Alcoa manager).

Despite the apparent setbacks Alcoa seemed determined to move on, investing time and resources in the proposed refinery expansion. However, with local problems unresolved, these growth ambitions did send the wrong message, reinforcing community perceptions of Alcoa just being a “big multi-national company . . . [that is] only here to rape and pillage”. Amongst some Alcoa staff there was a view that more should have been done about conflict resolution prior to plans for expansion.

I think if we could have spent the five years focused on building relationships we would probably have been in better shape rather than reinforcing with everybody that we’re just after money and the community can be damned (Alcoa manager).

We could have backed off. We could have said: ‘well, we’re not going to expand this place until this issue is resolved’ (Alcoa manager).

In the end, however, the leitmotiv of corporate profit seemed to determine the company’s course of action.

I think we went down a path that was ‘we’re going to get our supporters and we’re going to battle this out’ rather than ‘we want to reconcile with the community’ (Alcoa manager).

The drive to expand the plant and increase the capacity, and improve the financial outcomes I think overcame all the rest (Alcoa manager).

The role of government in the Wagerup conflict has been controversial for a variety of reasons. For example, there were community perceptions of regulatory capture, departmental ineptitude and disinterest as well as disillusionment with representative democracy and political processes to name a few (see Brueckner and Ross 2010). Of interest here is the government’s perceived treatment of the community reflecting a political preference for economic over social concerns, which suggests a certain disposability of the inconvenient and powerless. Community members saw the role of government as that of a “watchdog” protecting the “rights of the taxpayer”. They expected the government to step in and act on behalf of affected local residents and make Alcoa accountable for its community impacts.

They’re supposed to be protecting the basic rights of their citizens (Yarloop resident).

It’s got to be safe for people to live in; if they want to mine this place they also have got to make it safe (Yarloop resident).



The lived experience, however, was one where the government and its departments were difficult to engage on matters of health and broader community impacts. Experiences such as these fuelled perceptions that the government was “more concerned about expanding the refinery and getting more jobs and more revenue” protecting the interests of “the corporate body rather than the local community”. The government’s tax revenue dependence on corporate money served as a key explanation for many as to why the government chose to side with industry and not with its people. In their view, the government was blinded by the revenue and thus using a political cost–benefit analysis to determine the economic pros and cons of an expanded refinery with little thought given to social aspects.

I understand the government: ‘we can’t afford to tell Alcoa to piss off . . . it’s revenue’. The country has to run. It’s like here, we’ve got a household, we’ve got to make money to survive and a government is exactly the same but aren’t people’s lives worth anything, or are we only just a handful of people not worth worrying about? (Yarloop resident).

I think mainly because I think there’s a big economic benefit to the state that I think they allowed things to just proceed as normal . . . and I think we were the guinea pigs (Yarloop resident).

The perception that the government appeared to opt for growth over people hardened as the result of a letter sent by the then WA Premier in response to community complaints to the state government (Carpenter 2006):

The government believes the undertakings given to the state by Alcoa are fair and equitable and address the concerns about the refinery operations. Such undertakings by a company are unprecedented in Western Australia’s industrial experience. There are limits, however, to the reasonable response that can be expected, even from a world-scale commercial operation, before the impact becomes a serious disincentive to further investment and is detrimental to the economic and social benefits that the local and State community as a whole will obtain.

Residents thus started to see Yarloop as an ‘industrial sacrifice zone’ (after Lerner 2010) and expressed feelings of “being exploited” and traded by government for the greater interests of the state.

Australians are supposed to be the greatest asset of Australia. The people that live here are supposed to be our greatest asset and yet apparently aluminium is (Yarloop resident).

Yarloop was just a little poor old town with a few hundred people there and Alcoa is this great big mining company and billions of dollars, and money speaks all languages; the government and Alcoa are all sleeping in the same bed, they work together, you haven’t got a hope in hell (former Yarloop resident).

Overall, the demise of Yarloop was seen as the inevitable opportunity cost of progress and its residents reduced to a ‘disposable’ community (after Whitmore and Wilson 2005). Residents realised that their government was not going to protect them, for larger development benefits seemed to override the concerns of a relatively remote and largely invisible community. For residents this form of development did not translate into benefits for all because it came with large social and

environmental price tags for those living too close to the wheels of progress. While most community members accepted the need for some trade-offs in the context of the industrialisation of their region, there was an expectation that these trade-offs would be openly acknowledged and that the community would be protected from undue harm and compensated adequately for any losses incurred.

## On the Social Sustainability of Development

Sustainability is about people being able to live in a place without having difficulty breathing or having a burning sensation in their nose or mouth.

Bradshaw (WA Parliamentary Debates—Hansard 2004)

The case study data highlight obvious tensions between the economic development goals Alcoa and the state pursued and the social and health impacts this development can bring. The Wagerup refinery affected the lives of many local residents in ways other than health and the actions by Alcoa and the government added to the damage caused. According to the Standing Committee on Environment and Public Affairs (2004: 370) “Alcoa failed to adequately recognise and respond to the complaints it received from . . . the local community”. Alcoa as well as government departments and agencies failed to offer a comprehensive response to the range of serious and complex issues developing at the Wagerup refinery, resulting in a breakdown of trust among the company, the local community and government. The absence of conclusive scientific evidence, the company’s expansion interests and the state’s economic stake in the company arguably constrained the way both the company and the regulator engaged with community concern. As a result, Yarloop residents paid a high price with poor health and loss of sense of place, community cohesion and social connection.

In social sustainability terms, the Wagerup conflict draws into question the dictum of growth delivering improvements in social outcomes. While it is true that the minerals boom in recent years delivered net gains in per capita GDP in WA and Australia as a whole (see Chap. 1), these figures mask how these benefits are at times realised with considerable social and environmental costs that largely remain unaccounted for. Also, while the growth enterprise is often justified in terms of the benefits it is meant to deliver, the data presented show that these benefits are at risk of being construed too narrowly. Both Alcoa and the government openly subscribe to the goals of sustainable development, yet pursue a form of development that was found to be odds with local understandings of social sustainability. Alcoa, for example, regularly promotes itself as a key driver of regional sustainability (Osborne 2006):

We want our presence and our future growth to strengthen the communities in which we operate and help them become more vibrant and sustainable . . . We have worked hard . . . to make Alcoa’s presence a catalyst for long-term sustainable development in the regions in which we operate.

Central to the notion of strong and growing communities are promises of income, employment and philanthropic community investments. These are the principal means through which companies seek to contribute to sustainable development, and are widely used to support claims to firms' commitments to corporate social responsibility and corporate citizenship (Korhonen 2002; Blowfield 2005). Yet, the discernible gap between company rhetoric and the lived experience of local residents in Yarloop highlights that community well-being is a broader concept that cannot be limited to questions of income and employment. In addition, the assumed positive relationship between industry growth and regional sustainability ought to be questioned. The expansion of industrial infrastructure may well contribute to the growth in investment, employment and income; the sustainability of adjacent communities, however, ought not to be seen as a matter of course. In fact, as shown in the case of Yarloop, industry expansion can seriously erode community sustainability.

The Wagerup controversy is instructive for it makes explicit the weak and reductionist understanding of development that is reflected in many resource disputes the state has witnessed recently. The conflict at Yarloop is not an isolated incident. Conflicts surrounding proposed developments on the Burrup Peninsula and at James Price Point are examples of the promotion of growth and development justified by industry and government on the basis of employment and income possibilities (e.g. Chap. 4); yet, these promises are made to communities at the expense of heritage and culture, biodiversity, health and community cohesion. In the past, industrial economic development did not often threaten such values for it occurred in remote areas with limited impacts on local communities. With the expansion and intensification of development, points of contact have increased with concomitant scope for conflict between industry and community. The future challenge for WA lies in pursuing development goals that serve economic, social and environmental objectives where trade-offs are minimised. In addition, mechanisms are required if trade-offs are incurred so they are addressed explicitly and negotiated among all development stakeholders.

Calls for new forms of socially sustainable development go beyond lofty social ideals. Even in hard-nosed economic terms mindfulness of ethical and social limits to growth (after Daly 1996) is *sine qua non*. Internationally, increased community resistance towards industry projects is driven by a fear of becoming the social trade-off for growth-based development (e.g. Garavan 2007; Connor et al. 2004). Also, the recent decision by the New South Wales Land and Environment Court on a community appeal against Rio Tinto's coalmine extension in the Hunter valley is a case in point. The project was rejected by Chief Justice Preston (2013) because the proponent's economic analysis failed to demonstrate that economic benefits of the project would outweigh the environmental but also social costs expected to be borne by the residents of the town of Bulga. Recognition that social costs matter has implications for future industry projects in terms of project intent and design. Failure to account for the full suite of social dimensions of development is prone to translate into added cost to development proponents around project delays and higher risk premiums as well as investment uncertainty and increased litigation

potential. Also, in consideration of work undertaken to account for the social cost of growth-based development (e.g. Lawn and Clarke 2006) the importance of articulating a new development agenda inclusive of the social aspects of sustainability beyond the standard economic indicators of employment and income comes into even sharper relief. We are beginning to see that the social matters in both economic and non-economic terms.

As suggested by Bradshaw (WA Parliamentary Debates—Hansard 2004), “sustainability is about people”, highlighting why promises of employment and income alone are insufficient to deliver community acceptance, let alone social sustainability. Sustainability must be understood more broadly so economic activity can deliver real improvements to social health and well-being. WA’s resource endowment provides the state with enormous opportunities for realising lasting value for its citizens from the responsible exploitation of its natural assets. However, as the Wagerup controversy attests, the state’s quest for economic prosperity might deliver material gain for some but also delivers risks undermining community resilience and cohesion on which social sustainability so critically depends. Sustainability demands that equal attention is paid to all three dimensions, reminding us that failures in any one realm are prone to threaten the other realms (King 2009). A more sustainable form of resource-based development in WA therefore not only requires a much needed and yet to materialise environmental sensitivity but also a much stronger focus on the human aspects of development beyond narrow, economic conceptions of the social.

## Concluding Comments

The Yarloop experience was presented here against the backdrop of a larger debate about social sustainability and the costs and benefits of growth-based economic development. The data presented and ensuing discussion showed that the question of resource curse or cure does not arise as a matter of resource endowment or resource development per se. Resources and their economic development are neither inherently good nor bad. Instead, the social impact of development was shown to be related to questions of how and to which end development occurs.

The data point to a seemingly broken nexus between growth-based economic development and community well-being as a result of development for development’s sake. I argued in favour of foregrounding the ‘social’ in fateful decisions about future development in the state and a departure from the narrow quest for growth to ensure that resource-based development can provide lasting economic and non-economic value to all of the intended beneficiaries of development; in this case, all of the Yarloop community.

Such foregrounding will require the ongoing assertion of the rights of communities but also a willingness on the side of industry and government to engage constructively with those who challenge the underlying logic and assumptions of the dominant development narrative. Such an engagement would entail the

acknowledgement of development related trade-offs as well as mechanisms that protect communities from undue harm and adequately compensate individuals for damages suffered. Any steps taken towards a more open dialogue between communities, industry and government would improve the robustness of conflict resolution processes and help a transition towards a more people-orientated development future for WA.

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# Chapter 17

## ‘Not Taking, But Giving’: A Paradox of Cross-Cultural Empowerment

Kim Scott and Angela Durey

**Abstract** This chapter examines the nature of partnerships between mining companies and Aboriginal and Torres Strait Islander communities in regional Western Australia from the perspective of Indigenous health, well-being and culture. Reference will be made to specific examples of such partnerships, and attention drawn to research indicating a correlation between the health and well-being of Indigenous people, and their connection to traditional culture along with ‘self-determination’. The impetus Native Title legislation has given to promoting dialogue, collaboration and negotiation between the mining industry and Indigenous communities will be considered, along with an apparent readiness by the mining industry to be more supportive generally of Indigenous culture and its place in mainstream Australia. The chapter will focus particularly on the participation of Indigenous individuals in the mining workforce and related business opportunities, the role and potential of cultural awareness training supplied by Indigenous communities to the mining industry and suggestions as to future directions.

### Introduction

In Australia, the Aboriginal and Torres Strait Islander<sup>1</sup> and mining sectors are at a crossroads where there is an opportunity to create a narrative together that runs counter to the negative stereotypes of Indigenous communities represented in

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<sup>1</sup> The words ‘Aboriginal and Torres Strait Islander’, ‘Indigenous’ and ‘Aboriginal’ will be used interchangeably in this chapter.

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popular culture. This narrative allows for Indigenous workers in the mining industry to participate in its economy without moving necessarily away from their cultural heritage. That cultural heritage will instead provide the means to strengthen relationships, offer the opportunity for the wider community to share in an Indigenous sense of place, improve Indigenous health and well-being and acknowledge and heal the wounds of history.

We begin the chapter by examining the political and economic context of the mining boom in Western Australia (WA) and how it relates to Aboriginal and Torres Strait Islander people. We discuss recruitment, training and retention of Indigenous workers and how work expectations of the mining industry intersect with cultural obligations of the local Aboriginal community, and pose questions such as: to what extent is there a power imbalance attributed to the values of each culture, and is this assimilation in another guise? We also consider possible tensions when Indigenous workers are employed from around Australia in preference to those from local Indigenous communities, thereby diminishing local career opportunities, and undermining local community well-being and capacity building. We also explore alternatives to a fly-in/fly-out (FIFO) workforce, and ways of building a community that is inclusive of both the Indigenous and mining sectors.

The chapter also examines the nature of partnerships between mining companies and Aboriginal communities in regional WA from the perspective of Aboriginal health, well-being and culture. Reference is made to specific examples of such partnerships, and attention drawn to research indicating a correlation between the health and well-being of Aboriginal and Torres Strait Islander people, and their connection to traditional culture along with self-determination. We consider the impetus Native Title legislation has given to promoting dialogue, collaboration and negotiation between the mining industry and Indigenous communities, along with an apparent readiness by the mining industry to be more supportive generally of Indigenous culture and its place in mainstream Australia.<sup>2</sup>

We also consider the role of cultural awareness training, which can provide the chance for the mining community to learn about local Aboriginal culture, shared history and land and also to develop ongoing good relations with local Aboriginal people. Cultural training can be a capacity building exercise for the local Aboriginal community and a source of empowerment that increases a sense of cultural capital; research indicates a correlation between the health of Indigenous people and the extent of their connection to traditional culture (Chandler and Lalonde 2008).

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<sup>2</sup> We note that currently BHP Billiton sponsors the Reconciliation Australia website, Woodside has been a major sponsor of the Indigenous component of the Perth International Arts Festival and Fortescue Metals actively promotes increasing the Indigenous workforce in the mining industry.

## Background

Australia's economic credentials shine like a beacon in the gloom of global fiscal uncertainty. While Australia has aimed for a budget surplus, European governments need billion dollar bailouts, and in the USA the collapse of the hedge fund and housing market mean that recession and high unemployment have featured on both sides of the Atlantic. Australia and its resource industry, by contrast—and mining in particular—could forgivably be seen as the envy of the developed world. The “commonsense of the times” (Peck and Tickell 2002: 381) in Australia means that neoliberal policies and practices promoting the virtues of free trade, competition, high profit margins, flexible labour and individualism have become ubiquitous in contemporary political and economic discourse. Chasing and maximising profit means billions of dollars continue to be generated by the mining industry (Altman 2009a) despite the recent downturn.

Successive Australian governments have considered the pursuit of economic efficiency, growth and development a more secure route to social well-being than political regulation or intervention (Black et al. 2000). However, reduced access to services, higher costs in some rural locations, and worse health outcomes for rural and Indigenous Australians (Phillips 2005; Pink and Allbon 2008) tell a different story. Despite the wealth generated by the ‘resource boom’, Aboriginal and Torres Strait Islander Australians remain significantly disadvantaged in terms of health, well-being and employment in comparison to other Australians (Vos et al. 2009; see also Chap. 5).

The mining sector is often touted as the means by which to engage Indigenous Australians living in remote areas in the free market economy and thus solve the problems of poverty and welfare dependence (Altman 2009a). Yet Dockery (Chap. 5) presents evidence that Indigenous people have reaped little from the economic benefits of the mining boom in relation to employment participation rates, which were less in 2011 than in 1991. Such evidence calls for a critical examination of work practices in mining companies that are inflexible and fail to support Indigenous employees’ sociocultural obligations (Pearson and Chatterjee 2010). According to Pearson and Chatterjee (2010: 307–308), international mining companies have been singularly unsuccessful in ‘transmit[ting] industrial work-related culture’ to the Indigenous population, despite the ‘sound business pragmatism’ of engaging an Indigenous workforce in the resource sector.

This raises the question of whether or not Aboriginal and Torres Strait Islander beliefs and attitudes are incommensurable with a neoliberalist socio-economic order, particularly in the context of exploration and mining (O’Faircheallaigh 2008). Clearly, Indigenous landowners see the land and the landscape as culturally significant and want to maintain its environmental integrity, whereas the goal of mining companies is to exploit the land’s non-renewable resources for commercial gain (Altman 2009b). Nevertheless, while Indigenous leaders want to protect their cultural heritage, they also want to improve the material well-being of their families and communities and participate in the benefits of commercial development on

their traditional lands (O’Faircheallaigh 2008). Yet historical disadvantage has largely prevented their economic and political engagement with mineral development processes in Australia (Howlett 2010).

However, since the 1970s growing recognition of Indigenous land rights eventually led to Aboriginal and Torres Strait Islander Australians being able to negotiate with mining companies on the economic development of their land (Wilkes 2006). In 1993 the Native Title Act (NTA) followed the Mabo decision of 1992 in which the Australian High Court ruled that Indigenous common law rights in land (Native Title) had survived Australia’s colonisation by the British in 1788. Indigenous landowners could potentially achieve recognition of their Native Title, and have the ‘Right to Negotiate’ future grants of exploration or mining interests (O’Faircheallaigh 2008). Despite the limited power this actually gave Indigenous groups, agreements with mining companies often went beyond protecting cultural heritage to also include Indigenous involvement in environmental management of mining projects, acknowledge their interests in land, make monetary payments to Indigenous landowners, and develop initiatives to promote Indigenous employment (O’Faircheallaigh 2008).

From 1996 to 2007 the Howard government promoted a neoliberalist discourse and framed the resource boom as an opportunity for Indigenous Australians to engage in resource development projects on their traditional lands. The government recast Indigenous Australians as economically self-reliant individuals on a nominally ‘level playing field’ with other individuals in mainstream Australia (Howlett et al. 2011: 316). In reality, the playing field was anything but level in terms of negotiating power and the distribution of mining wealth to Aboriginal and Torres Strait Islander Australians in remote areas (O’Faircheallaigh 2004, 2006). After the Howard Government passed the Native Title Amendment Act in 1998 (NTAA) the agency and bargaining position of Indigenous Australians in mineral negotiations was effectively reduced (Howlett 2010). O’Faircheallaigh (2006) suggests that Indigenous people faced serious challenges in terms of financial, organisational and technical resources to equitably negotiate large-scale resource development with the companies and state agencies that promote them. Their minority status and limited political power compounded the problem as Indigenous views about development were relegated to a subordinate discourse that has great difficulty being heard (Altman 2009b). In most jurisdictions governments can now allow mining to proceed even when there is no agreement with Indigenous communities, where the main recourse for Indigenous Australians is to rely on legislation ‘whose efficacy for protecting their cultural heritage is highly questionable’ (O’Faircheallaigh 2008: 36).

Pearson and Chatterjee (2010) contend that changes are needed when multinational mining companies seek to develop an innovative management education system to work collaboratively and effectively with Indigenous communities. In fact, current moves towards community engagement with Indigenous Australians to become stakeholders in the mineral development process are gaining traction (Parsons 2008). Rio Tinto has established relationships with Indigenous communities over many years apparently based on trust and mutual understanding, and made

agreements with traditional owners that emphasise inter-generational wealth and improved social outcomes (Gawler 2009). However, Parsons (2008) argues that, while these concepts imply a more inclusive discourse that supersedes past colonial oppression and seemingly challenges neoliberal ideology, they are contestable. Indeed, Indigenous Australians' perception of their land as a cultural, not just commercial, asset (Altman 2009b) is not easily reconcilable with a market-based, capitalist, neoliberal ethic (Howlett et al. 2011).

## **Indigenous Employment in the Mining Sector**

Mining companies have initiated programs that arrange apprenticeships, traineeships and employment programs in an effort to make residents of Aboriginal and Torres Strait Islander communities 'work ready' (Howlett et al. 2011: 319). The historical underinvestment by governments in social and physical infrastructure, including education, and a long history of disadvantage and disempowerment of Indigenous Australians means that mining companies who recruit Indigenous people need to develop retention strategies with workplace agreements that take into consideration the particular circumstances of Aboriginal and Torres Strait Islander employees (Pearson and Chatterjee 2010). Those 'particular circumstances' are a combination of both the legacy of severe historical oppression and a heritage as descendants of those who first created human society in their part of the oldest continent on Earth (Diamond 1997: 321). That latter is, potentially at least, particularly virile cultural capital; it appears to be difficult for mining companies to integrate both these components into effective working relationships. This may help explain why Indigenous views about development are, as we have mentioned, often relegated to a 'subordinate discourse'. However, that cultural capital provides the currency not only for successful negotiation in terms of Native Title but also, we argue, the potential foundation upon which a strong sense of community can be built.

Much of the literature cited above has focused on a top-down approach to Aboriginal and Torres Strait Islander employment where the requirements for Indigenous Australians to work effectively in the mining industry are foregrounded and critiqued. The rest of the chapter will offer, by way of a perhaps anomalous instance, an alternative perspective in which the 'cultural capital' referred to above becomes a potential factor in building a sense of community founded upon something other than commercial imperatives. It will focus on the wide benefits of the mining industry facilitating and strengthening relationships with Indigenous communities and offers an example from southern WA of mining companies and Aboriginal communities engaging in ways that are mutually beneficial. It will address the participation of Indigenous individuals in the mining workforce and related business opportunities, the role and potential of cultural awareness training supplied by Indigenous communities, and offer suggestions for future directions. In particular, the discussion which follows tentatively suggests a solution to the

question posed earlier: how can the mining sector's contribution to regional development and engagement with Indigenous Australians improve the material well-being of Aboriginal and Torres Strait Islander families and communities, at the same time as helping to protect and enhance their Indigenous heritage?

## **An Alternative Narrative**

Much of the following discussion draws upon the experience of one of the authors as a minor member of the team appointed by the South West Aboriginal Land and Sea Council (SWALSC) to conduct negotiations with BHP Billiton Ravensthorpe Nickel Operation (BHP RNO) within the parameters of Native Title legislation. An agreement between SWALSC and BHP RNO was signed, and some time afterwards BHP 'retired' the mine because of plummeting commodity prices and rising extraction costs. The mine was subsequently sold to another company, along with the agreement.

BHP RNO did not withdraw from Ravensthorpe because of dissatisfaction with the agreement. Indeed, there was nothing outstanding or unusual about the agreement. It is not our place to give specific details but, as with many recent agreements between mining companies and Indigenous people, the Ravensthorpe Mine agreement specified that Indigenous people would constitute an agreed percentage of the workforce. Scholarships, training agreements and potential career paths were also included in the agreement. It was further agreed that a certain percentage of contracting businesses be Aboriginal owned/controlled, and that the local Aboriginal community would get early notification of business opportunities and assistance with business incubation and development. A committee representing both the company and the Aboriginal community would monitor the arrangement. The 'Ravensthorpe agreement' also required all employees to participate in cultural awareness training (CAT).

It may be argued that in many instances Native Title negotiations mean that heritage and culture, in effect, are traded for increased participation in the mining industry and its economy as a means of addressing social disadvantage. Further, although "participation in the modern economy is essential to strong Indigenous communities, and . . . Indigenous people are riding the resource boom to the middle classes" (Langton 2012), if this simply means Indigenous people move away from their culture and heritage in order to become 'job-ready' and participate in the economic world, how does it differ from the widely condemned assimilation policies that characterise our earlier shared history?

While we agree that Native Title legislation has strengthened the position of Indigenous Australians in negotiations with mining companies and necessitated that mining companies win a 'social license to operate' (Langton 2012) we would argue that such a 'license' should not only mean facilitating access to employment and economic opportunity, but also supporting the control and consolidation of pre-colonial heritages in home communities. These twin objectives are not

necessarily mutually exclusive. As already mentioned, pre-colonial heritages provide the currency for Native Title agreements. This cultural capital also needs investment and maintenance. It has much to offer in terms of regional identity and community, and thus can potentially enrich the wider-than-Aboriginal community and transform relationships between Indigenous and non-Indigenous people. CAT can play a key role in this, and thus be more than merely a means to facilitate Indigenous people joining the workforce and operating effectively within it. An emerging instance of this will be taken up later in this chapter, but first we will discuss some issues of 'community development' and 'Aboriginality'.

## Building Local Community Capacity

Much was made of BHP RNO's attempts to utilise a resident, rather than a FIFO workforce. FIFO, it was argued, with its minimal investment in local infrastructure and skills' expansion in the resident community, and a 'shadow' population relying on essential services but not paying rates, contributes to a 'hollowing out' of local communities (House of Representatives Standing Committee on Regional Australia 2013).

As the opening of the mine approached, a senior mine employee said "We have learnt that physical infrastructure is one aspect and the delivery of social infrastructure and community amenity is equally important" (DOIR 2008: 2). These comments were echoed by the WA Premier, Alan Carpenter, who claimed that the project was "as much about the development of regional Western Australia communities as it is about the state's buoyant resources' industry" (DOIR 2008: 2).

What might it mean to develop community and 'social infrastructure'? Although the mining industry is clearly about the extraction of resources motivated by capitalism, and thus perhaps has an ethos not necessarily conducive to building and sustaining a community with a sense of place and regional identity beyond that focus, the industry has in recent years expanded its rhetoric and concerns (O'Neill 2012). BHP RNO, in partnership with federal and state governments, built houses and infrastructure, sponsored activities and groups associated with environmental conservation and local history, and invested in planning the rehabilitation of the site, including storing top soil and documenting the original topography. Further, the mine had an Indigenous Participation Strategy that was seen as a vital component in delivering "lasting social and economic development for Indigenous communities in the Goldfields and south-east of Western Australia" (O'Neill 2012: 3).

There was much discussion in SWALSC/BHP RNO negotiations about this Indigenous Participation Strategy.<sup>3</sup> At least some members were keen to prioritise, firstly, Noongar members of the Native Title claim area (Wagyl Kaip/Southern

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<sup>3</sup> See Native Title Overview Fact Sheet for information on the SWALSC/WA state government settlement on <http://www.noongar.org.au/publications-newsletters.php#facts>.

Noongar), then other Noongar people, then Indigenous people from other areas of Australia. Such distinctions can be awkward in negotiated agreements. A pan-Aboriginal concept can be more appealing, if for no other reason than its convenience for processing prospective employees and its compatibility with existing affirmative action legislation, such as the *Equal Opportunity Act 1984* (WA) (Department of Premier and Cabinet 1996). This Act provides the opportunity for employers to identify specific positions in which only people of a particular race can be employed. The relevant section of this Act, 50D (64), makes no allowance for diverse and regional cultural specificity and instead works only from the premise of pan-Aboriginal disadvantage and thus, arguably, provides a model with which mining companies have become familiar and comfortable.

Prior to negotiations with SWALSC, BHP RNO had focussed on relationships with a contemporary Aboriginal community living in the area (particularly Esperance and, to a lesser extent, Albany) which included people with ancestral links elsewhere. Such an approach, and an attention to ‘pan-Aboriginality’ may help provide for alleviation of general Indigenous social disadvantage but, because of its disregard for regional Aboriginal culture, also supports the argument that these processes are all ‘one-way’ and therefore, akin to assimilation. By way of contrast, it is the very regionality of Aboriginal culture, identity and heritage that makes it able to potentially contribute a unique and powerful sense of place and human history to a contemporary community developing in its area. However, as is the case with the Ravensthorpe area, regionality can bring its own problems.

Although within a strong and recognised Native Title claim area the sub-region around Ravensthorpe nevertheless has an infamous reputation as the centre of a mass killing of many Noongar people in the late nineteenth-century, and as a ‘taboo’ area for many Aboriginal people (Brown and Scott 2005; Eades and Roberts 1984; Forrest and Crowe 1996). This would at first appear to put it in a tenuous position in terms of being able to offer, as part of cultural awareness training, a sense of an Indigenous heritage and presence.

Such a reputation and history also makes the town and region a challenging instance in terms of community development in anything other than, at best, merely an economic sense. Is it possible in such a context to build a sense of community grounded in a sense of long history and of place? We believe so.

## Cultural Awareness Training

In 2006–2007, one of the authors was intermittently involved in the onsite delivery of CAT at BHP RNO as part of a team of two. The co-presenter on those occasions was another Aboriginal man who—despite strong ancestral links to the region—had never previously visited the town’s environs, and was apprehensive about spending time in the location because of its reputation. Yet delivering the workshops gave him the opportunity to reconcile himself to the place and its history, and gain not only employment but also the satisfaction of sharing his ancestral heritage

and reshaping perspectives of its colonial history with CAT participants. This is a relatively minor, and somewhat anomalous, example supporting the thesis of those who argue that connection to ancestral heritage is a significant factor in the health and well-being of Aboriginal people (see Chandler and Lalonde 2008) and is something we will return to near the conclusion of our discussion.

The CAT in question involved the usual investigation of cultural similarity and difference, communication and some relatively generic historical explanation of contemporary Indigenous disadvantage. However, any insights we offer come from responses to sessions, which involved the local context, and two issues in particular. The first concerned the historical massacre; the second the existence of a fenced area of bush within the mine site to which access was generally banned.

Regarding the first issue, participants would usually comment along the likes of: "But there's no blackfellas living around here"; "None of them want to be here" or "They were all killed". It was not necessarily said with malice, and was often accompanied by genuine curiosity. Participants included members of some of the old families, and those who may even have lived and worked on the farm most closely associated with the infamy.

The first issue led to a more complex conceptualising of the shared history of the region than the idea that the historical massacre had effectively resolved competing claims to the area. This is not the occasion to reproduce the materials of that discussion, but contextualising information included examples of traditional territory and language groups, and Aboriginal accommodation of non-Aboriginal visitors within their own world view. Further, examples of Aboriginal and non-Aboriginal interaction and relationships other than that characterising the parties involved in the massacre, names of Aboriginal people documented both as being in the altercation apparently leading to the 'massacre' and working in the region in later years, and policy and legislation discriminating against Aboriginal people for much of the following 100 years before relaxing in relatively recent times were also ingredients in the conversation. Thus the taboo idea was accepted as a partial truth, which was to some extent maintained because of the lack of opportunity for Aboriginal people to appropriately return to the area and come to terms with its history. The example of the CAT co-facilitator and his return was relevant and instructive. There was no denying, however, that the region had a history and reputation of being hostile to Aboriginal people.

The second issue centred on a small, fenced bush area within the mine site itself. Word had apparently got around that it was locked up on Aboriginal authority. "How come we're not all allowed in there?" participants would often ask. The area in question was a small waterhole and old camping site that had been identified as a site of significance in discussions between SWALSC and BHP Billiton and around which security fencing had been erected even though it was within the mine site.

We propose to consider that waterhole as part of our explanation of the tangential benefits of cultural awareness training and of investing in regional Aboriginal heritages. At this point our discussion becomes more anecdotal, and unorthodox within a chapter of this nature, relying as it does on observations and reflection upon CAT activity rather than research intended as such. Nevertheless, we believe it



offers a glimpse at an opportunity for profound reconciliation, along with implications for how Aboriginal people with a deep regional heritage might be involved—both economically and in a ‘two-way’ manner—as integral to the building of a sense of community which is respectful of, and in many ways centred upon, that heritage.

Given Ravensthorpe’s history and its infamous taboo reputation, it is quite remarkable that Noongar people had retained knowledge of the fenced waterhole site. The land around the waterhole was privately farmed from probably the late nineteenth century until the mine purchased it in the 1990s whereupon, entering into negotiations with traditional owners because of Native Title legislation, the new owners were informed of the waterhole. We think it a tribute to the strength of Noongar oral history that knowledge of the site had been retained.

In response to participants’ questions and, particularly, the two issues raised above, the cultural awareness sessions developed from relatively generic, though south-west (Noongar) flavoured pan-Aboriginal content, to something far more local in terms of attention to history, place and people. Participants visited rock waterholes in close vicinity to the mine, including a well-known one beyond the north-east corner of the mine’s outer perimeter. In appearance this seemed a neglected site: tourist buses passing through Ravensthorpe regularly stopped to display it to their passengers, and the litter of their presence was often in evidence. Workshop participants heard how such waterholes were maintained in earlier times, how judicious use of fire enlarged them, and of the language and phrases that Noongars might use approaching it. A camping site nearby and some plant nutrition sources were also pointed out. They were also shown what seemed to be a quirky co-incidence: ‘pointer’ rocks in the earth apparently indicating the direction of the mine.

Then participants were bussed to an ochre quarry just beyond the diagonally opposite boundary of the mine. A great depth of artefact scatters surround this site, and participants walked across dried red, white and yellow ochre to human-scaled workfaces into which they could reach and withdraw soft, moist ochre with a cosmetic-like consistency.

On returning from this brief bus-trip, participants then entered the earlier-mentioned fenced-off area in the middle of the site and stood around the small rock waterhole within its boundary.

An answer to participants’ earlier questions about it being fenced was offered via a variation of a story belonging to a waterhole in the vicinity of the nearby national park. What follows is a published version of that particular story:

It’s concealed, see. From the cliff, you can’t tell. And underneath, down the bottom, there’s a big *ngamar* hole right around like that boy, and it’s about, must be over six feet deep and the water’s just blue. And it’s fresh as a daisy . . .

Graeme sat down on the rock.

‘You know, years ago this was where they used to camp, when they travelling, when they run away from the police. This is where they used to always stay,’ I said.

‘And you see that red rock over on the other side, over there? That red rock?’

Graeme nodded his head.

'Years ago,' I said, 'little *woodatji*, like a little tiny bloke, he was here. Well, they used to live in the hills. One day they all had a big fight, so the story goes, and the family went away and left behind one little bloke. He was by himself, see? He come here looking for his family.'

'When he come along, he had an idea there was water here, and he sat down on this rock, and he was looking across to the cave over there. He could see people walking around over there, and they were his own people too.'

'He was sitting here,' I said. 'Right here. This is the rock he was sitting on.'

And Graeme said, 'How you know he was sitting on this rock?'

'Well,' I said, 'he left his footmarks for you to see.'

I broke the bushes like that, and I swept the sand away from the rock, and you could see it, two little footprints. Each little foot about that long—about five inches long—and the big toe sticking out, and the five little toes, and the foots, the heel mark and all.

I said, 'That's where he was sitting, watching all the others and that.'

Graeme said, 'Just fancy that,' and he took the photo of it.

'He sat down and he watched them', I said 'with his arms folded, watching, see if they're gunna come and look at him, see. And this woman, she'd been following him behind, Noongar woman.'

'That woman sneaked up behind him, and she stood on her left leg, with her right leg up. And her left foot went right in the muddy ground, and she hit him on the head with a stick, with her *wana*. He was in the wrong place, see. This wasn't his place'.

And Graeme and Audrey, they said, 'Well, how you know? Where's the woman's track?'

I said, 'You're standing on it.'

I cleaned more sand away, and showed them the woman's footprint, in the rock. Proper imprint you know. Proper imprint. You could see how she stood on one leg, how the foot went down as she swung to hit him.

Then I covered it all up with sand, and I said, 'Don't you two show just anybody this place. You're not supposed to, you know.'

We always cover it all up with sand, because if you leave it everybody will see it, and everybody will want to go and see it, see. They'll make a sort of museum thing of it. (Brown and Scott 2005: 253–255)

Although read from marks in stone, this story is usually interpreted as a form of 'protocol' text about the need to be introduced to country by, and to develop personal relationships with, its First People.

Participants were reminded of the rock-pointers at the first waterhole, which were not pointing to the mine as such, but along a pathway with which our little bus trip had intersected at two other points: the ochre quarry, this waterhole. Thus, in what would seem the most hostile of historical circumstances and via dispersed Noongar networks and memory, we had traced an ancient pathway through the very heart of the mine site and reopened the deep human history of the place.

## Suggestions for Future Directions

This process, enabled by Native Title, required the interest of new arrivals to the region and resulted (at least potentially, although the workshops provided good reason to be optimistic of success) in the formation of new alliances and

relationships—a sense of community—around revitalising and sharing the region’s Noongar heritage, including its ‘shared history.’ That the above protocol story could also be told in Noongar language—an ancient tongue accompanying a story text, as it were—emphasises the significance of the cultural frame.

The workshop participants’ palpable interest, standing at that waterhole, initiated any insights this paper has to offer.

Since the above time there has been related, small-scale cultural heritage activity occurring in the area of which the Ravensthorpe region is part: groups of Noongar people have visited the homestead associated with the historical massacre and Noongar sites of significance on that and neighbouring private properties; a Ravensthorpe ‘pioneering’ family has presented artefacts collected on their property to a Noongar group; community workshops have shared local creation stories in Noongar language; there have been ‘cultural’ school tours, community performances, art exhibitions and publications. These are all community-based investments and relationship building centred upon restoring the Noongar presence and history to the area in ways which are also inclusive of and in fact ‘co-opt’ new arrivals to the region. Our argument is that all these activities are of a kind with the component of CAT outlined in this paper, and warrant further investment for these reasons:

1. research indicates there is a strong correlation between Aboriginal groups’ sense of connection to their heritage—particularly ancestral language and land—and better health and social indicators (Chandler and Lalonde 2008; Dockery 2012; Kickett 2011; see also Chap. 5);
2. sharing their heritage moves Aboriginal people from the periphery to the centre of society, thus transforming social relationships and thereby fostering Reconciliation and wider social healing;
3. regional Aboriginal cultures have much to contribute to the identity and sense of place of young, transplanted communities<sup>4</sup>; and
4. it provides a sustainable source of employment for Aboriginal people, at the same time as being respectful of culture and identity.

The paradox of ‘empowerment through giving’ creates a very different narrative from that which characterises Aboriginal people as welfare recipients needing constant assistance to Close the Gap.<sup>5</sup>

The example of new relationships between mining companies and Indigenous communities provided in this paper is a tentative and perhaps ephemeral one. However, we believe that it demonstrates the potential for the provision of cultural awareness training to do more than merely facilitate the entry of Aboriginal people into the mining workforce; it also has the potential to bring their culture and

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<sup>4</sup>If we are to judge by the ubiquity of Aboriginal imagery in material promoting Australia internationally, this equally applies to national identity.

<sup>5</sup>Close the Gap is an Australian government initiative to improve the lives, health and well-being of Aboriginal and Torres Strait Islander Australians.

heritage into the workforce rather than trade it in exchange for participation. Further, investment in regional Aboriginal cultures and heritages can immeasurably strengthen a sense of a shared regional, Indigenous heritage *and* build social relationships and a sense of community.

Thus, what we have provocatively called this 'paradox of empowerment through giving' provides an opportunity for something rarely recorded in 'settler colonies' still tied to their founding empire, especially where no treaty or similar arrangement exists: a shimmering nation state anchored to its continent by deep, indigenous roots.

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## Part VII

# Resource Curse or Cure? Analysis and Future Directions

The ‘resource curse or cure’ binary provided the platform for the discussions presented in this volume with each contribution intended to speak to, and advance our understanding of, the theme. The cases and arguments presented offer no neutral account of the costs and benefits of resource-based development in WA. Indeed, any conclusions drawn from the work presented here will always need to be read in the context of their disciplinary and ideological roots. Notwithstanding, caveats aside, the exploration of issues surrounding resource development in WA highlighted (a) the relevance of the ‘resource curse or cure’ theme and (b) made plain that definitive answers to this question are difficult to arrive at.

It is beyond doubt that WA’s economic success is a function of its resources sector ability to thrive. Yet, various contributions to this volume have laid bare some of the cost at which this success was realised and raised questions about their acceptability and long-term sustainability. This section seeks to bring together these individual findings for the purpose of arriving at a holistic appraisal of the drivers and consequences of resource development. This is a also space for the contemplation of development alternatives and potentials as part of a broader discussion about the goals and desirability of WA’s development future.

# Chapter 18

## Curse or Cure? Revisiting State, Capital and Resources

Martin Brueckner, Angela Durey, Robyn Mayes, and Christof Pforr

**Abstract** WA's experience, as portrayed in this volume, not only highlights the changeable nature of the mining industry, the volatility of global commodity markets and the impact of global capital on people and place, it also draws into question the promise of lasting value derived from resource development as currently practiced. It is in this context that Chapter 18 revisits WA's resource boom and assesses the sustainability of resource-led development in the state, to arrive at an answer to the question of 'curse or cure?'. Opening up the discourse beyond the dominant developmentalist narrative invites discussion on new perspectives of economic sustainability that include well-being, equity and the protection of people, culture and place.

### When the Boom Is Over . . .

This book was conceived at a time when WA was experiencing its largest resource boom in history. The writing of this chapter coincides with the end of the global commodity supercycle (Konold 2013) and of WA's mining investment boom (Australian Bureau of Statistics 2013). Whilst considered 'too big to bust' (Gittins

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2013) as the boom is believed to be ongoing and the economy to be undergoing a transition only from an investment phase to a production phase (KPMG 2013), the state experienced a marked change in economic pace and attendant side effects (Financial Review Sunday 2013).

Following the peak of investment in mining in 2012, the slow-down immediately occasioned job losses, attacks on wages and a state government budget in deficit, which triggered wide-ranging spending cuts. To illustrate, by mid-2013, the slowing of the mining sector had resulted in the loss of over 5,000 jobs across almost all commodities mined in WA, especially in the areas of gold and iron ore, with more losses expected to follow (Sas 2013). While employment growth is expected in connection with the state's large energy projects coming on stream over the next few years, the production phase in mining overall is generally believed to be less labour intensive when compared to the investment and construction phase in the sector (Manalo and Orsmond 2013).

Since mid-2012, industry interests have also become increasingly vocal about the cost of doing business in Australia, framing wages growth, among other things, as a threat to Australia's future competitiveness and productivity (Rinehart 2012; Hepworth 2012). Yet, industry calls for wage restraint and its opposition to increases in the minimum wage occurred in the face of record profit results across the mining sector since 2005 and a relative decline in the wages share in mining (Australian Bureau of Statistics 2012; PricewaterhouseCoopers 2012).

Finally, after years of being at the epicentre of the country's resource boom, WA now faces a budget deficit of around \$187 million for the 2013–2014 financial year owing to a softening in mining royalties. WA also recently lost its AAA credit rating with Standard & Poor's credit rating agency as a result of what economic analysts regard as a failure to curb government spending (Daley 2013) and which they also see as resembling the resource curse (Sloan 2013). The Barnett government responded with wage freezes across the public sector as well as unpopular cuts to funding—*inter alia*—for education as well as community and environmental advocacy groups (Clarke 2013; Lopez 2013).

While it was always certain that mining in the state would eventually slow, it strikes as a travesty that at the end of the largest resource boom in WA's history, the state seems to have little to show for it. As pre-warned by Cleary (2011), WA and the nation as a whole needed to ensure that following the peak of investment in mining more is left than just a big hole—both physically and economically. Much was made of the mining boom and the benefits it was expected to deliver to the people of WA, who were entitled to expect the government to provide decent health, education and social welfare in exchange for the sale of the state's natural assets. Instead, the immediate aftermath of the boom is centred on cuts to services and employment.

WA's experience, as portrayed in this volume, not only highlights the changeable nature of the mining industry, the volatility of global commodity markets and the impact of global capital on people and place, it also draws into question the promise of lasting value derived from resource development as currently practiced. It is in this context that the ensuing analysis will revisit WA's resource boom and



assess the sustainability of resource-led development in the state, and to arrive at an answer to the question of ‘curse or cure?’.

## The Sustainability of Resource Development in WA

The chapters in this volume emphasise the need to extend and/or challenge the developmentalist narrative. They foreground the complexity of this narrative, offer critical responses to the resource curse or cure binary and allow judgements to be made about the quality/sustainability of development. We recognise that any judgement about the sustainability of development is necessarily a matter of perspective and as such cannot be categorical. Interpretations of sustainability diverge in their treatment of the social, economic and environmental dimensions, in their views on futurity and equity and their assumptions about risk. Common to all, however, is a long-term perspective and a general understanding that sustainable forms of development ought to contribute to the ongoing well-being of people and the integrity of place. In what follows, we take stock of the costs and benefits of resource development in WA in an attempt to gauge its ability to contribute to long-term sustainability, drawing on a variety of different sustainability lenses as do individual contributions in this volume.

Concerns about sustainability in connection with mining in WA are not new. In the early 1980s, Harman and Head (1982) pointed to a growing debate about the costs and benefits of resource-led development and in this regard raised a series of sustainability issues, which engage with the ‘curse’ side of the resource debate with respect to the proliferation of mining operations in the country’s north. Amongst others, and relevant to the works presented in this volume, were concerns about the:

- income distribution effects of mining;
- validity of trickle-down assumptions, which took as a given the diffusion of the material wealth generated by resource development;
- state government’s pro-growth ideology;
- growing public hostility to development for development’s sake;
- treatment of Aboriginal rights and environmental values; and
- lack of a holistic treatment of issues surrounding development and the impacts of the resource sector on the state and its people.

At the core of these concerns lies the unproblematic portrayal of resource development per se, which rests on the steadfast belief in the generalised benefits of economic growth and the community interests it is believed to serve. Yet, these suppositions are contested, especially in the context of the most recent resource boom, as shown in the contributions to this volume and the wider national debate on resource development (Bloxham 2011; Denniss 2007; Goodman and Worth 2008; Cleary 2011, 2012). In addition, the dominance of a single economic development narrative was shown in this volume to have had a normalising effect, disallowing the coexistence of alternative perspectives on the premise that there is only one

development future for the state and its people. These and related issues are explored and expanded on below.

Chapter 1 made plain that resource development in WA has enabled the state to become the nation's engine of economic growth in recent years, helping produce national growth figures that are currently unmatched by most other OECD countries (Organisation for Economic Cooperation and Development 2013). According to the 2010 UNDP Human Development Report (2010) Australia is rated the country with the highest standard of living in the world on the basis of per capita GDP as well as other human development indicators including income distribution, longevity, infant and maternal mortality rates, education, crime rates and natural disasters. In this sense, resource development—as argued by Hajkowicz et al. (2011)—can be seen to have contributed positively in socio-economic terms to the state and the nation as a whole in the face of suggestions of Dutch Disease experienced in Australia (Banks 2011). However, Chap. 1 also showed that the distributional effects of the mining boom in WA have meant that the financial benefits were restricted to people within the resource sector.<sup>1</sup> Dockery (see Chap. 5) also revealed that the promise of Indigenous employment in mining has gone largely unfulfilled with national census data showing that Indigenous employment growth in WA—contrary to resource industry claims (Hooke 2013)—was largely a function of labour relocation as opposed to genuine Indigenous job creation. In this sense, the state's most recent mineral boom neither translated into the material diffusion hoped to accompany it nor helped improve Indigenous disadvantage since Indigenous communities leveraged minimal benefits from mining in terms of employment opportunity. In addition, the resource sector—as argued by Hughes (see Chap. 9) and as seen in the broader national debate—is seen to operate in competition with or at the expense of other industries and sectors, with some analyses suggesting that job growth in mining failed to offset job losses in other sectors owing to the mining boom (Denniss 2011; Lim et al. 2013; Richardson and Denniss 2011). All in all, the economic blessings of resource development in WA thus strike as being mixed with various aspects (e.g. uneven development and inequity) pointing to a curse (Bridge 2004).

The environmental dimension of resource development was found to be particularly problematic. The New Economics Foundation's (2012) Happy Planet Index (HPI) ranks Australia in 76th place out of 151 countries, as good scores in areas such as life expectancy (81.9 years) and experienced well-being (7.4 out of 10) were being offset by a large ecological footprint (6.7 gha). Similarly, Yale University's Environmental Performance Index currently ranks Australia only as a modest performer in 48th place among the 132 countries assessed and predicts a further drop to 79th place based on current trends in areas such as water, forestry

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<sup>1</sup> It is acknowledged that people outside the resource sector such as property owners and investors also gained from the resource boom. Arguably, the underlying 'everyday financialisation' and naturalisation of capital—a feature of the neoliberal globalisation project (Duménil and Lévy 2001)—has helped legitimate, and build political support for, resource development in the state.

and air pollution (Yale University 2013). The country's growing environmental costs are mirrored also in alternative development indicators such as the Genuine Progress Indicator (GPI), the Index of Sustainable Economic Welfare (ISEW), the Inclusive Wealth Index (IWI) (Lawn 2005; Lawn and Clarke 2006; Cobb et al. 1999; Hamilton 1999; National Sustainability Council 2013), all of which point towards the steady decline of the nation's natural capital. Environmental stakes in WA are particularly high as growing pressures from industrialisation, resource consumption, population growth and climate change threaten the integrity of the state's vulnerable ecology (Environmental Protection Authority 2007; Climate Commission 2013). Despite the resource sector's claims to only limited environmental impacts on the basis of a small geographical footprint relative to the size of the state (see Chap. 13), resource development activities exacerbate WA's environmental problems as shown in the respective contributions by Roche and Mudd (see Chap. 12) and Majer (see Chap. 13) as well as Broderick and Horwitz (see Chap. 14). The authors warn of the cumulative environmental impacts of mining, which contribute both directly and indirectly to the enduring growth of the state's ecological footprint. WA has the nation's, and indeed one of the world's, largest per capita footprints of about 14.7 ha (Higham and Verstegen 2006; Environmental Protection Authority 2007), dwarfing that of the USA which has a national environmental footprint of 9.57 ha per capita (after Wackernagel and Rees 1996). This is in contrast to a sustainable per capita footprint of around 1.88 ha (Wackernagel et al. 2002), which in ecological terms raises concerns about the long-term sustainability of resource development in WA.

The social impacts of resource development in the state were shown to be wide-ranging, relating to industry–community relations, work patterns within the industry, as well as gender and labour constructions and community impacts resulting from the boom-bust cycle dictated by global commodity markets (in addition to the cost of living aspects listed in Chap. 1). As Rainnie et al. (Chap. 6) demonstrate, transnational corporate control over the spaces of work, assisted by national labour laws, decisively remade industrial relations in the resource sector in ways which wrested control from workers. Further, labour struggles to organise, and indeed the centrality of labour in resource extraction, have been largely erased or vilified in the story of frontier mining in WA. The complexities attending shifts in labour processes in the industry are widely apparent in the increasing use of FIFO work practices. Palmer (Chap. 7), for example, offered insights into the lives of workers in the resource sector, providing personal accounts of the social toll of FIFO work patterns. The data presented showed that FIFO employees working in the mining industry can earn high incomes to meet aspirational lifestyles, often with concomitant high levels of debt, yet at significant social and emotional costs in terms of dislocation from family and social networks (see Chap. 7). Relatedly, Mayes drew attention to the deeply gendered nature of developmentalism with its dominant and traditional constructions of women as the mining wife or FIFO wife intersecting with the tense emergence of women as mineworkers (see Chap. 8).

Mayes and Brueckner (see Chaps. 15 and 16) showed in their respective contributions the impact of multinationals on the lives of people in small rural towns and

the way in which corporate self-interest can run counter to community well-being and sustainability. Both chapters highlighted the local discontinuities resulting from the industrialisation of country towns, their exposure to global market forces and the power asymmetries at work when global mining capital engages with communities. Mayes and Brueckner found respectively that the communities of Ravensthorpe and Yarloop faced great difficulties to have their voices heard and their rights protected, receiving little in terms of government or industry support to help with, or compensate for, the impacts on local residents' health, lives and livelihoods. These WA cases are by no means isolated and indeed bespeak an emerging pattern of industry–community conflicts across Australia as an expanding mining sector steadily encroaches on small country towns and communities (see Cleary 2012; Benns 2012; Higginbotham et al. 2010; White 2013; Bice 2013; Duus 2013; Carrington and Hogg 2011; Scambary 2013). This trend highlights the need for more sensitive, sophisticated and participatory approaches for the management of the attendant social impacts of resource development.

WA's dominant development narrative, of which resource development forms a central part, features a particular singularity that offers only one best way for advancing the state and its people. The contributions by Phillimore (Chap. 2), Albrecht and Ellis (Chap. 3) as well as Wesley and MacCallum (Chap. 4) highlighted the zeal with which development goals have long been pursued by industry and state government alike and showed the potential for conflict when these development aspirations collide with social, cultural and environmental interests at the local level. Albrecht and Ellis write in this regard about the despotic character of developmentalism in WA and the way it can override and marginalise difference and dissent. In a similar vein, Wesley and MacCallum suggested that the 'actually existing neoliberalism' in WA, which was seen to ideologically underpin development in the state, framed resource-based development as *intrinsically* socially and environmentally responsible. In contrast, dissent from, or opposition to, this brand of development was found to have been construed by government and industry as irrational, irresponsible and ideologically charged with the effect of marginalising alternative value systems and development discourses. Thus, resource development overall was seen to be rendered benign whereas critique on the system of development or the management of its impacts were deemed heretical.

The ideological alignment and closeness between industry and government in WA was also found to have been problematic by various contributors to this volume. Chandler (see Chap. 11), for example, found environmental regulations governing the activities of the resource sector to be adequate, yet questioned the sufficiency of government enforcement of the regulation. This was echoed also by Roche and Mudd (Chap. 12). In this regard, the Conservation Council (WA) (2013b), the state's peak environmental advocacy group, recently expressed a lack of confidence in the EPA, stating that the agency has become critically compromised as shown in a series of controversial development decisions including the proposed LNG precinct at James Price Point. Wesley and MacCallum pointed in this context to the alignment between the state's development goals and Woodside's commercial interests, helping explain signs of regulatory capture.

This alignment was shown to have given rise to the political constructions of particular corporate social responsibilities, which foregrounded the development project's economic contributions whilst failing to address fully the social, cultural and environmental concerns surrounding the project. Similarly, Mayes and Brueckner pointed to a noticeable absence of, and hands-off approach by, government in relation to growing community disquiet in the towns of Ravensthorpe and Yarloop in response to the towns' transformations by mining capital. This alignment between, and concentration of, political and economic power can be seen to effectively limit scope for dissent and to leave without recourse communities adversely impacted by development activities. The predicted growth and rising political influence of the resource sector in years to come (Murray and Chesters 2012) is likely to bring these power asymmetries into even sharper relief and intensify the potential for conflict between communities on one side and industry and government on the other.

The discussion and data above attest that benefits of development in WA and Australia as a whole have also come at considerable cost. Contributions to this volume provided a snapshot of some of the costs of development in WA, which echo the concerns Harman and Head (1982) raised in relation to resource development. What does this say about the sustainability of development in WA? When employing stricter and more literal interpretations of sustainability, as already foreshadowed by Albrecht and Ellis (Chap. 3), the research presented in this volume points to a discernible incompatibility between the demands of sustainability and resource development as currently practiced in WA. This incompatibility was shown to be a function of tensions that exist between mining and equity, futurity, precaution and cultural sense of place values. Mining in WA fails to qualify in this regard as a sustainable form of development *sensu stricto* owing to its social, cultural and long-term environmental impacts. When seen through the lens of a more lateral interpretation of sustainability such as the general principles of sustainability in mining (see MMSD Project 2002), which focus chiefly on the provision of lasting value and a balanced approach towards the management of resource companies' economic, social and environmental responsibilities, the findings are also mixed. While it can be established that a strong economic contribution is made by the resource sector, the diffusion of economic benefits was found to be restricted while social and environmental concerns were seen to be subordinate to economic interests. Both industry and the WA state government were found to be placing greater emphasis on the growth of the resource sector and the state's economy, treating their respective 'health' as a prerequisite for future prosperity, community well-being and environmental protection.

## **Curse of Unsustainable (Non) Development**

In recent years, WA witnessed considerable resource-based, economic activity, especially in the state's north following the long-standing grand political vision for the development of the region (see Chaps. 2 and 3). Yet, while years of record

investments in the north drove much of the state's and the nation's economic growth, the region overall failed to capture the benefits of development (Gerritsen 2010), which Gerritsen (2006) attributes in part to the dominance of the resource sector and its poor multiplier effect. The notion of growth without development runs counter to trickle-down assumptions and the belief in material diffusion and possibly represents one of the starkest cases of capitalism's dissociation from its core objective. It draws into question the socio-economic efficacy of a development model premised on resource extraction and overall symbolises a disconnect between growth and its intended beneficiaries. The direct and indirect impacts of the resource sector on people and place diminish further the benefits the resource sector is meant to deliver. In this regard, most chapters in this volume reiterated the need to redirect attention to development outcomes and the human-centeredness of development, foregrounding people, their health and well-being.

Whilst no stranger to boom-bust cycles in mining, the state of WA continues to exhibit features originally attributed to US energy boom towns in the 1970s (see, for example, Cortese and Jones 1977; Kassover and McKeown 1981), when communities were found to go through phases of adjustment to the energy resource boom. At the time, Gilmore (1976) distinguished between four adjustment phases:

1. **Enthusiasm**—Concentration on positive impacts with negative impacts largely dismissed.
2. **Uncertainty**—Towns starting to change and become divided with onset of negative impacts.
3. **Near panic**—Town starts to change dramatically with acceleration of imposed changes and lack capacity as services become overloaded. Residents become confused and increasingly angry.
4. **Adaptation**—Core problems are identified and planning and mitigation strategies are developed. Development opponents start to accept the new situation.

Despite the state government's continued enthusiasm for resource development, numerous local communities have found themselves in a state of uncertainty or panic resulting from the rapid industrialisation of their towns, especially across the Pilbara and the Kimberley (see also Pick et al. 2008; Garnett 2012). The pace of change imposed by global capital and commodity markets offers communities and their leaders little opportunity to plan for, or adjust to, change unfolding. WA has many years of experience with the ebbs and flows in the resource sector, yet has been unable to shake the *boom syndrome* (after Little 1976) as communities continue to bear the costs of strong economic oscillations, evident in the case of Ravensthorpe (see Chap. 15) and other boom-affected localities such as Onslow (Garnett 2012) and Port Hedland (Carney 2008). A further opening of the state to global capital and international markets is likely to intensify the effects felt locally and to diminish further communities' capacity to develop adaptation and mitigation strategies. The boom syndrome also applies to the regulatory systems governing the environmental dimensions of resource development, which were shown to face difficulties in keeping up with the pace of industry growth. Planned future energy projects in the state in areas such as liquefied natural gas and shale gas will add

further pressure on a regulatory system already experiencing stress and standing accused of failing to afford sufficient protection of people's health and the environment (see, for example, Chaps. 3, 11, and 12). Recent state government cuts to the budgets of environmental departments and agencies will diminish their capacity to monitor and enforce compliance with environmental regulation, and will overall diminish departmental oversight (Conservation Council of Western Australia 2013a).

The future sustainability of development in WA is largely seen to be a function of a continued reliance on foreign direct investment and multinational firms' unimpeded access to the state's natural assets for extraction and sale to international commodity markets as a means of wealth production. As powerfully argued by Wesley and MacCallum (Chap. 4) and Rainnie et al. (Chap. 6), the role of government has become largely restricted to the facilitation of resource development while the provision of critical social welfare functions has increasingly been left to the markets based on assumptions of material diffusion and trickle-down effects. This was particularly evident in areas such as employment and service provision to Indigenous Australians in the state's north, which was shown to have been made contingent on the development of the Kimberly by resource interests.

In light of the powerful ideological and structural impediments currently hindering substantial shifts away from developmentalist ideals, it is fair to ask from where changes towards sustainability in WA are meant to be coming. Yet, the state has witnessed episodes of heightened environmental concern and seen strong societal responses to controversial development agendas in the past in areas such as mining (Alexander 1988), forestry (Brueckner 2007) and tourism development (Wesley and Pforr 2008). Also, at the state's political level there have been intermittent shifts towards sustainability in recent decades as evidenced by past governments' development of a greenhouse strategy in the early 1990s (Western Australian Greenhouse Coordination Council 1991) and a state sustainability strategy in the early 2000s (Government of Western Australia 2003). Indeed, less than a decade ago, WA was an internationally recognised sustainability hotspot and regarded a leader in the sustainability space (Brueckner and Pforr 2011). While both public and political enthusiasm for sustainable development have since subsided, these sporadic shifts in sentiment point to the existence of small windows of opportunity for change. These also signal that a future commitment to more sustainable forms of development in the state is not inevitable.

In what follows we conclude this discussion, and indeed this volume, by moving beyond the development and sustainability dichotomies focused on above. In doing so, we hope to be able to shift away from the entrenched positions that characterise many resource conflicts and development debates, exploring the possibilities of a middle ground position.

## Moving Beyond the Binary

Binary perspectives, represented in the resource curse or cure debate that has generally dominated public discourse, involve vigorously defended and legitimated opposing positions. Such binary positioning inhibits engaging with a range of alternative views and shuts down, rather than invites, robust debate on the issue (Nakata et al. 2012). However, various chapters in this volume have expanded the public discourse and offered a more nuanced and layered response to the mining boom that takes into account the complexity of the terrain and opens the door to more vigorous discussion of the broader differentiated landscape of mining in WA. This approach moves beyond the reductionism of binary oppositions—*either* developmentalism *or* sustainability—to engage critically in discussion that resists notions of homogeneity in either approach to resource development. Instead a more diverse and creative perspective is sought that is inclusive of alternative strategies that complement and expand the dominant discourse, at the same time speaking to the notion of sustainability beyond the life of the mining boom.

From an intercultural perspective, for example,<sup>2</sup> Bhaba (cited in Rutherford 1990) discusses the ‘third space’ as a space between cultures, a liminal space where neither culture dominates the other, nor is contained by the other. He rejects the notion of binary positioning in this space. He argues instead that the aim of the third space, or intercultural space, is to bring different cultures together in a space between both cultures where they are neither in opposition, nor do they fit neatly together. This often results in a relationship that is ambivalent, uncertain, tenuous and confronting as both cultures share the same space and negotiate how to accommodate differences. Yet, as cultures engage differently in ways that are inclusive rather than oppositional, opportunities are opened up for new positions, meanings and identities to emerge.

This is evident in Scott and Durey’s chapter (Chap. 17) where the opportunity arose for the mining sector and a local Indigenous community to create a narrative together that was inclusive rather than oppositional. In the mining/Indigenous context, the prevailing hegemonic view has often subordinated the views of Indigenous people on development suggesting a binary positioning that precluded alternative views. While Native Title legislation has redressed this to some degree, governments can still override the wishes of traditional owners and mining can proceed without agreement from Indigenous communities (O’Faircheallaigh 2008). This has been somewhat offset by increased collaboration between mining companies and Indigenous communities where mining companies have initiated programs to train Indigenous people to become ‘work ready’ for employment in the mining sector—often on terms set by the mining company (Pearson and Chatterjee 2010). However, this top-down approach can make it difficult for Indigenous people to

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<sup>2</sup>The intercultural lens chosen for the purpose of this discussion is one of a number of suitable approaches (e.g. for socio-cultural perspectives see Bourdieu (1977), Habermas (2001) and Foucault (2008) and for ethico-political perspectives see Bauman (1999) and Critchley (2007).



work in the industry and still meet their cultural obligations. An alternative narrative emerged following discussions between a local Indigenous community and the mining sector moving the discourse beyond binary oppositions into the intercultural or 'middle ground' (Nakata et al. 2012: 134) as each sector negotiated the space in ways that served both their interests. An Aboriginal initiated cultural awareness program designed, owned and led by the local Aboriginal community for mineworkers was introduced at the mine. Its success was demonstrated in positive responses from mineworkers that led to the formation of new alliances and relationships between the mining sector and the local Aboriginal community. Simultaneously, this approach shifted the pre-existing power balance by foregrounding, rather than subordinating, Aboriginal knowledge and culture. This process also built the capacity of the local Aboriginal community around sharing the region's Noongar heritage and shared history in ways that benefited both the mining and Indigenous community. The telling of the story in the Noongar language also emphasised the importance of the cultural frame.

Pforr, Dowling and Newsome also presented an alternative view to the developmentalist discourse in the form of geotourism, a relatively new venture that interprets the resource sector differently by valuing the preservation of resources in allocated areas rather than extraction. By moving into a more neutral and less oppositional space geotourism can complement the resource sector by offering a long-term, sustainable view of economic development that adds to the regional economy and responds to the increasingly recognised need to protect biodiversity in specified areas. Geotourism offers a balance between the binary oppositions of resource extraction and conservation based on ecological principles that extends beyond the mining boom. It offers a sustainable development strategy that reconciles the contradiction between economic development policies and conservation principles by preserving natural heritage in specified regional areas while still providing local economic opportunities and offering an alternative to the hegemonic discourse.

Brueckner's chapter on social sustainability development highlights the non-economic consequences of resource development focusing particularly on the lived experience of a local community negatively affected by an alumina refinery. This chapter illustrates how becoming locked into binary oppositions where top-down decision-making by the mining industry serves its own interests while subordinating community needs, reproduces power imbalances, maintains the status quo and stifles inclusive and productive debate. It is also a missed opportunity to engage in the complex and inclusive middle ground where both parties can move beyond their binary positioning to discuss how resource-based development can provide lasting economic and non-economic value to all. This requires communities to assert their rights to an industry and government willing to listen and engage constructively with those who challenge the dominant development narrative, its underlying logic and assumptions. Communities, industry and government who step into this middle ground—however tenuously—do so with the intention of connecting rather than fracturing relations and engaging in more open dialogue and robust debate where positions can be constructively discussed and negotiated.

In the mining sector the prevailing discourse of developmentalism and sustainability have been constructed and reproduced within the political economic framework in ways that are predictable, generalised and polarised so alternative views are effectively muted. Engaging in the third space or middle ground disrupts this polemic and moves away from a position of familiarity into a place of ambivalence and struggle where neither the developmentalist nor the sustainability position dominates. It is this space of liminality, uncertainty and change that allows other positions, identities, collaborations and contestations to emerge that warrants further consideration. A willingness to adopt a more inclusive approach to engage with difference moves beyond the status quo to invite a deeper theoretical critique of both knowledge systems revealing their complexity in this middle ground, showing points of connection and opportunities for negotiation (see Rutherford 1990; Dudgeon and Fielder 2006).

## Concluding Comments

The attempt at documenting the costs and benefits of resource development in the state is not intended, however, to serve the purpose of apportioning blame to industry and government for the various socio-ecological problems confronting resource development in WA. The problems this volume addresses point to the fact that the issues at the very heart of the curse or cure debate surrounding resource development in WA go beyond individual companies and the state's jurisdiction. Much of the discussions around curse or cure matters address questions of values underpinning forms of development and raise questions about the very nature of globalised western capitalism.

For the purpose of this volume resource development was treated as neither inherently good nor bad while issue was taken with the manner in which development proceeds and the ends that are pursued through it. In this regard, this volume contains numerous calls for a foregrounding of social and environmental concerns associated with resource development and a re-evaluation of development goals. Critical reflections on these issues, however, require a mindfulness of the globalised context in which the state economy operates and an awareness of its ideological underpinnings.

Attention was also directed at questions of scale and spatialities. Mining tends to take place in the periphery—that is, away from urban centres and industrial core zones—and resource peripheries tend to be, erroneously, positioned as peripheral places (Hayter et al. 2003). Research focusing on resource peripheries is important not only for its own sake, but also for what it can tell us about the core and about globalisation, in particular as a “contemporary stage in capitalist development” (Hayter et al. 2003: 19). Attention to resource extraction in various places in WA, and WA itself, has much to tell us about “the clash of industrial, environmental, cultural and geopolitical dimensions not found in cores” but central to the experience of globalisation (Hayter et al. 2003: 19).

Frequent reference was made to WA's embeddedness in global commodity and capital markets and the way in which global forces were discovered to have profound local impacts and consequences (see Chaps. 4, 6, 8, and 15). As such a debate about the sustainability of resource-led development in WA ought to be extended to the broader context in which this development occurs. The logic of global capital is well understood and to a degree predictable (Root 2006; Swank 2002), which is why some of the evidence presented on locally felt social and environmental impacts should not come as a surprise. Firms will be firms and are thus liable to act in a manner consistent with their corporate profit maxim. The forces of globalisation which have given rise to what Reich (2008) refers to as 'supercapitalism' have intensified greatly the degree of competition among firms and the mobility of capital, which explains companies' sensitivity, and responses, to changes in global market conditions as aptly highlighted in the Ravensthorpe RNO case (see Chap. 15). At the same time, governments keen to attract global capital were shown to be prone to underestimate the volatility of global capital and thus risk being ill-prepared when needing to deal with any social or environmental fallout (Mosley 2003). It also bespeaks a certain ideological blinkeredness when much faith is invested in global market forces to take care of development concerns at the local level. The north of Australia, mirroring the experiences of developing countries (Rodrik 2003), can be seen as an exemplar case of the decoupling between economic growth and economic development, underscoring that the goal-orientation of development needs to be determined politically and cannot be left to markets and commercial interests. The state has a choice between being an "agent of external forces, enforcing global imperatives on the domestic population [or representing] it to the world at large" and safeguarding it against external hazards (Harris 2012). Arguably, government has assumed the former role with the advent of neoliberal globalisation, while the data presented in this volume supports calls for the latter role to be taken and thus stresses the need for public debate.

Given the way that resource extraction is territorially embedded—through nation-state ownership and various institutional and cultural-political structures—an emphasis on the role of the state in contributing to/ameliorating curse or cure effects is certainly valid (Bridge 2008). However what is also needed is an understanding, as Bridge (2008) has argued, of the ways that resource extraction along its production chain is embedded in *multiple territorialities* and "the way its *multi-national* character influences the balance of power along the production chain" (414 original emphasis). In this way, as he points out, assumptions or conclusions that state failure is the sole cause of weak development or, conversely, that strong government, institutions and cultural-political contexts are all that is needed to ensure broad developmental benefits from resource extraction are highly problematic. That is, an understanding of resource production as incorporating a multiplicity of not only firms but also states and other non-firm actors is crucial.

A final comment on neoliberalism and power is warranted here. Attention was directed earlier to a third space, presented as a means of overcoming the stalemate created by the resource curse or cure dichotomy. Yet, we need to acknowledge the

barriers militating against potential shifts towards this space.<sup>3</sup> These are barriers that protect the status quo and retain positions of privilege and power whilst maintaining power asymmetries and disadvantage. Contributions to this volume have shown how the interplay of global capital and state developmentalism<sup>4</sup> acted as meta-constraints to the articulation and pursuit of alternative, more inclusive and more widely shared visions for future development in the state. Despite growing evidence of, and public disquiet about, its perceived shortcomings, the neoliberal project in WA shows signs of a perverse resilience, which serves to undermine the resilience required for a sustainability transition. Perverse resilience refers here to a resilience to change in the face of the increasingly visible and undesirable consequences (after Gallopin 1997 cited in Faye et al. 1999) of neoliberalism. This resilience (following Ráez-Luna 2008) can be appreciated as the deliberate use of political and corporate power (e.g. structural power of resource companies) to the benefit of select interests at the expense of others and the environment. Even though its social and environmental fallout has attracted growing criticism, as voiced in this volume, it is fair to suggest that neoliberalism in WA has been able to retain its hegemonic status. Growth, development, or specifically resource-led development, remain legitimate and largely unchallenged political priorities and have become largely depoliticised.<sup>5</sup> It follows that calls for a shift towards a middle ground are not only prone to be resisted by those who hold power and occupy privileged positions but are also unlikely to be demanded by society. The more pressing question may therefore be how and by what means change can be affected within the neoliberal space and how society can address the power relations neoliberalism builds on and creates and that aid its reproduction.

Contributions to this volume have opened up the development discourse in Western Australia, going beyond the dominant economic narrative to create space for new perspectives and alternatives to emerge. This emerging discourse provides a platform for open and robust debate necessary for a legacy of ecological, social and economic sustainability that emphasises well-being, equity and the protection of people, culture and place.

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<sup>3</sup> Similar limitations would also apply to socio-cultural and ethico-political lenses.

<sup>4</sup> Other forces not explicitly dealt with in this volume would include the financialisation of society (e.g. Lapavistas 2011) and the marketisation of nature (e.g. Dovers 2002).

<sup>5</sup> This is what Foucault (2008) describes as neoliberalism's 'economisation' of society.

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