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Rural Communities in Transition and Sustainable Regional Development

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Abstract

Mining and farming have been important industries to the Australian economy since colonial times but the industries have generally operated in separate regions with limited overlaps. Over the last decade mining activity has surpassed agriculture in both return on investment and contribution to gross domestic product (GDP) and farming has continued to lose its share of economic contribution. To date, most mining activity has been in remote and regional areas of Australia where the deposits are richest, but sophisticated extractive processes and high returns are now making deposits viable which hither to have been considered marginal, many of which are in communities where farming has been the main industry.

This paper will consider case study sites where mining is increasingly encroaching on what has been traditionally productive farming land. For some communities, mining is welcomed as an important off-farm income, for others, mining is viewed as an environmental and social threat to the agricultural industry. The stresses and strains as well as the opportunities presented by transitional rural economies will be considered.

Keywords: mining, agriculture, farming, socio-economic development

1.0 Introduction

Australia has abundant natural resources and has often been referred to as a 'farm and quarry' economy (Wiseman, 1998). Initially agriculture was the key industry but the gold discoveries in 1851 were the catalyst for the first Australian gold rush, and as a consequence the arrival of many immigrants to Australia. Agriculture was the key driver for the colonial economies and continued to be until well into the twentieth century. Resource discoveries have been important for the development of the Queensland and Western Australian economies, especially since the 1960s and by 2011-12 the national value of mining more than quadrupled that of agriculture (Australian Bureau of Agricultural and Resource Economics and Sciences, 2012; Ergas & Owen, 2012). After the relaxation of the embargo on iron ore exports in 1959, exploration and development of rich iron ore deposits were the foundation of considerable State and corporate wealth in Western Australia.

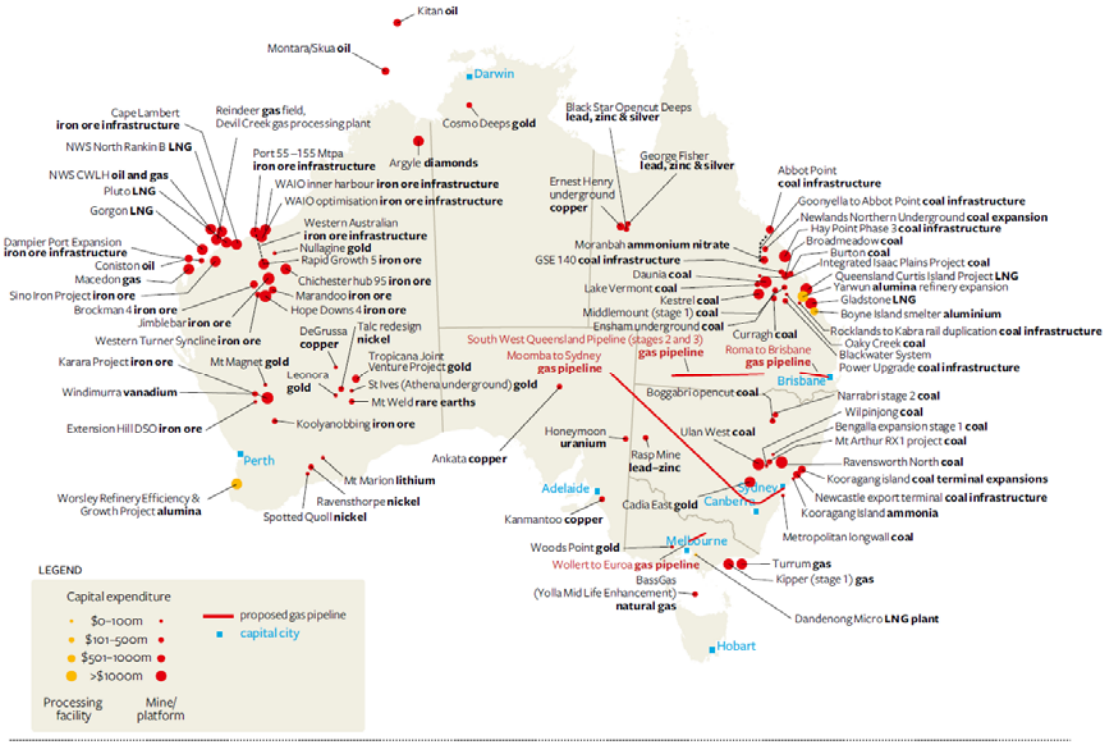
Both agriculture and the resources industries are vulnerable to market cycles and are dependent on global economic demand. Further, agricultural production in Australia has been challenged by climatic changes, most particularly long drought periods and dramatic episodic events such as cyclones and floods, which have wiped out infrastructure and production. The diminishing returns from agriculture over the last four decades and the economic demands of farming which emphasise scale have also impacted on the socio-economic context of farming, causing communities to shrink as people leave, most particularly young people. The 2011 census reported that the average age of the Australia farmer is now 53 years (Australian Bureau of Statistics, 2011b); farming in Australia is an ageing industry.

Mining on the other hand tends to be peripatetic, dominated by younger people with diverse technical skills. It too is vulnerable with a long history of boom and bust cycles, reflecting its exposure to international markets and fluctuations in demand and supply. Despite the retraction in world commodity prices earlier in 2012, Australia has experienced exponential growth in the production and exploration of its mineral resources since 2001. Various analysts have argued that current boom conditions will last longer than in previous periods because of the strong underlying demand for key commodities from the emerging economies of China and India. These Asian markets tie Australian economic fortunes to regional economies and thus, the economy is vulnerable to international political forces and other factors over which Australia has little control (Conley, 2009). In 2011-12, export earnings from resources reached 50% (a record $190bn), a 15% increase on 2010 (Bureau of Resources and Energy Economics, 2012b), contributing 20% of GDP while the agricultural sector contributes only about 12% of Australian value of exports and 3% of GDP (National Farmers Federation, 2011; Australian Bureau of Agricultural and Resource Economics and Sciences, 2011; Australian Bureau of Statistics, 2012).

The resources sector continues to expand; the Bureau of Resources and Energy Economics calculates $268bn of resource projects are under construction, double that of 2008 (Bureau of Resources and Energy Economics, 2012a). Approximately 70 per cent of the projects are located in Western Australia (See Figure 1). Western Australia maintained its status as the nation's leading exporter in 2012 contributing a record 46 per cent towards Australia's merchandise export earnings worth $230.8 billion (Australian Bureau of

Statistics, 2010b). Queensland followed with 22% (Department of Mines and Petroleum, 2012).

Figure 1: Resource Investment in Australia 2011.



Source: Australian Bureau of Agricultural and Resource Economics and Sciences, 2011

In both States mining has taken precedence over agriculture because the national earnings are so much greater. Due to the sustained boom, high market prices and refined mining technology, it became increasingly viable for mining companies to explore and develop tenements and reserves which hitherto, were considered marginal. These activities are now encroaching on land which has traditionally been highly productive agricultural land and land use conflicts are increasingly evident.

In 2007, the Commonwealth Scientific and Industrial Organisation (CSIRO) undertook research analysing the social dimensions of the mineral industry in Australia (Solomon et al., 2007). That research recognised that the "social dimensions of the minerals industry—how it deals with people, values, development, policy, regulation and range of associated issues – is becoming increasingly critical to business success" (Solomon et al., 2007, p. 1). It highlighted the lack of studies or approaches that took account of a range of perspectives and issues and suggested that more comparative studies would be helpful to enhance understanding of differences and potential factors in common. This article aims to address some of the gaps and has two broad aims; it explores the tensions and competing perspectives with regard to the increasing presence of mining in regions dominated, until now, by broadacre agriculture. Secondly, it will assess the potential of mining as an agent in renewing regional communities and economies within the context of cyclical change. It will present three case studies where mining and other industries have increasingly encroached on areas that have traditionally been highly productive broadacre agricultural communities. The exploration of the local-scale social and economic transition being experienced in these case studies

contributes a more contextualised narration of wider transformations occurring within the rural domain (Cloke & Little, 1997; Cloke, 2006; Smith, 2007). For some communities, mining is welcomed as an important source of economic diversification and off-farm income; for others, mining is viewed as an environmental and social threat to the agricultural industry. A brief overview of the wider literature regarding other regions and communities which have experienced transition will provide context for the stresses and strains as well as the opportunities experienced by the communities under examination for this article. The research findings reported here constitute part of a larger, CSIRO sponsored *Regions in Transition Project* and a Co-operative Research Centre—Remote Economic Participation project, both of which assessed the enduring value of mining, (See http://www.csiro.au/partnerships/mineral-futures-collaboration-cluster.html and http://crc-rep.com/research/regional-economies/enduring-community-value-mining).

2.0 Shifting Rural Populations, Communities and Economies

Resource development has presented both opportunities and negative impacts to many local communities (Sachs & Warner, 2001; Petkova et al., 2009; Pineda & Rodriguez, 2010). Much has been written about the 'resource curse' and the 'paradox of plenty', suggesting that a dependence on mining is often associated with slower economic growth due to uneven social and economic benefits, unstable institutional and political systems and marginalisation of minority groups and the environment in the midst of resource abundance (Auty, 1993; Freudenburg & Frickel, 1994; Freudenburg & Wilson, 2002; Humphreys et al., 2007). Australian governments and policy makers have been mindful of the risks of 'too much wealth' and applied political and monetary interventions in an endeavour to redistribute the proceeds of resource wealth across the economy (Conley, 2011; Edwards, 2011). Continuous growth and a sustained resources boom have improved Australia's fiscal position and terms of trade immeasurably since the 1980s (Reserve Bank of Australia, 2009). Public management of national wealth has indeed been astute with macroeconomic stability and the benefits being dispersed widely across the national economy (Stevens, 2011). However, while there have been broad national benefits, the work that has contributed to this article suggests that at a disaggregated level, there are communities, especially those which have been agricultural in nature, which have found the transition to a more diverse economy, challenging.

The shift from non-metropolitan areas to cities and the coastline experienced in Australia over the last century and particularly the last 50 years, is not different to population trends in many other nations (Tonts, 2000; Gray & Lawrence, 2001). While the number of farms and farmers has decreased, agricultural productivity has increased with sophisticated technology and high capital inputs (Australian Bureau of Agricultural Resource Economics, 2009; Australian Bureau of Statistics, 2011a). There has been some evidence of counter-urbanisation (Mitchell, 2004) over the last 50 years but this has generally been to coastal areas, larger regional towns or for long distance work commutes, usually in the minerals and resources industries rather than to farming communities (Tonts, 2000; Haslam McKenzie, 2011).

Industry diversification and regional development impacts need to be well managed to ensure that there are enduring benefits and positive legacies. When global markets rise resource companies are usually able to outbid smaller businesses such as farmers and service providers for land, labour, housing and other necessities, limiting competition through sheer size and domination. This

can result in the marginalisation of those who are not involved in the mining industry (Langton, 2010; Taylor, 2012) and the eventual transition to resource dependency (Freudenburg, 1992; Stedman et al., 2004; Humphreys et al., 2007) with "increased vulnerability to external shocks that accompanies a narrowing economic base intimately linked to global influences" (Hoath & Pavez, 2013, p. 8).

While in some regional areas resource developments offer the opportunity for local communities to maintain and grow their economic and population base, the transitions in workforce skills, economic structures, work/lifestyle arrangements, aesthetic amenity and community structures have caused social, economic and environmental changes which have not always been comfortable. Governments and industry have found it difficult to adjust to heightened community concerns about potential social impacts of resource development and issues such as environmental risks and the loss of good agricultural land. There are also issues in small communities where competition for resources pushes up housing prices and labour costs with adverse impacts on other sectors of local economies. It is therefore clear that careful, locally informed and negotiated policy and planning processes are vital to securing both short and long term benefits, and in mitigating inevitable associated stresses for those whose livelihoods and places of living intersect with major resource projects.

3.0 Approach

The research described in this article draws upon material and information collected for the Regions in Transition project which is a part of the Minerals Futures Collaboration Cluster within the CSIRO Minerals Down Under Flagship. The Minerals Futures Collaboration Cluster is a broad program of research to address future sustainability challenges facing the Australian minerals industry.

The case study methodology was adopted to explore issues of transition, and social and economic impact in regions where intensive mining activity now sits alongside established agricultural industries. This methodology was selected due to its flexibility and hence capacity to enable the researchers to examine a variety of circumstances. We considered the use of case studies as appropriate because "…the phenomenon under study is not readily distinguishable from its context" (Yin, 2002). The data was interrogated using several devices, including face to face interviews, public meeting groups and statistical surveys. Data informing the case study perspective was collected through desktop analysis of policy documents, and in the case of Queensland, a strategic review of Environmental Impact Statements from three major resource developments in the Surat Basin. In-depth interviews were conducted with a range of stakeholders in both States familiar with the mining sector who also had the capacity to reflect on resource development in the three case study sites. The stakeholder samples involved interviewees from a mix of mining, State and local government, regional bodies, community (Aboriginal and non-Aboriginal) and business perspectives. In Queensland, the peak body Agforce was also interviewed. Study respondents were recruited through purposive means (Patton, 1990), namely, they were selected into the study on the basis of their knowledge /experience in their respective regions. Interviews, conducted in-person and by telephone, occurred throughout 2010 and 2011. A focus of the interviews was strategies for sustainable regional economic development and the challenges for communities who were subject to uncertainty over the viability of the major resource developments being proposed. Information and

issues arising from the interviews informed the survey instrument. It enabled us to quantify certain aspects of change, particularly: the changing patterns of workforce participation, changing patterns of rural land use, income and expenditure flows and cross-sectoral influences between mining and agriculture. The survey also enabled us to measure the wider salience of subjective feelings of wellbeing.

Prior to the commencement of this research, ethics approval was sought and received from the relevant ethics bodies at the two participant universities. Confidentiality and anonymity are maintained throughout this article, with study respondents' quotes associated only with the sector they represented. Across all three case studies information was sought about the challenges and opportunities related to mining in the respective regions, whether these experiences were unique to the region or could inform regional development and planning elsewhere.

4.0 The Case Study Areas

The case studies chosen represent a diversity of communities and agricultural production across the two States of Australia: Western Australia and Queensland. The Darling Downs in Queensland's Surat Basin is one of the most productive agricultural regions in the nation, while the Mid West region in Western Australia is located in marginal rangelands that are highly vulnerable to dry conditions. Boddington is a small rural community noted for its agricultural production close to the Western Australian capital city Perth. The three case study sites offer a complex set of variables for comparative analysis including social concerns and constraints as per the gaps in research regarding regions in transition identified by Solomon et al. (2007). Discussion related to each case site includes an overview of its location and regional economic features, a brief historical contextualisation, the nature and scope of resource development and current impacts of new or renewed mining activities. Critical to understanding change in the Surat Basin is acknowledgement of the power struggle between communities, global industry and governments. How this is being played out in the Surat Basin is discussed through a desktop examination of resource developments, and corresponding government and community responses.

4.1 The Surat Basin, Queensland

The Surat Basin covers a significant area of 109,787 km2 which incorporates the a large area of the Darling Downs including the Western Downs, Toowoomba Shire and the large regional city of Toowoomba, and the more sparsely populated Maranoa Shire to the east. It comprises many mature communities, some in slow but steady population decline and others in recent re-generation. In common across these communities are existing agricultural and rural service sectors that have underpinned these communities. The eastern areas of the Basin (Darling Downs) contain rich fertile soils that support intensive agriculture, irrigated cropping and grazing. The land tends to become drier in the western areas of the Surat Basin and supports grazing with low stocking rates and some dry land cropping. Water is a critical issue throughout the Surat Basin especially in the Toowoomba region due to population pressures. Despite a long history of agricultural activity the area still contains relatively large tracts of native woodlands and is an important reserve of biodiversity.

The Surat Basin contains substantial, but largely undeveloped thermal coal and coal seam gas with lesser, conventional petroleum resources. The region has

significant potential to be developed further into a large-scale energy and industrial province with the production of coal and coal seam gas expected to increase approximately tenfold (from 8 million tonnes pa) by 2030, while up to ten coal and gas fired power generation stations may be developed in the next ten years. Export coal production is currently about 5 Mtpa. Coal production in the Surat Basin region is expected to reach 40 Mtpa by 2020 (Acil Tasman, 2009). A traditional farming region with substantive coal deposits which underlie much of the western and northern parts, the Surat Basin also hosts coal bed methane and underground coal gasification operations. These sectors are likely to grow rapidly in response to demand for export LNG and domestic gas supplies. This development is expected to generate 16,000 full-time jobs in the energy sector by 2030 and stimulate growth in the resident population of 34-46% (Acil Tasman, 2009).

The region has a population of approximately 210,000 people, many of whom live in the regional city although in recent times with the escalation in resources developments, the population has increased, albeit unevenly, principally in the Western Downs. Demographic changes in the Surat Basin are uneven and influenced by changes primarily associated with an ageing population where older people migrate to larger urban areas seeking suitable aged care facilities. There is also a noticeable decline in the number of late teenage and early adults (16-24 years) in the region as this cohort tends to relocate for education or work purposes.

In the communities where coal seam gas reserves are being developed, there are growth pressures and growing concern regarding environmental impacts for agricultural enterprises from mining activities. To date, these concerns, voiced mostly by farmers, have been muted by the expected economic and public benefits. Reports commissioned by the Department of State Development identified potential future resource developments with both coal and coal seam gas in the Surat Energy Resources Province are expected to increase approximately ten-fold by 2030:

1. Gross Regional Product (GRP) in the Surat Energy Resources Province is anticipated to at least double by 2030 as a result of developing the resources sector, and could potentially quadruple making the region one of the greatest regional contributors to GRP;
2. Gross Value Added activity (or Gross Regional Product, GRP, less taxes and subsidies) in the Surat Energy Resources Province could reach $9.3 billion per annum by 2031;
3. Employment in the Surat Energy Resources Province is projected to increase by an additional 12,500 full time equivalent positions by 2031 as a result of developing the Surat Energy Resources Province (not including increases due to ancillary services) occurring outside of those pertaining to the development of energy resources);
4. Growth is expected to be primarily in the sectors of mining, electricity, gas and water, finance and insurance, transport and storage and manufacturing.

There are broad regional concerns about the impact of resource extraction in this region which were made evident in a recent CSIRO study (Hajkowicz et al., 2011) that involved a substantive community engagement process. A generalised response to the recent and potential resource developments in the

Surat Basin was of inevitable negative social impacts. The chief concerns are noise, dust and the impacts of hydraulic fracturing (fracking) on potable water supplies (Rolfe et al., 2007; Petkova et al., 2009). This expectation was reinforced from lessons derived from the recent Bowen Basin experiences and presumably in other resource intensive locations such as northern Western Australia and in the Hunter Valley region of New South Wales. Initial localised socio-economic impacts in the Chinchilla/Dalby area strengthened negative associations with resource development. The findings included deficits in hard and soft infrastructure to support the current level of need with most services at full capacity. Anticipated growth in resource development is expected to exacerbate an already overloaded system. The maintenance of infrastructure was also seen to be hampered by fragmentation in planning at the local, regional and state levels. In addition to planning and infrastructure concerns, housing and skill shortages in the region were seen as potentially affecting growth opportunities in mining. As a consequence a flow on effect would be workforce and housing restraints for other industry sectors such as agriculture, and the vital human and social services sector.

Figure 2: The Surat Basin, Queensland.

Source: Department of Minerals and Energy, Qld Government

From a land use perspective, while local farming communities in the Surat Basin have acknowledged the area as a rich source of coal and coal seam methane gas, there have been public displays of resistance and the generation of a significant public profile for their protest against a proposed mine (Friends of Felton). The central concern is the threat to the sustainability of their agricultural enterprises from potential adverse environmental impact of coal mining and associated industries on their prime agricultural land. There is already evidence of environmental impacts associated with damage to waterways and to cropping lands as well as the treatment and disposal of salt produced during the coal seam gas extraction process. The farmers are worried that their concerns will be largely dismissed because their industries do not represent the high economic value of the coal seam gas industries and that the latter has more currency in the 'climate change—carbon tax' debate with its potential to reduce carbon emissions. Further, the resources sector provides alternative employment and a fillip to local businesses as people move in and out of their communities, slowly building up the population again. Farmers

argue however, that the environmental damage done can be long lasting and not easily undone.

The Strategic Cropping Lands policy and planning framework discussion paper was released in February 2010 and outlines the Queensland Government's direction for the protection of specific rural lands which are required to service the cropping industry. The objective of the Strategic Cropping Lands policy is to bring a degree of certainty to both the cropping lands sector and to the resources sector. Whether the objective is achieved is open to debate and will largely depend on individual negotiated settlements.

4.2 Mining in Western Australia

To date, most of the mining activity has been focused in the remote areas of the Pilbara (approximately 1,800 kilometres north of Perth) and the Goldfields (approximately 450 kilometres east of Perth) regions (See Figure 3). Iron ore mining in the Pilbara is well established and conducted on a large scale by, amongst other companies, two of the largest iron ore mining multinationals, BHP Billiton and Rio Tinto, generating millions of dollars in income and royalties. Due to the sustained boom, high market prices and refined mining technology, it has now become viable for miners, mostly junior mining companies, to develop other areas, such as the Mid West (See Figure 3), with less concentrated ore deposits. The scale and rapidity of mining development in the Pilbara has wrought social, economic and environmental challenges, especially for those not involved in the mining industry.

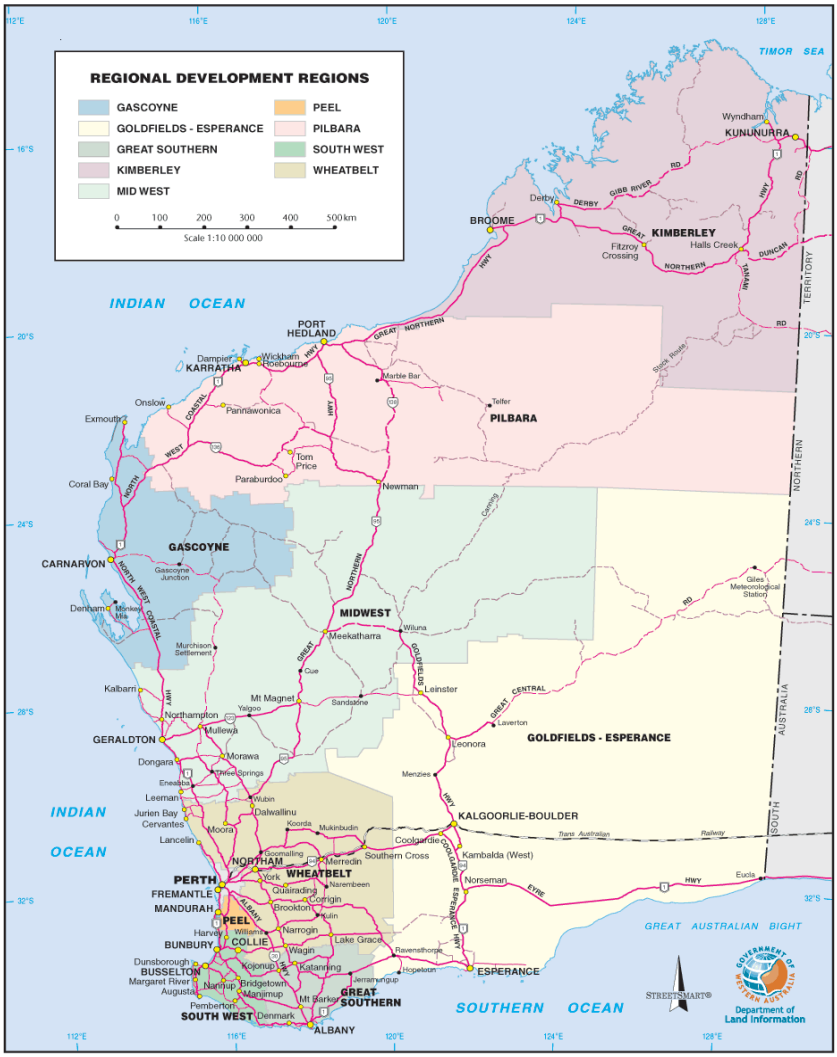
The scale of the resource sector means that there is very limited local supply or procurement, with most supplies and mechanical and technical servicing provided by the head office or capital city suppliers. Few, if any, mining companies source large scale supplies in the region, or have local procurement policies of any kind. Even where companies have a local procurement policy, many regional economies simply do not have the capacity or a sufficiently diversified economy to supply large scale mining operations, except for minor supply goods (Haslam McKenzie, 2011). Consequently, large scale mining causes the local economy to hollow-out because, while there is significant economic activity in the region, these funds, tend to flow out of the region either immediately or shortly after they are incurred (Acil Tasman, 2006) through wages to mobile workforces and payments to corporate supply chains. The flow-on benefits go elsewhere out of the region. At the same time, local small and medium enterprises (SMEs) cannot compete and many close and leave the communities (Freudenburg & Wilson, 2002; Pick et al., 2008; Pick et al., 2010). This scenario is exacerbated when there is a high proportion of fly-in/fly-out (FIFO) worker force (mobile workers). Inevitably, wages paid to FIFO workers living elsewhere flow outside of the region and thus, local investment and micro-economic benefits in the *host* community are compromised at the local level.

4.3 Boddington in the Peel Region

The small town of Boddington was established in 1912 to service an area of broad acre mixed cereal crop and sheep farming approximately 135 kilometres south east of Perth (See Figure 4). It is surrounded by picturesque landscapes, forest and river in the Dwellingup area and rolling rural hills in Boddington, and within easy access of three large regional centres, Williams, 50 kilometres east, Pinjarra and Mandurah, 85 kilometres west, on the coast.

In the 1980s and 1990s the community struggled to survive as wool prices dropped and returns on broadacre cropping were variable. During this period the timber industry also contracted dramatically. While bauxite, through the development of a large mine by Alcoa closer to the coast, and goldmining began to contribute to the local economy, by 2001 the goldmines had closed contributing further to a local decline. Many people left the community and by 2004 there were 1,372 people, many of whom were older farmers or retirees (Australian Bureau of Statistics, 2003; Australian Bureau of Statistics, 2007).

Figure 3: Regional Development Regions.



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Source: Department of Land Information 2006

By the end of 2009 however, the residential population of Boddington had increased to 1,707 people due to the revival and significant upgrade of a gold mine in 2006 which prior to, had been closed for some years (Australian Bureau of Statistics, 2010c). The mining company, Boddington Gold Mine (BGM), made an undertaking to encourage employees to live locally (within 50 kilometres of the town). However, the supply of land suitable for housing has not kept up with demand and government has been slow to convert rural

land to residential blocks. An 'accommodation village' has been built in the town to provide additional accommodation especially during the construction phase when there were up to 3,850 workers.

When the gold mine re-opening was first mooted in 2005, the Peel Regional Development Commission worked with the Boddington Shire, the mining companies and different government agencies to ensure there was adequate infrastructure for mining, population and community expansion. Immediately after the decision to re-open the mine, house prices, and land in and adjacent to, the town escalated in value. Housing stock increased in value by 275% in the decade 1998-2008, with the greatest rise in value occurring between 2004 and 2008 (220%) (Rowley & Haslam McKenzie, 2009). The fact that Boddington could not cope with the influx and local stresses began to emerge, particularly around accommodation. The primary reason was that the re-opening of BGM was announced just as the Western Australian housing and land squeeze was at its tightest. This coincided with the peak in the WA resource sector construction and production cycle, drawing many of the trades and tradespeople into the Pilbara and Mid West regions where unprecedented remuneration rates were being offered.

As a consequence, the mining companies in Boddington encouraged employees to drive-in/drive-out (DIDO) from the urban fringe or from nearby rural communities. These arrangements bring a particular set of challenges, especially for the local government authorities. Firstly, there is limited interaction between the company employees and local businesses and community. This reduced ability to capture economic benefit locally is exacerbated by mining companies locating head offices outside of the region and sourcing their large scale supplies in the region. It is well documented that even where companies have a local procurement policy, many regional economies simply do not have the capacity or a sufficiently diversified economy to supply large scale mining operations, except for minor supply goods and hence miss out on the economic benefits of mining: the so-called 'fly-over' effect (Storey, 2001; Haslam McKenzie, 2011). Secondly, DIDO workers may use some local services and infrastructure, but, as they are neither residents nor ratepayers, they do not contribute directly to local government rates and thus to local infrastructure and economy. This has significant implications for local government and the distribution of Commonwealth and State government grants. It means that local governments with mining activity and transient workforces provide infrastructure and services for which they are not given resources commensurate with the population using the resources.

A further adverse impact on surrounding communities felt most acutely during the construction phases of the BGM and continuing to the present with the expansion of the bauxite mine, has been the increase in private vehicles and company buses transporting employees to and from work, on roads not built for high volumes of traffic. This increase in light vehicles, combined with the heavy trucks hauling gold and copper condensate, chemicals, supplies for the mine and accommodation camp, has caused considerable angst, particularly for the people of Dwellingup, a town notable in the past for its orchards and timber industry, and more recently for its recreational tourism and high proportion of retirees and lifestyle residents. The shift from a quiet rural and tourist town to a busy, sometimes noisy traffic corridor is considered by many to have impacted on local businesses and local amenity.

Figure 4: The Peel Region.

Source: Department of Regional Development and Lands, Western Australian Government

There are also apprehensions regarding the environmental hazards associated with mining, particularly in the river and creeks that flow through the Dwellingup area and which irrigate orchards, businesses and domestic residences. The mines in the Boddington area are all in the upper water catchment and any environmental spills or adverse environmental impacts will flow directly to Dwellingup and other communities downstream. The Western Australian government takes its environmental monitoring role seriously and has strong environmental protection legislation, but local scrutiny and observations are not always taken seriously; often being dismissed as NIMBYism (Not in My Backyard). Further, there has been the nearby Alcoa experience where there has been ongoing community concerns regarding community health and environmental transgressions for more than 20 years with limited changes (Brueckner and Ross, 2010).

Broadacre agriculture in this area has followed the fortunes of the national and international industry trends; farming has become highly technical and economies of scale increasingly important over the last 50 years (Pollard, 2001). Broadacre farming in Australia, and particularly in Western Australia

has been under considerable pressure, causing restructuring and forcing many to leave the industry (Tonts & Haslam McKenzie, 2005). As noted earlier, Boddington and the surrounding farming communities have all suffered from depopulation and gradual ageing of the remaining population. The farming sector consequently welcomed the revival of the Boddington Gold Mine viewing it as an opportunity to boost their often variable incomes with off-farm earnings either through working on the mine or with businesses providing ancillary services.

On the positive side, the mine companies operating in the Boddington area have contributed to new infrastructure and services and rather than handing over the assets to the local government authority to maintain, which in many cases is more than the local government authority can afford, payments have been made to the authority to invest (much like a community chest), for the long term sustainability of local assets.

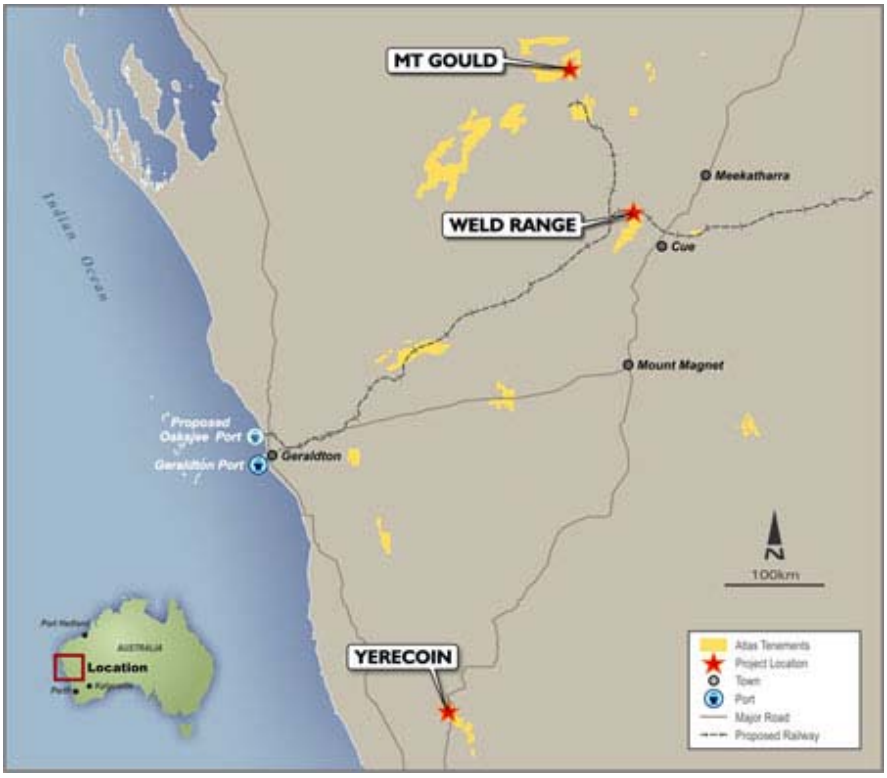
Mining has however had an impact on the price of land with many local farmers speculating on future land demand for housing. Particularly productive farms, especially in the Wandering and Boddington Shires, have been sub-divided into 'lifestyle' blocks of approximately five hectares. Few of these have actually sold but fence-lines are in place and the likelihood of these properties reverting to large, productive broadacre paddocks is improbable. Additional hazards associated with unoccupied and fallow land are the risk of weed and feral animal inundation and poor fire management, thus creating considerable problems for neighbouring farmers.

4.4 The Mid West

The Mid West region of Western Australia covers almost one-fifth of the land mass of the State (See Figures 3 and 5). Its geographical features include a lengthy stretch of the Indian Ocean coastline, a large agricultural hinterland and inland pastoral and mining leases covering a total area of 466,766 square kilometres (including offshore islands), slightly smaller than the adjacent Pilbara. In 2008 the total population of the region was 53,741 with an annual growth rate of 2 to 3 per cent since 2006 (Australian Bureau of Statistic, 2010a). Although 70 per cent of the region's population live in the regional centre Geraldton, overall, the greatest proportion resides on the coastal fringe or hinterland, leaving the dry, eastern parts of the region sparsely populated. There has been a continual decline in population in all but coastal areas of the Mid West for more than a decade (Wiley and Larson, 2008; Australian Bureau of Statistics, 2010a).

Since its early history, the Mid West has been associated with agriculture and mining, albeit, the latter on a modest scale. From 1846 expeditions into the area opened up the Mid West to farming and mining. The population grew slowly until the discovery of gold and the proclamation of the Murchison Goldfield in 1891, and following this, the population and the economy boomed (Economic Consultancy Services, 2007). Iron ore in the Mid West was first extracted at Koolanooka Mine, near Morawa following the lifting of the iron ore export embargo. However, a combination of high energy prices, declining reserves and competition from the larger scale Pilbara mines saw iron ore mining in the Mid West abandoned in 1975 (Shire of Morawa, 2008). Many mining projects continued to operate in the Mid West but while the relative strength of the region diminished with the expansion in the Pilbara and the Goldfields, mining remains an important contributor to the regional economy.

Figure 5: The Western Australian Mid West Region.



Source: Altasiron.com.au

Today the economy of the Mid West is predominantly based on the mining, agriculture, fishing and tourism industries. In 2005/06, the Gross Regional Product of the Mid West was $3.5 billion representing three per cent of the Gross State Product (Mid West Development Commission, 2009). In this period the production value of the mining sector was $2.4 billion or 56 per cent of the regional economy based predominantly on nickel, gold, mineral sands and crude oil. Other major economic contributors during the 2005/06 period included agricultural commodities (wheat, wool and livestock disposal) at $792 million (14%), tourism at $202 million (5%) and fishing valued at $142 million (3%) (Department of Local Government and Regional Development, 2007). In addition, the Mid West region has a significant manufacturing sector supplying products to the agriculture, fishing and mining industries. Due to the rise in global demand, higher resource commodity prices and more sophisticated mining technologies, three iron ore projects have commenced exporting ore through Geraldton Port with up to five projects scheduled for operation once the Oakajee Port and Rail (OPR) project is commissioned (See Figure 3). OPR combined with new mining operations have the potential to further diversify the industry base in the Mid West region and strengthen the region's economy as a significant participant in the Western Australian mining sector.

Despite these promising developments, many Mid West communities are experiencing population decline notwithstanding a growing regional profile. For the agricultural and pastoral areas, this population decline has been primarily associated with the aggregation of farms, modern farming methods, and a prolonged period of drought. Community and business leaders in the Mid West are therefore keen for the renewed interest in mining to proceed to full development, albeit cognisant of the land use conflicts experienced in places such as Boddington and the Surat Basin and the socio-economic challenges

experienced in the Pilbara region. Respondents from the non-government/community sector were acutely aware of the socio-economic consequences when a large number of people involved in the mining and associated industries and with significantly higher disposable incomes reside alongside the general population not involved in mining, thus driving a wedge between the 'haves' and the 'have-nots', inflating the cost of living as commerce, pricing and priority of access to services are oriented towards the mining sector.

One of the most important considerations for the Mid West is that iron ore mining projects are still at a relatively early stage. Timely and coordinated planning was viewed by interviewees as an essential precursor to providing physical infrastructure such as roads, power, water, land release and housing as well as social infrastructure in the form of health, education, policing and local community engagement and support. Prescience about infrastructure, existing and planned, was also the focus of interviewees involved in regional planning, with many keen for infrastructure to be developed with a view to long term sustainable use. While 'partnering' is an oft used axiom in resources industry public relations, the need for greater collaboration across the resources sector, incorporating a better understanding of potential shared benefits for communities and mining industry. In particular, the possibility of infrastructure sharing to resolve deficiencies was raised. The notion of infrastructure sharing and its benefits were discussed from a regional planning perspective:

> Where possible existing infrastructure needs to be better used, however due to the relatively small population and the large area it will be difficult although not impossible [for the mining industry] to join hands. There needs to be far more collaboration for the region to get the most out of current and future infrastructure. (Mid West Regional Development Commission representative).

Understanding and managing the impact of the mining workforce was a frequent topic of discussion in the study, given that a mining workforce (particularly construction) can double the population of a small shire in a very short period of time and can withdraw just as quickly (as was the case in Ravensthorpe in southern Western Australia). The social problems imported by mining were considered a potential concern for the Mid West (and indeed any community) due to alcohol and drug use as well as increased crime and prostitution, all reportedly exacerbated by the high levels of disposable incomes.

When asked to reflect on land use conflicts, many interviewees believed that the benefits derived for the region from mining would outweigh the disadvantages. Farmers who have struggled for a decade to remain viable struggled to imagine their communities being at the centre of land speculation or having to compete for a labour force. Unlike other greenfield mining areas in Australia, current mining projects in the Mid West have limited competition with agriculture for land use. However, concerns were raised by community interviewees that mining would adversely impact upon the agricultural workforce and put this sector into further decline, effectively reducing the diversity of the Mid West economy. It was understood by study respondents that there was considerable support for new mining in the Mid West, with one interviewee considering mining as the potential "economic saviour" of the region with the demise of agricultural production. However some community discernment was recommended, as a local government interviewee cautioned:

> It is important that communities are not too eager to see it happen, taking anything and not the best option, not that local communities necessarily have a say … when you are pro mining sometimes you just take whatever you can get without being selective about what is the best outcome. (Local Government representative).

Finally there are risks for individual communities based on how they are perceived by the mining industry and the actual realisation of benefits; a reality that may be broader than the Mid West. A number of mining respondents discussed the tempering of community expectations due to the reduced scale and scope of mining in the region and the location of mining projects considerable distances from regional townships. As discussed by a mining interviewee:

> Communities can aggressively manipulate or overdo the extraction of benefit out of mining companies. If companies feel this way, there will be a minimalistic approach rather than an engaged approach. (Mining industry representative).

This underscores a potential risk for Mid West communities that there may be minimal benefits due to mining's presence in their Shire or region, the permanent population may continue to decline and the identified challenges of mining, so evident in the Pilbara may become a reality in the Mid West.

5.0 Conclusions

The economic and social challenge for regional development is to optimise the advantages of growth while minimising and offsetting the costs of impacts to secure future development of the region. In this article the focus has been on three rural regions from two Australian States where agriculture has traditionally been the dominant industry but where resources industries are proposing or have recently—established high value extractive and processing operations.

Both the literature and study respondents interviewed for this research emphasise the importance of more diverse local and regional economies. In the Surat and Boddington sites however, mineral extraction and processing now account for a significant and increasing share of Gross Regional Product. A similar trend is anticipated in Western Australian Mid West as proposed projects come on stream. The risk is that inadequate recognition and policy support for sectors such as agriculture and SMEs, who generally possess greater commitment to place and community, will result in a narrowing of the economic base and greater dependence on mining and resource extraction in each of the three regions. Importantly, for all three case study sites, regional population declines are being reversed due to mining activities. However, given the cyclical character of resource development and transience of its workforce, for this trend to endure beyond the life of current mining activities, steps must be taken to encourage permanent settlement, longer term livelihood and investment options for community through broader regional revitalisation.

Conflict over changing land use is evident in other locations around Australia such as the Liverpool Plains and Hunter Valley in NSW, where both sections of the local community and external interest groups are engaging in increased protest over mining operations impacting on agricultural activities and the quality of life in urban settlements. In Queensland, the state government has sought a collaborative partnership approach with stakeholder groups such as

the Queensland Resources Council, Australian Petroleum Production and Exploration Association, Agforce, Queensland Farmers' Federation, and through community engagement strategies with local government and community based organisations. The approach is arguably a productive way to approach a potentially divisive issue such as land use access. However, it has not necessarily resulted in a consensus of opinion regarding the approach or the basic scale of the issue in question.

The key points of difference over competing claims for land use by agricultural and resource developments are:

- land access protocols
- compensation for access
- compensation for use
- security of tenure for both agriculture and resource developments
- uncertainty for communities
- profit sharing
- cumulative impacts of multiple resource developments.

For sustainable regional development to occur, it appears necessary to engage all levels of government in taking responsibility for planning and overarching management of growth and development, particularly for regional infrastructure with the long term view in mind. In turn this means ensuring that all levels, and especially the most local, have sufficient financial and human capacity to participate in all relevant decision making and planning processes. From the mining sector, what is required is a greater integration of the mining workforce into existing communities, so that infrastructure can be better utilised and the mining workforce can connect with local people. This would also increase local spending by employees, reducing the 'fly-over effect' already acknowledged as a negative consequence of a temporary mobile mining workforce.

The mining industry increasingly understands the importance of the social dimension of the mineral industry and local communities. Regardless of the prospective development potential and profits of a mining operation, local communities are an important stakeholder in any mining development and critical to business success (Solomon et al., 2007; Hajkowicz et al., 2011). Planning by mining companies must be premised by an understanding of the impact their activities have on local communities. Although companies acknowledge the need to work with communities to minimise negative social and environmental impacts or enhance community development, there remains an urgent need for a refinement of processes to ensure that even after the mine has been exhausted or closed, there will be enduring community value from the mining activity.

As discussed, most of the mining activity in Australia tends to be in remote and regional areas. Ironically, this usually occurs in places within closest proximity to mining activity and resource extraction which have experienced the lowest levels per capita of infrastructure investment, the most unaffordable housing, the highest levels of population turn-over, escalating cost of living and higher than average crime rates. If Australian wealth is to be truly sustainable, it is critical that institutional frameworks, growth-promoting policies and valuing of human capital be viewed as investments for the future.

References

Acil Tasman (2006). *Factors inhibiting industry development in the North West. Burrup Industries Forum*. Perth, Western Australia: Chambers of Commerce and Industry.

Acil Tasman (2009, May). *Vision 2020 project: The Australian minerals industry's infrastructure path to prosperity: An assessment of industrial and community infrastructure in major resources regions.* Prepared for Minerals Council of Australia. Retrieved from http://www.minerals.org.au/file_upload/files/resources/vision2020/MCA_2020_Vision_Full_Report.pdf

Australian Bureau of Agricultural and Resource Economics and Sciences (2011). *Minerals and Energy: Major devleopment projects.* Canberra, Australia: Australian Bureau of Agricultural and Resource Economics and Sciences.

Australian Bureau of Agricultural and Resource Economics and Sciences (2012). *Agricultural Commodities—March Quarter.* Canberra,, Australia: Australian Bureau of Agricultural and Resource Economics and Sciences.

Australian Bureau of Agricultural Resource Economics (2009). *Australian Commodity Statistics.* Canberra, Australia: Australian Bureau of Agricultural Resource Economics.

Australian Bureau of Statistics (2003). *Australian Social Trends: Family and Community—Living Arrangements: Farming Families.* Canberra, Australia: Australian Bureau of Statistics.

Australian Bureau of Statistics (2007). *Australian Demographic Statistics (Cat. 3101.0).* Canberra, Australia: Australian Bureau of Statistics.

Australian Bureau of Statistics (2010a). *Australian Social Trends (Cat. 4102.0).* Canberra, Australia: Australian Bureau of Statistics.

Australian Bureau of Statistics (2010b). *Australian System of National Accounts 2009-10 (Cat 5204.0).* Canberra, Australia: Australian Bureau of Statistics.

Australian Bureau of Statistics (2010c). *Regional Population Growth (Cat. 3218.0).* Canberra, Australia: Australian Bureau of Statistics.

Australian Bureau of Statistics (2011a). *Australian National Accounts: State Accounts 2009-2010.* Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics (2011b). *Labour force—Australia (Cat 6202.0).* Canberra, Australia: Australian Bureau of Statistics.

Australian Bureau of Statistics (2012). *Australian National Accounts: State Accounts 2010-2011*. Canberra, Australia: Australian Bureau of Statistics.

Auty, R. (1993). *Sustainable development in mineral economies: The resource curse thesis*. London, England: Routledge.

Brueckner, M., & Ross, D. (2010). *Under corporate skies: A struggle between people, place and profit.* Fremantle, Western Australia: Fremantle Press.

Bureau of Resources and Energy Economics (2012a). *Australian Bulk Commodity Exports and Infrastructure.* Canberra, Australia: Bureau of Resources and Energy Economics.

Bureau of Resources and Energy Economics (2012b). *Resources and Energy Quarterly—March quarter 2012*. Canberra, Australia: Bureau of Resources and Energy Economics.

Cloke, P. (2006). Conceptualising rurality. In P. Cloke, T. Marsden, & P. Mooney (Eds.), *Handbook of Rural Studies* (pp. 18-28). London, England: Sage**.**

Cloke, P., & Little, J. (Eds.) (1997). *Contested countryside cultures: otherness, marginalisation and rurality.* London, England: Routledge.

Conley, T. (2009). Globalisation and Australian economic vulnerability. In E. Van Acker & G. Curran (Eds.), *Business and the Politics of Globalisation: After the Global Financial Crisis*. Sydney, Australia: Pearson.

Conley, T. (2011, August 10). Structural shenanigans in the Australian economy. *Australian Policy Online.* Retrieved (n.d.) from http://apo.org.au/commentary/structural-shenanigans-australian-economy or http://apo.org.au/node/25840

Department of Local Government and Regional Development (2007). *Gross Regional Product 2005/06.* Perth, Western Australia: Department of Local Government and Regional Development.

Department of Mines and Petroleum (2012). Resource Statistics. Perth, Western Australia: Department of Mines and Petroleum.

Economic Consultancy Services. (2007*). Mining expansion in the Mid West: Social and economic benefits*. A report prepared for Geraldton Iron Ore Alliance. Retrieved April 14, 2010, from http://www.gioa.com.au/images/gerioa-35--gaeyu.pdf

Edwards, J. (2011). *Quiet boom: How the long economic upswing is changing Australia and its place in the world (Paper 14).* Sydney, Australia: Lowy Institute.

Ergas, H., & Owen, J. (2012). *Rebooting the boom: Unfinished business on the supply side.* Canberra, Australia: Minerals Council of Australia.

Freudenburg, W. (1992). Addictive economies: Extractive industries and vulnerable localities in a changing world economy. *Rural Sociology, 57*, 305-332.

Freudenburg, W., & Frickel, S. (1994). Digging deeper: Mining-dependent regions in historical perspective. *Rural Sociology, 59(2),* 266-288.

Freudenburg, W., & Wilson, L. (2002). Mining the data: Analyzing the economic implications of mining for nonmetropolitan regions. *Sociological Inquiry, 72,* 549-575.

Gray, I., & Lawrence, G. (2001). *A future for regional Australia: escaping global misfortune*. Cambridge, United Kingdom: Cambridge University Press.

Hajkowicz, S., Heyenga, S., & Moffat, K. (2011). The relationship between mining and socio-economic well being in Australia's regions. *Resources Policy, 36,* 30-38.

Haslam McKenzie, F. (2011). Fly-in fly-out: The challenges of transient populations in rural landscapes. In G. Luck, D. Race, & R.Black (Eds.), *Demographic change in rural landscapes: What does it mean for society and the environment*? (pp.353-374). London, England: Springer, Landscape Series.

Hoath, A., & Pavez, L. (2013). *Survey report: Intersection of mining and agriculture, Boddington radius. Land use, workforce and expenditure patterns. C. M. D. U. Flagship.* (Cluster Research Report No. 3.9). Brisbane, Australia: CSIRO Minerals Futures Cluster Collaboration.

Humphreys, M., Sachs, J., & Stiglitz, J. (Eds). (2007). *Escaping the resource curse.* New York, NY: Columbia University Press.

Langton, M. (2010). The resource curse. *The Griffith Review, 28.*

Mid West Development Commission. (2009). *ABS estimated resident population 1997-2008 Period for the Mid West (Regional Summary by LGA).* Retrieved August, 25, 2010, from http://www.mwdc.wa.gov.au/default.aspx?WebPageID=119

Mitchell, C. (2004). Making sense of counterurbanisation. *Journal of Rural Studies, 20,* 15-34.

National Farmers Federation (2011). *Farm facts 2011*. Canberra, Australia: National Farmers Federation.

Patton, M. (1990). Newbury Park, CA: Sage Publications.

Petkova, V., Lockie, S., Rolfe, J, & Ivanova, G. (2009). Mining developments and social impacts on communities: Bowen Basin case studies. *Rural Society, 19,* 211-228.

Pick, D., Dayaram, K., & and Butler, B. (2008). Neo-liberalism, risk and regional development in the Western Australia: The case of the Pilbara. *International Journal of Sociology and Social Policy, 28(11/12),* 516-527.

Pick, D., Dayaram, K., & Butler, B. (2010). Regional develoment and global capitalism: the case of the Pilbara, Western Australia. *Society and Business Review, 5(1),* 99-110.

Pineda, J., & F. Rodriguez, F. (2010). *Curse or blessing? Natural resources and human development.* New York, NY: United Nations Development Programme.

Pollard, J. (2001). *A hundred years of agriculture*. Retrieved December 5, 2002 from http://www.abs.gov.au/Ausstats/abs%40.nsf/94713ad445ff1425ca25682000192af2/3852d05cd2263db5ca2569de0026c588!OpenDocument

Reserve Bank of Australia (2009, January). *The level and distribution of recent mining sector revenue.* Australia: Reserve Bank Bulletin.

Rolfe, J., Miles, B., Lockie, S., & Ivanova, G. (2007). Lessons from the social and economic impacts of the mining boom in the Bowen Basin 2004-2006. *Australasian Journal of Regional Studies, 13*, 134-53.

Rowley, S., & Haslam McKenzie, F. (2009). *Housing markets in regional Western Australia: Boom and bust?* Housing Researchers Conference. Sydney, Australia: The Australian Housing and Urban Research Institute.

Sachs, J., & Warner, A. (2001). Natural resources and economic development: The curse of natural resources. *European Economic Review, 4,:* 827-838.

Shire of Morawa (2008). *The history of the Morawa area since 1950s*. Morawa, Western Australia: The Shire of Morawa.

Smith, D. (2007). The changing faces of rural populations: '(Re) fixing the gaze' or 'eyes wide shut'? *Journal of Rural Studies, 23*, 275-282.

Solomon, F., Katz, E., & Lovel, R. (2007). *Social dimensions of mining in Australia—understanding the mining industry as a social landscape.* Canberra, Australia: CSIRO Minerals.

Stedman, R., Parkins, J., & Beckley, T. (2004). Resource dependence and community well-being in rural Canada. *Rural Sociology, 69,* 213-234.

Stevens, G. (2011). *Economic conditions and prospects: Address to the Economic Society of Australia (Queensland)*. Canberra, Australia: Reserve Bank of Australia.

Storey, K. (2001). Fly-in/fly-out and fly-over: mining and regional development in Western Australia. *Australian Geographer, 32(2),* 133-148.

Taylor, J. (2012). Measuring indigenous outcomes form mining agreements in Australia: The role of applied demography. In M. Langton & J. Longbottom (Eds.), *Community futures, legal architecture: Foundations for Indigenous Peoples in the global mining boom*. Abingdon, United Kingdom: Routledge.

Tonts, M. (2000). The restructuring of Australia's rural communities. In B. Pritchard & P. McManus (Eds.), *The land of discontent: The dynamics of change in rural and regional Australia* (pp. 52-72). Sydney, Australia, UNSW Press**.**

Tonts, M., & Haslam McKenzie, F. (2005). Neoliberalism and changing regional policy in Australia. *International Planning Studies, 10(3-4),* 183-200.

Wiley, T., & Larson, A. (2008). *A review of the effectiveness of community development officers in the Murchison*. Geraldton, Western Australia: Combined Universities Centre for Rural Health.

Wiseman, J. (1998). *Global nation? Australia and the politics of globalisation.* Cambridge, United Kingdom: Cambridge University Press.

Yin, R. (2002). *Case study research design and methods*. Thousand Oaks, CA: Sage.