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Regulation of resource-based development: governance challenges and responses in mining regions of Australia

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Abstract. Extractive industries have significant social, economic, and environmental impacts on the communities in which they operate; and, if well governed, the sector can contribute to sustainable local development. With this paper we analyze public sector dimensions of efforts to manage the development pressures associated with mining in Australia by examining the legislative and policy framework of various levels of government. We outline recent legislative trends and variations across jurisdictions. We also identify gaps and inadequacies in the regulatory framework and the implications of these with respect to emerging governance challenges and practices in mining-intensive regions of Australia—particularly for local governments. We identify forms of networked governance in mining regions involving initiatives of and relationships between local governments, state governments, mining companies, and other stakeholders. These governance arrangements are characterized by (1) variety of institutions, (2) attention to mining-specific impacts, and (3) dispersal of resources, responsibilities, and authority.

Keywords: impact assessment, local government, mining, rural governance, regional and local development

Introduction

Australia is unusual among developed countries in that commodity exports, especially by the resources sector, are crucial to the national economy. Energy and minerals exports contribute about 40% of annual export earnings (valued at around AUS $120–150 billion per year) (ABARE, 2009), and the sector represents 8% of Australia's gross domestic product (Minerals Council of Australia, 2010). The global financial crisis of 2008–09 resulted in contractions in the sector including some mine closures. Nevertheless, this sector of the economy (especially through exports to China) is credited with cushioning Australia through the crisis and underpinning market resilience.

Though the benefits of extractive industries to Australia's economy are clear, they are often less evident in the communities that host mining activity where social and economic development is often distorted and uneven. The nature and volatility of the mining industry and concomitant changes create operational and governance challenges (URS Australia, 2006a). For instance, local authorities—some of which (in emerging resource communities) may be novices at dealing with complex mining-related development—face rapid growth on an unprecedented scale. This growth may result, in some cases, in a doubling of the resident population in two to three years, or in the need to integrate large nonresident workforces that may bring significant infrastructure burdens but with little or no cost offset or compensation via rates, taxes, or supply-chain benefits. Further, local authorities experience internal operational challenges such as increased workload demands because of the number of development proposals, a labor drain to the mining sector, and constrained revenue-raising powers.

These intense pressures from social impacts and service and infrastructure demands, as well as constraints on resources and authority, result in development tensions, particularly at the interfaces between communities, different levels of government, and the private sector. However, the current regulatory system whereby governments deal with individual projects or individual issues in a piecemeal fashion does not satisfactorily manage these tensions (Rolfe et al, 2007). Increasingly, both local government and industry embrace governance as the means to address the challenges confronted in achieving economic and social objectives for resource communities (Hamann, 2004).

Governance refers to modes of tackling local social and economic issues through interconnecting community institutions and actors from multiple sectors (Agranoff and McGuire, 2003; Rhodes, 2007). With this paper we report initial work identifying key characteristics of governance responses to development challenges associated with mining. We seek to improve understanding of recent changes in the formal legislative and policy measures providing the framework within which mining development takes place in Australia and the governance relationships that this framework facilitates between local governments, mining companies, and other actors. These issues are significant in achieving local and regional development in resource-rich regions since many pressures can be exacerbated or ameliorated by prevailing institutional conditions and policy settings.

The governance response

Recent responses to challenges associated with mining-development incorporate legislation and regulations targeted specifically at the resource sector but are also situated in a context of broader shifts in governance that include new policy processes and restructured state institutions. These see Australian local governments—particularly, the 60% of councils in rural and remote areas—contending with an expansion of the service scope of their tier of government and the narrow revenue base at their disposal (Dollery, 2009; PricewaterhouseCoopers, 2006). There is an associated economic rationalist impulse from higher levels of government to decrease the provision of infrastructure and services by the state (Muthuri, 2008; Stoker, 2006; Yakovleva, 2005). Also, recognition of community sector stakeholders and emergent ideas about inclusive governance necessitate considerably more consultation and negotiation, by both public authorities and private sector proponents, with stakeholder groups (for instance, with indigenous groups and traditional owners over land access) (Devas and Delay, 2006; Zadek and Radovich, 2006). This in turn reveals heightened community expectations of public contribution and corporate social responsibility by mining companies (Eversole and Martin, 2005; Hamann, 2004; Manteaw, 2008; Trebeck, 2009; Warhurst, 2005). Hence, specific challenges posed by mining development compound a range of issues and changes that confront those responsible for governing.

Resource development exacerbates governance challenges that are not amenable to solution by current ways of operating but require learning, experimentation, and a shift in responsibility from single authorities and structures to wider responsibility and involvement of diverse stakeholder groups (Heifetz, 2003). The outcome is more and more actors involved in governance with an increasing reliance on a variety of institutions that make connections, share resources, and disperse authority across sectors to address complex societal issues and contribute to local and regional development (Heifetz, 2003; Hudson, 2005; Rhodes, 2007; Stoker, 2006; Warhurst, 2005). Much of the literature examining these trends characterizes contemporary governance as involving deliberation, multilevel relations, and flexible and varied institutional arrangements including partnerships and networks that serve the functions of coordination and learning (Fung and Wright, 2001; Rhodes, 1996; Sabel and Zeitlin, 2010).

There is an extensive literature about these contemporary modes of governing variously labeled ‘advanced liberal’ (Cheshire, 2006; Rose, 1996), networked (Rhodes, 2007; Stoker, 2006), third way (Giddens, 2001), and experimentalist (Sabel and Zeitlin, 2010). They have been analyzed in various policy domains—for example, welfare, rural development, natural resource management, and urban planning—and warrant scrutiny in mining regions. Forms of governance where responsibility, authority, resources, and capabilities are shared among multiple actors including some from private and community sectors have been described as:

> "[n]o longer based on authority being centered on elected politicians (hierarchical model) nor on yielding responsibility to the private sector (market model), but rather it [local government] regulates and designates collective resources through relations with both the civilian population and with the other levels of government" (Brugué and Vallès, 2005, page 198).

This suggests a role for local governments in forms of governance where all levels of government, the private sector, and community stakeholders collaborate in flexible and varied institutions that pool resources and different forms of knowledge for practical solutions to development challenges. Although some of the literature glosses over the role of local government, there is a strand of the work proposing that local government has a key role within this dynamic governance landscape in facilitating the relationships that underpin collective responsibility and action (Börzel and Risse, 2010; Bryson et al, 2006; McGuire, 2006; Smith, 2007). The extent to which current legal and institutional frameworks construct such modes of governance and, specifically, points of comparison and identifiable trends in different jurisdictions and their implications for local government in managing the challenges associated with mining development is explored below.

Method

The results reported here are from the initial stage of research for a larger Australian Research Council Linkage project 'Local government, mining companies, and resources development in regional Australia: meeting the governance challenge'. This project assumes the implementation of government legislation and policies—through regulations, plans, and programs—frames development processes, and influences social outcomes as well as shaping the roles and relationships of stakeholders and relevant authorities. Therefore, the first stage in our examination of local-level governance responses to mining development entailed a qualitative review of relevant legal, policy, and planning arrangements, trends, and responsibilities in Australia's four mining-active states—namely Western Australia, Queensland, South Australia, and New South Wales. A desktop review was conducted of regulations, policies, and legislation in each of the four states as well as related literature on the implications of such legislation for local councils and for governance of resource-based development. Government and industry reports indicating perceptions of state governments, mining companies, industry bodies, and local government associations about the current arrangements were also reviewed.

The desktop review was supplemented by the research team's familiarity with the industry from earlier research and was followed by telephone interviews with fifteen purposively selected stakeholders across the four states. The interviews targeted representatives of four groups covering both public and private sectors: state government and local government, as well as mining companies and industry bodies. They further informed our understanding and tested our interpretation of legislation and policy frameworks and their implications at the local level, but did not serve as primary data for this stage of the research.

The findings from the regulatory review are analyzed in relation to one specific mining region in each state. These individual case studies demonstrate significant variations with respect to the governance challenges—notably, cases where mining is an established and an emerging industry; and cases of mining in remote areas as well as ones with rural industries and population (see table 1 and figure 1). By drawing on this cross-section of specific examples,

Table 1. Case-study mining regions.

	Remote	Rural
Established	1 Pilbara (WA)	2 Bowen Basin (Qld)
Emerging	3 Olympic Dam (SA)	4 Gunnedah Basin (NSW)

Note: WA = Western Australia; Qld = Queensland; SA = South Australia; NSW = New South Wales.

Notes: 1 = Pilbara, Western Australia; 2 = Bowen Basin, Queensland;
3 = Olympic Dam, South Australia; 4 = Gunnedah Basin, New South Wales.

Figure 1. Map of Australia locating the four case-study regions.

we illustrate the diversity of governance arrangements in Australia and the redefinition of the roles and relationships of state and nonstate actors that is occurring.

Findings: legislative, regulatory, and policy frameworks

Jurisdictions

In Australia there are three tiers of government: federal, state or territory, and local. While each tier of government has some responsibilities with respect to regulation of mining operations, state or territory governments are the predominant authorities. They deal with allocation of mineral resources (licensing), determining returns to the public (royalties), access to Crown and private land, water access, and planning approvals. Local governments are a primary interface between communities and the state as a whole and are responsible for levying rates (local property taxes), and for matters including planning and building, traffic and roads, environmental health and waste disposal, community support, facilities, and recreation. The federal government has authority with respect to foreign investment regulation, uranium-specific issues, and most taxation matters. Increasingly, there are areas of coregulation. For example, both federal and state governments are involved in agreements on native titles, environmental protection, and heritage issues, while state and local governments deal with planning approvals and regional social and economic issues. Hence, these policy domains are neither discrete nor clearly defined.

The picture is further complicated insofar as the responsibilities exercised by diverse departments and bodies vary according to the different phases of a mining project's life-cycle and proceed with differing degrees of coordination, depending on the jurisdiction. Furthermore, some states have allocated a regulatory function to regional bodies, corporatized agencies, and quasi-government bodies that provide an added layer of complexity in administering former roles of state government departments. Mandated consultation processes provide for nongovernment stakeholders to influence local and regional development in mining-intensive areas. These stakeholders include significant interest groups such as indigenous groups, regional boards, and civil society organizations. Further, there are elements of industry self-regulation that impact on the exercise of responsibilities within formal frameworks. These self-regulatory processes involve voluntary codes, industry initiatives, and what is sometimes called 'civil regulation' or 'social license to operate' (Trebeck, 2009, page 131).

Relevant legislation

Within this complex jurisdictional framework, state variations on environment protection laws and development and planning legislation are the most significant in terms of local ramifications of mining (URS Australia, 2006b), although local government acts in each state influence local and regional development in resource-intensive regions. In most states environment protection acts date from the 1990s, emerging at a time when considerations of the impacts of development on local communities, the environment, and the economy were not integral concerns of mining project proponents (Russell, 2003). These laws stipulate that environmental assessments must be carried out by proponents on a project-by-project basis. While fundamental environmental protection is in place, the legislation reviewed does not enshrine holistic regional assessments; nor does it deal with cumulative impact assessments (Franks et al, 2010). Moreover, the impact assessment requirements in these acts do not address social impacts.

Recent attempts to incorporate social impact assessments in proponents' advance planning, notably in Queensland (see below), have not been legislated, and it is fair to say there is stronger protection against environmental damage than against negative social consequences of individual, much less multiple mining operations. Without the backing of a legal framework, social impacts are insufficiently considered or inadequately treated in environmental impact statements, as Rattle and Kwiatkowski (2003) and Slootweg et al (2003) pointed out a decade ago.

Environmental impact assessments have been part of the mining approvals process for almost twenty years. In contrast to the relative stability of environment protection legislation, there have been ever-shifting regulations with respect to planning and development acts which mandate both assessment and planning prior to commencement of operations and also adherence to conditions and regulations during operations and postclosure. In addition to approvals processes, planning and development acts specify a variety of planning regimes that incorporate a requirement for public consultation. Recent amendments to these acts exhibit a number of common themes.

First, a general aim of the amendments to planning and development legislation in all four states has been to encompass some notions of sustainable development. This implies greater attention to environmental impacts and a tentative acknowledgement of social impacts. Second, these changes serve to streamline development processes and reduce the compliance burden of developers (including mining companies) by consolidating processes and reducing red tape (Carr, 2007; Economic Development Board, 2008). For instance, the Queensland legislation seeks to achieve these objectives by enhancing ministerial powers and by clarifying the hierarchical relationship between various planning instruments and levels of plans (Department of Infrastructure and Planning, 2009). This demonstrates a third observable trend towards extended planning horizons and developing a nested hierarchy of plans at local, state, and often intermediary regional levels. In some states this involved new review bodies and further amendments to existing legislation. For example, the New South Wales Government (NSW Government, 2009) established a statutory body appointed by the minister and reporting to the State Department of Planning to deal with most major project assessments (Pearson and Williams, 2009). Such measures illustrate that a further intention of the reforms is to enhance the technical expertise of those influencing decision making. However, some have drawn attention to such trends as being positively predisposed to development and their overall effect on the functions and financing of local government as being less benign (see, for example, Kiely, 2009). In particular, there is a criticism that such amendments—by enhancing ministerial powers, prioritizing higher level plans, and streamlining decision making—effectively establish "tiered and technocratic decision-making" (Ghanem, 2008, page 149), curtail the role of local government, and sideline the public.

Local government acts have likewise been subject to radical revamping by most state governments. In outlining local government responsibilities, for instance, recent amendments to this legislation seek to promote greater economic efficiency, managerial competence, and public accountability (Dollery et al, 2008; England, 2001). There has also been redefinition of both regulatory and service functions and responsibilities of local government expanding beyond 'roads, rates, and rubbish' to many more environmental and social areas, on the one hand and, on the other hand, yielding some planning powers to more central authorities (generally the state government) (Dollery et al, 2006). Council amalgamations and voluntary collaborations, most recently in Queensland and Western Australia, have also been a feature of local government reform that is promoted as a way of boosting local government capacity (primarily by increasing economic efficiencies), though this effect is disputed (Dollery et al, 2008).

In addition to determining areas of responsibility, local government acts also define sources of local government revenue—provisions that have been less dynamic—with the revenue-raising powers of local government fairly circumscribed, and indeed capped, in the states of New South Wales and Western Australia. There is a marked difference in the way that local government act rates provisions are utilized both across and also within jurisdictions. Although legislation in some states allows councils to levy special rates on mining operations, redistributive measures to advance developmental objectives such as improved quality of life and social cohesion are achieved through mainly state government royalties and federal government income taxes (House of Representatives Standing Committee on Economics, Finance and Public Administration, 2003). The summary effect of the local government reform agenda has been to increase demands on councils without a commensurate increase in the resources available to them, at the same time as reducing their autonomy and democratic responsiveness, in the interests of cross-government coordination or more centralized authority (Dollery, 2009).

Overall, despite considerable variation across states, Australia provides a generally prodevelopment context with recent efforts in all jurisdictions to streamline approvals and development processes while ensuring a net economic benefit to the state from mining projects. Nevertheless, it is a complex development environment with fragmented authority, the involvement of numerous policy, regulatory, and compliance bodies, and informal involvement of other stakeholders, all occurring in a context of ongoing reforms (Beer et al, 2003).

This context is essentially created by state governments but has particular consequences for local government. Local government is both the administrative unit involved in balancing economic opportunities from mining development and also the authority that most directly experiences the social disruption, strained infrastructure, and negative impacts on the long-term well-being of resource communities. The following case studies illustrate the complexities of these issues.

Context 1: Western Australia (Pilbara)

The Pilbara is a mature mining region, developed in the 1960s with twenty-three operating mines, two major coastal towns—Karratha and Port Hedland—and four local government authorities. It covers over 500 000 square kilometers but is home to just 45 000 people, 14% of whom are indigenous people, much higher than the national proportion (Rural Health West, 2010). One in five workers is directly employed in mining, and the region accounts for over half of Western Australia's mining and petroleum production and 20% of national export wealth (Pilbara Area Consultative Committee, 2008). Many of the established iron ore, oil, and gas operations in the Pilbara operate under state agreements. State agreements are contracts negotiated between the state government and the proponents of major projects that specify the conditions under which a major project will operate, such as the rights and obligations of the parties, royalties, mine lease conditions, and land tenure. In some cases the agreements also include governance arrangements for associated 'mining towns'—dormitory communities constructed by companies to house mine workers and their families. In the 1960s many such communities were built in the Pilbara, an area which at the time was only sparsely populated with minimal built infrastructure. Many of these towns have since undergone a process of 'normalization', whereby governance responsibilities have been transferred to a local government (Lea and Zehner, 1986). Other towns, however, remain fully or partially under the jurisdiction of state agreements, resulting in hybrid communities in which provision of essential infrastructure such as power, water, and housing remain in the hands of often reluctant corporations who continue to play the role of "de facto provider of basic public services" (Hooke, 2010, page 24).

Such towns have been one of the key enablers of mining development, and supported the delivery of large-scale workforces into remote and largely undeveloped regions. Nowadays, however, a substantial proportion of the workforce maintains a residential base outside the region and commutes to work by air.[(1)] This fly-in–fly-out practice, like normalization, has reduced the direct involvement of companies in town administration. Nevertheless, the economic dominance of a handful of large multinational corporations, and the legacy of development instruments such as state agreements, has blurred the lines between the public and private sectors. The Pilbara now has a complex mixture of ownership and governance arrangements. But whether communities remain under state agreements, have been normalized, or indeed are towns that predate mining development, almost all Pilbara communities face growth pressures as a consequence of expanding mining activity in the region. Current expansion is projected to result in a tripling of employment numbers in the Pilbara by 2020 (Heuris Partners Ltd, 2008). Although over half of these additional employees will fly in and fly out from distant centers such as Perth, and will reside in single-person quarters rather than residential housing, the additional public administration and infrastructure burden on an already stressed region will be significant.

[(1)] In what is known as a fly-in–fly-out workforce, workers and their families are based at a distance from the workplace, often in the state capital or other coastal cities, and workers occupy temporary accommodation in single-person quarters when they commute to work by air for their roster of a sequence of multiday shifts.

By 2005 there was growing recognition that governance in the Pilbara, built on the foundations of 1960s government and industry regimes, was not equipped to meet the current growth and operating needs of the region. A new model was required, one that could bring together the key governance players—the state government, local governments, regional bodies, and the private sector—in collaborative forums to work synergistically to manage and optimize the region's growth.

This resulted in the establishment of the Pilbara Industry's Community Council (PICC) in 2006. The PICC comprises both private and public sectors—involving six mining companies and federal, state, and local government authorities—and was founded with the aim of collaborating on two specific regional priority areas: indigenous employment and disadvantage in the Pilbara, and development of a strategy for the sustainability of Pilbara towns (Heuris Partners Ltd, 2008). The PICC received substantial state government support and enjoyed high-level political representation on its peak governing committee.

However, broader ambitions and a political change to a more interventionist state government have prompted further developments that seek to leverage mining activities as a foundation for more diverse economic and social development of regional centers. One policy initiative central to this aspiration is Royalties for Regions, a redistributive mechanism whereby 25% of the state's mining and on-shore petroleum royalties are directed to regional areas to fund infrastructure projects and regional community services (Department of Regional Development and Lands, 2009). The Pilbara region is a major beneficiary of Royalties for Regions. Concurrent with Royalties for Regions, the Western Australian Government launched the Pilbara Cities vision in late 2009, committing almost AUS $1 billion of funding over five years to an ambitious regional development plan which aims to transform some of the towns of the northwest into diversified regional centers with sound infrastructure, amenities, and affordable but high-quality housing and living conditions. While driven and bankrolled by the state government, these developments seek to partner with mining companies and with sometimes fragile local governments to harness both public and private resources.

Similarly, in other recent developments, such as the Browse Basin Liquefied Natural Gas project in the Kimberley region further north, the Western Australian Government has taken a proactive role. In that case it was that state government that undertook a strategic regional assessment of impacts, chose a preferred location for the gas precinct, negotiated with traditional owners, and acquired land rather than individual proponents taking these initiatives with respect to their separate operations. However, as the legacy of state agreements is left behind, state government dominance has not entirely replaced the private sector dominance, and local governments are becoming more assertive and autonomous actors and are collaborating with others in regional bodies. Indigenous land councils are likewise more empowered and actively engaging with different levels of government and with the private sector. There are, therefore, the beginnings of more diverse institutional forms and potential for more dispersed power based on strong relationships between sectors.

In Western Australia the Royalties for Regions policy and the plans, projects, and relationships encapsulated in the Pilbara Cities vision and Pilbara Plan have been more significant than legislation in forging a governance model involving collaboration between public and private sector. Central authorities act as a catalyst and coordinator, distributing resources and supporting practical problem solving. These features are associated with models of contemporary governance including empowered participatory governance (EPG) (Fung and Wright, 2001). However, the deliberative decision making and devolution to empowered local units characteristic of EPG are not so evident in Western Australian resource regions.

Context 2: Queensland (Bowen Basin)

The Bowen Basin is a relatively diversified mining region of resource-related communities covering approximately 160 000 square kilometres of Central Queensland. The Bowen Basin is the largest coal reserve in Australia, with some forty operational mines responsible for 83% of Queensland's production of coal—the state's most important export commodity (Miles and Kinnear, 2008). It also has extensive agricultural and grazing activity and a population of 360 000, with almost one quarter of the workforce employed in mining. In addition, there are about 12 000 workers who commute to work through fly-in–flyout and drive-in–drive-out arrangements. This creates specific challenges as planning and resource allocation processes do not adequately take account of this nonresident population and its needs (Miles and Kinnear, 2008). Following significant council amalgamations in 2008, the mining activity affects five local authorities.

Communities in Queensland's Bowen Basin have experienced the pressures of multiple mining developments. There have been shortages of affordable accommodation, shortages of skilled tradespeople, and pressure on community services such as medical and dental services, child care, and recreational facilities (Rolfe et al, 2006).

With its Sustainable Resource Communities Policy (Department of Infrastructure and Planning, 2010a), the Queensland Government has sought to address the significant impacts on community infrastructure and services of rapid mining-related development. A key provision of this policy is for social impact management plans (SIMPs) to be prepared for new or expanded resource development. SIMPs must be prepared by the proponent in collaboration with other key stakeholders, particularly local government, Queensland Government departments and agencies, regional planning committees, service providers, and the broader community (Department of Infrastructure and Planning, 2010b). The policy also establishes a collaborative local leadership group in each of the major mining regions of the state. The Bowen Basin Local Leadership Group (BBLLG) comprises representatives of local government, the resources sector, unions, and the state government.

Because the impacts of mining in the Bowen Basin are cumulative, in that they result from the aggregation and interaction of multiple mining operations and other industries, effective management is possible only through coordination and collaboration (Franks, 2009). The BBLLG, regional planning committees, and a number of other multistakeholder groupings in the Bowen Basin are examples of institutional forms integral to regional governance that exhibit some of the features of network governance in engaging actors from multiple sectors in collaboratively managing the challenges of mining development (Rhodes, 2007; Sabel and Zeitlin, 2010; Stoker, 2006). However, to date, these groupings have limited authority and resources.

The arrangements between local councils and companies to manage local impacts of mining are constrained by state government legislation as well as by varying commitments to corporate social responsibility:

> "[p]olicies of multiple levels of government have caused confusion and conflict over questions such as the extent to which individual mine operators should take responsibility for the provision of infrastructure in nearby communities affected by other mines" (Department of Local Government, Planning, Sport and Recreation, 2006, page 21).

Nevertheless, there are examples of councils undertaking effective bilateral negotiation to manage mining impacts rather than relying on statutory authority. One council in the Bowen Basin reported securing an agreement that a local coal operation will contain production on the basis of general air-quality measures (rather than specific site emissions). This illustrates a council pushing the boundaries of what is achievable despite the constraints of state legislation that does not provide a role for local government in setting operational conditions of mines for the benefit of the community as a whole. It also highlights the increasing community and government expectation that the mining industry will engage with other stakeholders including local government, other government agencies, and industry competitors—especially with respect to cumulative impacts. In such ways proactive councils are acting bilaterally and multilaterally to pressure for good outcomes rather than relying exclusively on state government regulation.

Other local councils have used the special rating provisions (of the Local Government Act) to generate increased income from mines in their jurisdiction—for instance, by levying rates according to a sliding scale depending on the size of the workforce, and have negotiated bilateral agreements about road construction and maintenance in cases where the bulk of heavy road traffic is mine related. Such differential treatment means some companies say that half of their payments to local government are outside legitimate rates and charges, and have challenged high rates in courts (LGAQ, 2010).

Queensland Government policy directions in some ways encourage resourcing from various sectors and the engagement of new multistakeholder institutions in managing local impacts of resources development as well as introducing some initial measures to deal with social impacts and with cumulative impacts. Nevertheless, relationships between sectors remain fraught, and there is still a quite hierarchical situation with state government at the helm and the authority and resources of local governments being comparatively limited.

Context 3: South Australia (Roxby Downs)

Olympic Dam Operation, in central South Australia, is the world's largest uranium deposit and has substantial copper, gold, and silver deposits (NRDB, 2008). This single operation produces about 70% of the state's mining output (Strategic and Social Planning Division, 2008). Roxby Downs township was purpose built in 1987 by the mining company to support the Olympic Dam mine. It has a population of 4500, which is anticipated to more than double to 10 000 in a short time frame, with expansion proposed that will lift ore production sixfold and extend the projected mine life to seventy years.

South Australia has a unique regional governance model. Unlike other states of Australia, most of the sparsely populated inland region of South Australia falls outside of local government jurisdictions in an area known as the 'out-of-councils' area. This area covers 85% of the state and is overseen by the Outback Areas Community Development Trust (OACDT), a statutory authority under the control of the minister for state/local government relations. The OACDT facilitates the provision of essential services and infrastructure to remote regions, in part via grants to local community organizations. South Australia also has an established regional planning system and network of regional development boards and catchment management groups with governance roles. Consequently, development in the Roxby Downs area is also guided by the Far North Regional Land Use Framework (Planning SA, 2008). This framework is the result of a multiagency collaboration involving the South Australian Government (through Planning SA and other state departments), the OACDT, the Northern Regional Development Board, and three elected councils also included in the Far North Region. This plan has statutory effect; and development plans, including that of the municipal council of Roxby Downs (a nonelected body operating under a state-appointed administrator), must align with it.

Governance of the town falls under the Roxby Downs (Indenture Ratification) Act (1982) (Government of South Australia), an agreement between the state government and the owners of the mine. The day-to-day management of the township is undertaken by the Roxby Downs 'council', which operates all municipal services including utilities (power and water). Both the state and the mining company approve the council's budget and reimburse any municipal deficits (currently approximately AUS $1.45 million annually) in equal shares. There is some community aspiration for self-governance (with elected representation), but Roxby Downs is unlikely to be fiscally self-sufficient in the near future (Roxby Downs Council, 2009).

The Roxby Downs case illustrates the challenges of establishing sustainable local governance in remote mining regions with little economic diversity and reliance on state government and/or mining company capacities and resources to maintain infrastructure and social fabric. This represents the closest relationship between the private sector and the state government of any of our case studies, but this public–private partnership does not demonstrate much variation from a traditional state government-centered approach to the management of resource development. There are few local institutions and limited stakeholder engagement. The state government and the mining company are the central actors, and the state agreement is the key determinant of responses to challenges such as social impacts or cumulative impacts. The shift to a more networked form of regional planning and development that involves a wide range of sectors and diverse knowledge is yet to have much influence in this major mining area of South Australia.

Context 4: New South Wales (Gunnedah Basin)

The Gunnedah Basin is an emerging coal and gas region in northern New South Wales. It is over 12 000 square kilometres in area and intersects with the rich, alluvial farm lands of the Liverpool Plains—one of Australia's most productive agricultural regions. The basin covers four shire councils with a total population of over 44 000. These councils are members of the Namoi Regional Organization of Councils and of another active local government body, the New South Wales Association of Mining-related Councils, a subset of the Local Government and Shires Association of New South Wales. The latter organization undertakes advocacy and provides information for mining communities, coordinating a cooperative approach to state and federal governments with respect to mining-related developments.

The four operational coal mines in the basin produce just 3.7 million tonnes of coal at present, and only 2% of Gunnedah's workforce is employed in mining. However, there are prospects of imminent and dramatic expansion to exploit the substantial coal reserves in this basin that one company manager has called "the new coal frontier" (Burgess, manager, Whitehaven Coal Mining). The expansion is supported by the state government (Lewis, 2005), but local grassroots opposition during the exploration and construction phases of mining has created significant tensions between stakeholders. These are not resolved by the centralized approvals process in New South Wales that has reduced opportunities for public comment and cut out a formal role for local government as consent authority.

The Department of Planning is the lead agency in approvals and relies on appointed panels of 'experts' at state and regional levels rather than elected local councillors for advice. This process was introduced in 2008 on the grounds that it would provide a more integrated approach, enhanced capacity, and greater expertise at state level for projects that are "highly complex, requiring specialist assessment skills and resources available within the Department [of Planning]" (NSW Government, 2009, page 41). However, there have been some compromises involved in expediting approvals processes and in reducing regulatory burdens on industry. Notably, the increasingly centralized, expertise-based system in New South Wales is regarded as diminishing attention to environmental and social impacts and marginalizing local government and community interests (Ghanem, 2008).

Despite the centralization of authority, the region has seen concerted and influential grass-roots action with a local protest group blockading land for 615 days, and farmers taking successful legal action to prevent some exploration activity. Also, pressure from community (and local government) has stimulated limited cooperation between state government and the private sector. For instance, landholders' concern about potential impacts on groundwater systems resulted in the Namoi Water Catchment Study—a strategic assessment by a working group that includes civil society (the Caroona Coal Action Group), mining, and other industry groups (New South Wales Minerals Council, BHP Billiton, New South Wales Farmers Association), and state and federal government departments (Franks et al, 2010). This study illustrates the New South Wales government's interest in appeasing disaffected rural populations, seeking collaborative solutions, gathering both scientific and lay data, and mobilizing resources from nonstate sectors to manage the impacts of resource development. It thereby provides an example of both a voice for local resistance and a collaborative response based on pooled resources.

Similarly, there has been considerable engagement of active civil society interest groups in the collaborative responses in other established resource regions of the state, such as the Hunter Valley. Here, the cumulative social and environmental effects of multiple mines operating over a number of years in close proximity to towns and other industries has required some innovative governance responses. One example is the application of market-based measures to manage the saline water discharges associated with coal mining in the form of a Hunter River Salinity Trading Scheme. Similarly, dust emissions are monitored and publicly reported through the Hunter Valley Air Quality Monitoring Network, an initiative that is funded by companies, is coordinated by state government, and involves technical and lay expertise in determining standards and reporting formats. These examples demonstrate that the New South Wales regulatory framework is characterized by coordination by central authorities; harnessing of resources, knowledge, and expertise from multiple sectors; institutional variety; and engagement of community stakeholders.

Discussion

In each of the cases profiled except South Australia the complexity of interactions associated with mining development (between issues and between various stakeholders) poses challenges not easily addressed by current state-government-centered, hierarchical governance arrangements. The accounts above have highlighted three of these challenges that particularly confront local government: (1) forging and maintaining productive relationships with other levels of government, community stakeholders, and the private sector mining companies; (2) managing local social impacts and expanding infrastructure and services to cope with changing demands; and (3) constraints on available resources and authority. It can be seen that each of these mining-intensive states has responded to these challenges with legislation and/or policies that shape planning and decision making and influence the trajectory of local and regional development in different ways.

This review has indicated some contradictory impulses, but also tentative trends in the legal and institutional contexts of the four states that are sufficiently prevalent to warrant consideration as characteristics of emerging local governance arrangements in mining regions. These are: (1) the encouragement for a range of institutional actors—including mining companies, government agencies, and civil society organizations—to actively collaborate in a variety of multisector partnerships and networks which do not necessarily provide a niche for local government; (2) redistribution of resources and authority that changes, but does not necessarily alleviate, constraints on local government; and (3) renewed attention to physical and social infrastructure and services for the communities and regions where the mines are located.

Variety of institutions

In South Australia the state government, OACDT, mining company, and administrator-headed appointed council dominate governance arrangements of the Roxby Downs area. In other states it is evident that new institutional arrangements established by state governments often involve collaboration among stakeholders from multiple sectors and multiple levels of government in the ways described by, for example, Rhodes (1996; 2007) and Stoker (2006). This supports observations that multistakeholder and cross-sector partnerships are becoming the institutional norm for achieving public goals (Zadek and Radovich, 2006).

The partnerships evident in all of the states profiled—whether legislated state agreements, ongoing quasi-autonomous bodies, or time-bound project-focused groupings—do not necessarily operate smoothly. Systemic reforms that have resulted in improved relationships between state governments and industry—including streamlined approvals processes—have also led, in some situations, to adversarial relationships, rather than wider collaboration, between those actors and local government and civil society. Moreover, the flexible networks said to characterize contemporary governance (Rhodes, 2007) tend to evolve into, or be replaced by, more formal partnerships and institutions. For example, the PICC has diminished in significance in the Pilbara with the establishment of the Pilbara Cities office, and the BBLLG is a progression from spontaneous cooperation among local council leaders—the Bowen Basin Mayor's Group—to a state-led institution.

The momentum towards regional bodies becoming important in governance terms is a testament to the inadequacy of traditional institutional frameworks, since they exist outside of the existing tiers of government. In Queensland, for instance, collaborative bodies that include private sector representation devise regional plans that will progressively be accorded statutory status, and in other states voluntary regional organizations of councils (ROCs)—such as the Namoi ROC in New South Wales and Pilbara ROC in Western Australia—provide forums for collective action.

The proliferation of more varied institutions that encourage links between organizations and sectors produces the sort of networked institutional conditions associated, in Europe with networked governance (Rhodes, 2007; Stoker, 2006) or experimentalist governance (Sabel and Zeitlin, 2010). These networks include forums convened by local or state governments that involve multiple mining companies and other stakeholders and that distribute responsibilities among multiple actors. However, the caveat when considered from a local government perspective is that not all of these institutions include a role for local government (Rolfe et al, 2007, page 151). This ambivalence is also evident with respect to the engagement of community stakeholders and broadening of democracy associated with recent directions in governance. Some mining areas are sites of engaged civil society action, and there are measures to include a community voice in many of the public processes. But, curiously, this has largely been achieved through involvement of civil society groups rather than via local government involvement. Since local government is closest to the community and consists of democratically elected representatives, it might have been expected that it would have a significant role in regional governance networks.

Our observations support claims that hybrid institutional arrangements are only a partial governance solution because there remains a need for coordination of the various actors involved (Rolfe et al, 2007). While some of the literature suggests that providing this coordination and brokering relationships in these varied institutions is a possible role for local government (Börzel and Risse, 2010; Bryson et al, 2006; McGuire, 2006; Smith, 2007), we found few instances of policies or regulations situating local government in such a role. Such coordination as exists remains primarily in state government hands.

Attention to mining-specific impacts

As well as the emerging institutional arrangements to deal with mining development, policy attention has also been directed to measures addressing the particular characteristics of the impacts of this form of development. While there have been considerable advances in all jurisdictions with respect to regulation of environmental impacts, the research confirms that existing legislation and governance arrangements do not give adequate attention to social impacts (Rattle and Kwiatkowski, 2003; Slootweg et al, 2003). Responses to these impacts are exhibiting some of the innovation, experimentation, and use of diverse knowledge sources associated with contemporary modes of governance (Sabel and Zeitlin, 2010) as they require consideration of social, economic, and environmental impacts beyond the temporal and spatial limits of individual operations (Franks et al, 2010). An example of this is growing interest in social impact assessments as part of the requisite environmental impact statements as a way to ensure consideration and better management of social and cumulative impacts. Queensland has taken further measures to elevate the importance of social impacts via the mechanism of SIMPs. These plans require companies to be accountable for social performance commitments made in the social impact assessment process.

Additionally, to better manage cumulative effects (environmental or social), state-managed strategic impact assessments have been undertaken in some cases. Such processes for the Galilee Basin in Queensland, the Browse Basin LNG Hub in Western Australia, and to measure and manage cumulative impacts of coal mining in the Hunter Valley have drawn on diverse economic, social, and other data as well as community consultations to provide an integrated understanding of future scenarios.

But despite these examples of lateral thinking in policies and compliance procedures and increasingly sophisticated understanding of impacts informed by diverse knowledge sources, there is still evident discomfort about how to balance and synthesize scientific, commercial, and lay knowledge (Curry, 2012). Also, there is limited recognition of the particular contextual knowledge provided by local government. Although SIMPs and strategic regional assessments can draw on the insights of local government, these instruments do not provide a central position for local government in the evidence-based approach to addressing mining-related impacts.

Dispersed resources, responsibilities, and authority

Further defining characteristics of governance are the pooling of resources from diverse sources and the distribution of responsibility and authority among a wider group of organizations and institutions. In involving multiple actors with a "polyarchic distribution of power in which no single actor has the capacity to impose her own preferred solution without taking into account the views of the others" (Sabel and Zeitlin, 2010, page 9), the situation with respect to mining-related development satisfies this additional feature associated with contemporary forms of governance. Not only is authority dispersed and responsibility shared, but also resources are pooled.

In the cases examined both companies and local governments face pressures to provide extra public services and infrastructure at local levels. The research identified a trend towards private sector community spend being directed through partnerships with local and state government to fund major policy initiatives as in Western Australia's Pilbara Cities, Queensland's Sustainable Resource Communities, and the Hunter Valley Air Quality Monitoring Network in New South Wales. However, there is disquiet in some quarters because the bulk of additional resources are directed to a significant degree by state government with limited funds channeled specifically to local governments and their priorities, other than through the Royalties for Regions program in Western Australia. This has led to agitation for programs such as Royalties for Regions to extend beyond Western Australia.

The limited distribution of mining-related resources links to another aspect of governance with respect to which we detected contradictory impulses. On the one hand, there is a broadening of responsibilities beyond state government with expectations of greater corporate responsibility on behalf of companies and some devolution of responsibilities for service delivery and implementation to local governments or hybrid boards, committees, and statutory authorities at state, regional, or local levels. At the same time authority is being centralized in state governments, which is perceived as marginalizing local government, especially in New South Wales (Ghanem, 2008). Hierarchical lines of authority are retained rather than more horizontal linkages across multiple levels being supported, with the result that there are more governance bodies that are underresourced and lack a strong mandate.

Conclusion

Mainstream Australia does not suffer from the so-called resource curse (Bridge, 2008)—of economic underdevelopment, political mismanagement, and military conflict—common in many countries that have primarily extractive industry economies. However, there are heated debates about uneven distribution of mining wealth and ongoing concerns about the significant disadvantage of indigenous people, many of whom are traditional owners of land rich in minerals but have not accessed proportional benefits in terms of employment, income, or human, social, and cultural development. If regions are to derive long-term benefits from extractive industries, it is critical that there are effective governance processes and structures in place to plan and manage associated growth. A clearer understanding of the present fractured, fluid, and complex situation is a necessary foundation for this. By detailing the various (sometimes contradictory) policies and practices that frame the operation of the mining sector in these four states and shape patterns of development for regional communities, this study shows some of the consequences (and limits) of existing regulatory and institutional settings, particularly for local governments. It identifies emerging trends in the legal context with the four states exhibiting different characteristics of contemporary governance to manage the impacts of mining development. These relate to the resources and authority at their disposal, the nature of relationships they have with other sectors in collaborative groups, and the degree of attention to social and cumulative impacts accorded by the legal and institutional context.

In particular, the research highlights emerging forms of governance where all levels of government, the private sector, and community stakeholders collaborate in a variety of institutions including partnerships and networks that pool resources and different forms of knowledge for practical execution of shared development responsibilities and operate at various levels including the region. However, elements of these arrangements differ from the characterization of contemporary governance as involving deliberation, flexible institutional arrangements, effective coordination, and continual learning (Fung and Wright, 2001; Rhodes, 1996; Sabel and Zeitlin, 2010).

Also, the study identified areas where the legal framework does not provide adequate governance arrangements. Clearly, legislation cannot address all contingencies in complex areas across multiple jurisdictions (Sabel and Zeitlin, 2010). Matters including cumulative impacts, social impacts, multiple scales of impact, resourcing, and capacity building of governance actors are all matters requiring adaptive responses through varied governance instruments.

This suggests the need to extend the work begun in this paper profiling the contours of new and old forms of governance currently coexisting, in terms of level and type of engagement between local governments, the local mining industry, state government agencies, and other local stakeholder bodies and the extent of involvement of these various actors in local and regional issues and initiatives. Further research will confirm and elaborate the extent and ways in which governance arrangements are changing and profile in more detail the adaptive practices and governance characteristics identified in this study of the legal framework.

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