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# Democratisation versus engagement? Social and economic impact assessment and community participation in the coal mining industry of the Bowen Basin, Australia

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A review of economic impact assessment (EcIA), social impact assessment (SIA), and community participation practice in the rapidly growing coal industry of Australia's Bowen Basin suggests significant shortcomings in scope and reporting with neither EcIA nor SIA giving adequate attention to the measurement and distribution of negative impacts. This review also demonstrates a tendency to separate community participation from the conduct of impact assessment, partly in response to a perceived need to engage in relationship building with impacted communities through the entire life of mining operations. However, this separation also has significant implications for the quality of impact assessment studies and is suggestive of an approach to engagement that is more focused on expectation and image management than on participation in decision-making.

Keywords: community engagement, democratisation, economic impact assessment, public participation, social impact assessment

**G**OVERNMENTS AND RESOURCE industries have long been criticised for failing to take seriously the social and economic impacts of mining activities and the rights of those affected to participate in assessment and decision-making. However, several factors can be identified

that have encouraged a variety of stakeholders to see greater value in building participation, social impact assessment (SIA) and economic impact assessment (EcIA) more substantially into the planning and management of coal mining operations. These include increased sensitivity to the perception of negative social and economic impacts; increased awareness since the mining boom of the 1980s of the cyclical nature of the industry; and increased understanding of how a range of other social, demographic and economic factors can interact with mining activities to magnify negative impacts (Rolfe *et al.*, 2005).

This paper explores the ways in which SIA, EcIA and community participation have been deployed during a recent period of growth in coal mining activity within the Bowen Basin, Central Queensland, Australia. In doing so, it makes particular reference to two quite different frameworks for conceptualising

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and integrating impact assessment tools within decision-making. The first of these is a theoretical framework developed by scholars of SIA which focuses on the iterative relationships between technical and participatory components of impact assessment and on the potential of these to underpin democratic deliberation over development planning and management. The second framework is one promoted increasingly by government and peak resource industry bodies in Australia and which focuses on opportunities for firms to engage in relationship building with impacted communities throughout the entire lifecycle of mining operations.

The 'democratisation' and 'community engagement' frameworks, as we will refer to them here, are not mutually exclusive. However, neither does the pursuit of one necessarily presuppose full and/or ongoing implementation of the other. Indeed, some may regard a commitment to detailed impact assessment and democratic opportunities throughout the entire life of a mining project as unrealistic and perhaps even unnecessary. This paper will, therefore, examine how social and economic impact assessment and community participation practices have been utilised by firms in the Bowen Basin over the last decade and the extent to which these have been influenced by the democratisation and engagement frameworks. Following a brief introduction to SIA, EcIA and community participation, the paper will provide an overview of the democratisation and engagement frameworks before proceeding to a case study of impact assessment and participation processes as used in the Bowen Basin.

## Introduction to impact assessment and community participation

Impact assessment is generally understood as the process of identifying the anticipated or actual impacts (positive or negative) of development options in terms of social, economic and environmental factors (Thomas, 2001).

### *Economic impact assessment*

Estimates of the total level of economic activity that a project might stimulate are traditionally given significant weight in the assessment of those projects' desirability. The classic measures of economic impact thus include employment creation, value added (or gross regional product), aggregate wages and salaries, wealth (including property values) and business output (sales volume and spending) (Government of Ontario, 2002; see also Mercer and Marden, 2006). There are at least two ways in which EcIA is amenable to more thorough analysis. The first, and more common, is through assessment of the financial viability of proposed projects (Thomas, 2001). The second is through more detailed assessment of the full costs and benefits of a proposed

project including: the distribution of costs and benefits among the community; alternative development options; and impact mitigation strategies (Crookes and De Wit, 2002; Thomas, 2001).

### *Social impact assessment*

Social impact assessment is concerned with all issues that affect people, directly or indirectly, as a consequence of development or other planned interventions (Vanclay, 2003). There are two broad schools of thought on the basic purpose of SIA (Craig, 1990). The first focuses on using SIA to make predictions about social change. According to the US Principles and Guidelines for SIA (Burdge *et al*, 1995), the principal method to achieve this is comparative, using *ex post* analysis of planned interventions, together with demographic trends and other statistical data, to extrapolate which might happen in other locations where similar interventions are proposed. The second school focuses on using SIA to facilitate public involvement in decision-making through systematic identification of affected parties, documentation of community viewpoints, and convening of forums to share and debate these data. Many SIA practitioners, however, regard the predictive and participatory models of SIA as complementary and advocate an integrated approach through which both community viewpoints and quantitative data contribute to public debate over the nature and magnitude of social impacts and the best ways to manage them (Dale and Lane, 1994; Joyce and MacFarlane, 2001; Lockie, 2001).

### *Community participation*

Similarly, Del Furia and Wallace-Jones (2000) identify the primary goals of public participation in impact assessment as being to understand community perceptions regarding the proposed activity and to resolve conflicts and reach consensus regarding that activity. Additional goals may include the accountability and transparency of decision-making (Hartley and Wood, 2005). Factors which increase the effectiveness of public participation in relation to these goals include:

1. Seeking to involve as diverse a public as possible, including those who do not belong to self-organised interest groups and who will not actively seek out information on the proposal.
2. Ensuring affected publics have the opportunity and capacity for genuine influence over the outcomes of impact assessment and decision-making processes.
3. Providing opportunities for involvement early in the life of a proposal and consistently throughout the life of the subsequent project.
4. Going beyond legislative requirements merely to take public feedback into account and instead adopting a genuinely flexible and participatory

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## That participation is most effective when extended beyond legislative compliance is important as many jurisdictions stipulate limited mandatory conditions for consultation

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approach to planning and decision-making (Del Furia and Wallace-Jones, 2000).

However, community participation techniques may also be deployed in pursuit of more instrumental goals such as securing public support for proposed change, marginalising dissent from minority groups, capturing local knowledge, diverting attention from other projects, etc. (Rolfe *et al*, 2007a).

### Frameworks for integration

The above point that participation is most effective when extended beyond legislative compliance is important as many jurisdictions stipulate limited mandatory conditions for consultation (such as the provision of information and opportunities to submit written feedback) prior to proposal approval or rejection (Del Furia and Wallace-Jones, 2000; Hartley and Wood, 2005). It can also be the case that legislative requirements for participation — as well as for social and economic impact assessment — have a degree of flexibility in their application to discrete proposals.

Throughout Australia, there has been a clear intent to recognise this through the establishment of environmental impact assessment (EIA) as the basic regulatory framework to integrate biophysical, social and economic considerations in development planning and approval (Thomas, 2001). Within Queensland, 'the environment' is defined in relevant legislation such as the Environmental Protection Act, 1994 and the State Development and Public Works Organisation Act, 1971, to include the people and communities that live within ecosystems and the social, economic, aesthetic and cultural factors that either affect, or are affected by, natural resource management. EIA is thus intended to:

- Provide for the integration of environmental management within planning for proposals;
- Ensure that proponents assume primary responsibility for the protection of environmental values that may be affected by their proposals;
- Form a basis for statutory decision-making on whether a proposal meets ecologically sustainable development principles;

- Establish relevant environmental management and monitoring conditions; and
- Incorporate community and stakeholder views in assessment and decision-making.

Flexibility is built into the regulatory process for EIA through the development by lead agencies of project-specific terms of reference for the operationalisation of these objectives in relation to discrete proposals.

In practice, the development of terms of reference is heavily influenced by the interpretation of legislative requirements and potential project impacts among development proponents and regulatory agencies. Thus, there is considerable scope to privilege biophysical impacts while treating social and economic impacts as simply two domains among many that may, or may not, be important in any particular context. Community participation, similarly, is potentially limited to soliciting comment on already near-complete plans. Dale *et al*'s (1997) review of impact assessment practice in Queensland in the mid-1990s consequently found that while legislative opportunities existed to strengthen public participation, SIA and EcIA, institutional capacity to recognise and utilise those opportunities was limited. For this reason, many both within and outside the resources sector have argued that it is in the interests of natural resource industries to look beyond compliance with minimum regulatory requirements and to accept that effective engagement with impacted communities and other stakeholders is a necessary precursor to the development of successful projects (MCMPR, 2004).

### Community engagement

The term 'community engagement' does not connote a well-defined methodological or legislative framework. Despite its many potential applications, here the term is used to refer to what may be described as pragmatic agenda promoted by Australian government and industry groups to move away from the use of public relations techniques to sell projects and towards using consultation processes that enable two-way communication and greater consideration of community concerns and priorities in project design and management (Commonwealth EPA, 1995). According to Australia's Ministerial Council on Mineral and Petroleum Resources (2004), the basic principles of engagement are open communication, transparency, a genuine desire to work towards win-win outcomes, inclusiveness, and integrity. Significant investment of resources and time are required to actively seek out, listen, and respond to issues of community concern. According to the Commonwealth EPA (1995: 26), 'companies must become part of the communities in which they intend to work.'

Community engagement of this kind is not necessarily synonymous with participatory decision-making over possible development paths. While

there are many potential models of community engagement — some of which may involve power sharing arrangements of some sort — more common is a concern with the legitimacy and acceptance of decisions among relevant interest groups. Expectation management and the avoidance of liabilities are at least, if not more, prominent in this pursuit of legitimacy than are more community-minded goals such as the local capture of positive benefits. Further, with large companies facing increasing pressure from shareholders and other external stakeholders to report on social and environmental performance (DEH, 2005), the primary concern here is just as likely to be the maintenance of legitimacy among those *investing* in a project as it is the maintenance of legitimacy among those *affected* by it.

#### *SIA and democratisation*

Consideration of peoples' human and citizenship rights in relation to large-scale development should, by itself, be sufficient to justify the democratisation of decision-making. However, the matter we are more concerned with here is the argument put forward by SIA scholars that participation also underpins the scientific validity of social and economic impact studies. Lockie (2007; see also Dale and Lane, 1994; Daniels and Walker, 1996; Doelle and Sinclair, 2006; Kruger and Shannon, 2000; Lockie *et al*, 1999; Lockie, 2001; O'Faircheallaigh, 1999; Webler *et al*, 1995) argues that the pursuit of genuine dialogue and understanding between all stakeholders implicated in development projects can improve knowledge and decision-making in several ways. First, all stakeholders bring useful knowledge to bear on the character of local environments and communities and on the features of those environments and communities they most value.

Second, encouraging critical debate around the knowledge claims of 'experts' and 'laypeople' alike provides opportunities to collate, validate and improve understanding of a wider variety of data. Third, the subjective nature of peoples' experience of social, economic and environmental change means that such change cannot be interpreted without consideration of the values, aspirations and perceived interests of those affected. Ignorance of these raises the risk of ignoring positive change just as much as it does the risk of trivialising negative impacts; particularly those negative impacts that are disproportionately experienced by minority groups.

Fourth, these values, aspirations and perceived interests are likely to change throughout the life of a project and through interaction with other stakeholders. Social and economic impacts are not, therefore, waiting independently to be discovered and evaluated but are actively constructed through the processes of conflict, negotiation and social learning that emerge around proposed change. Together, these points suggest that democratisation promises to improve the scientific and technical merits of

decisions as much as it promises to improve their acceptability.

### **Review of impact assessment and community participation processes in the Bowen Basin**

This review is based on two discrete studies. First, a desktop analysis was undertaken of impact assessment studies conducted for coal mining operations in the Bowen Basin between 1996 and 2006, and comparison made with studies conducted elsewhere in Australia. Eight companies provided reports for established and proposed mines in the Bowen Basin (all of which were subsequently approved) and a further eight studies were sourced from Australia's Hunter Valley, Illawarra, and other coal producing areas. Mine size varied from less than one million tonnes of coal production per annum to 20 million tonnes with an average size of seven million tonnes. Both underground and open cut mines were included. Despite a historical trend towards more open cut mines, the sample included several underground operations including mines opened as recently as 2003 and 2006. To protect the confidentiality of individual operators — and as agreed with those operators — this paper will not provide direct reference details for the reports used.<sup>1</sup>

The analytical approach is informed by Wood's (1999) comparative analysis of national EIA systems based on reviews of legislation and other documentation against a series of descriptive and open-ended criteria. For the present study, each report was reviewed in relation to:

1. The methodological detail provided on SIA, EcIA and community participation;
2. The scope, or number, of social and economic impacts included;
3. The depth with which those social and economic issues were treated; and
4. Attempts to integrate SIA, EcIA and/or community participation.

Given the small sample size, this is best viewed as a case study and no attempts are made to generalise to the wider practice of EIA in the Australian coal industry. However, in relation to the Bowen Basin itself, additional validation was sought via a discussion of review results with representatives of a range of Bowen Basin mines and other stakeholder groups at an open workshop in May 2006. Industry, government and community representatives were invited to participate in the workshop, along with researchers engaged in social and economic assessment within the basin, and attendance was open and advertised to members of the community. Approximately 60 people from all these sectors participated. After presentation of results from the current and other studies of EIA practice (see

<www.bowenbasin.cqu.edu.au>), an open session was used to identify key social and economic issues that a variety of stakeholders were facing in dealing with the resource boom.

The second study was an independent social impact analysis undertaken on behalf of Macarthur Coal, operator of the Coppabella mine, in 2002/03 and repeated in 2006/07. Operations began at Coppabella in 1998, when the coal industry more generally throughout the basin was in decline and residential vacancies in nearby towns were at a peak. Shipping some 5.5 million tonnes of coal per annum, and providing employment for about 340 people on-site when first opened, this may be described as one of the basin's smaller mines and one which may be expected to generate a correspondingly lower level of social and economic impact. Social analysis was undertaken outside legislative requirements for EIA and several years following project approval and the commencement of mining. This paper will not report in detail the outcomes of the Coppabella studies (see Rolfe *et al*, 2003, 2007a), but will use a summary of the social impacts they identified to examine whether the scope of issues covered in other EIA studies are likely to have been adequate.

#### *Case study site*

Coal mining accounts for approximately half of all mining-related jobs in Queensland, the vast bulk of which (15,784 full-time job equivalents out of 16,400 in 1999/2000) are based in Central Queensland's Bowen Basin (ACIL Consulting, 2002). In the 12 months to August 2006, Queensland exported AUS\$14.5 billion worth of coal with the Bowen Basin contributing approximately 85% of state output (OESR, 2006). From 2004, a sharp increase in coal prices stimulated substantial investment such that, by mid-2006, 37 mines were operating in the basin, several of which had undergone significant recent expansion, and a further 21 were under development or active consideration (i.e. undergoing feasibility or pre-feasibility assessment and/or finalising lease applications) (NRM, 2006).

This growth stands in stark contrast to the late 1990s when the industry reduced its workforce and the population of many mining communities fell. While this contraction may be attributed, in part, to the relatively low returns from coal production experienced at the time, the specific ways in which mine operators sought to increase the efficiency and profitability of their operations have had continuing relevance. First, there was an increasing emphasis on the use of contractors rather than employees to perform mining operations. Second, there was a shift to various forms of drive-in/drive-out workforce in preference to the building or expansion of mining townships and associated infrastructure. Third, more flexible industrial relations agreements were adopted which enabled a move to shiftwork arrangements based around 12-hour workdays/nights and blocks of

## **It has become increasingly common for mine employees to live in larger regional centres or coastal cities and to stay in temporary accommodation near minesites while completing a shift block**

several days on followed by a similar number of days off.

As a consequence of these and other changes, it has become increasingly common for mine employees to live in larger regional centres or coastal cities and to stay in temporary accommodation near minesites while completing a shift block. Despite the fact that many employees regard this as desirable due to the increased access larger centres offer to services and partner employment opportunities, the post-boom reality since 2004 has been that severe shortages of family accommodation in towns relatively close to minesites have also promoted the transition to long-distance commuting. Other consequences of the boom in mining and associated concentration of population growth in larger centres have included the emergence of acute shortages of skilled labour in other industries; reduced accommodation access and affordability for those not employed in mining; increases in traffic and fatigue-related road accidents; and increased pressure on emergency services, particularly those provided by volunteers.

#### *Economic impact assessment practices*

Gross measures of economic impact (employment generation, gross regional product, aggregate wages and salaries, wealth and business output) were referred to in all the EIAs reviewed. At minimum, all EIA studies made statements regarding:

1. Revenue generation (through taxes and foreign exchange) for the respective governments (federal, state and local or the equivalent); and
2. Direct and indirect economic impact (flow-on generation).

However, economic impacts were not addressed in a consistent manner, with significant variation evident both in the level of methodological detail and supporting evidence provided and in the empirical scope of the studies.

In relation to methodological detail and supporting evidence, several studies offered descriptive statements of gross economic impact which the reader was expected to accept at face value. In fact, one study from outside the Bowen Basin, released in

2003, included less than one page of economic analysis while two more studies from within the basin, released in 2005 and 2006, included less than three. Where methodologies were described in more detail they were dominated by standardised input–output models such as the Multi-Regional Impact Model and the Queensland Multi-Regional Model. These models provide multipliers that may be used to estimate the magnitude of downstream economic activity as a consequence of a proposed mining project. None of the reports attempted to validate the assumptions built into these models, to use other methods such as cost–benefit analysis or cost-effectiveness techniques, or to examine the distribution of economic impacts among different socio-economic groups (see also Thomas, 2001).

As a consequence of this limited focus, economic disadvantages were not always identified and were even less likely to be quantified. Local impacts (such as housing and labour shortages) were acknowledged in a number of reports but were either not quantified at all or were quantified in very general terms. Net economic impacts were presented as more-or-less unambiguously positive. In sum, much of the focus of EcIA was on identifying the magnitude of economic impact at a regional, state or national level rather than on management and mitigation. This resulted in an emphasis on project justification at the expense of detailed understanding of the costs associated with proposed development, the distribution of costs and benefits, the opportunity costs involved in foregoing other potential development paths, and so on.

#### *Social impact assessment practices*

Historically, EIA documents have often been notable for the absence of any significant discussion of social impacts. EIA documents reviewed here suggested that SIA is now treated more seriously, that professionals actually trained in the social sciences are included on assessment teams, and that impact mitigation is now regarded as a legitimate consideration. However, few EIA studies predicted significant negative social impacts, either on the local community or throughout the region at large, meaning little was identified to mitigate. The identification and discussion of social impacts was dominated by the profiling of host communities' demographics and social infrastructure (schools, housing, medical, recreational and other services), with increased population and demand for services interpreted as a self-evidently positive contribution to regional development. Other potential social impacts were generally discussed in brief and qualitative terms using language such as 'anticipated minor impact'. While some EIA documents made mention of the cumulative nature of social and economic impacts on communities located in proximity to multiple mines, no attempts were evident to address these. A number of studies did supplement the demographic and infrastructure

profiles that otherwise dominated reports with brief surveys of community values and concerns, although how these survey data were interpreted and incorporated in assessment of the magnitude of impacts or in mitigation planning was not clear. Data quality was also an issue; one such survey, conducted in 2005, eliciting 22 responses from 700 mailouts.

As with economic impact assessment studies, few details were reported on the methodologies that were used to assess social impacts or to interpret the implications of those data included in community profiles. While it was obvious in a limited number of SIA studies that some data had been drawn from consultation with affected communities, there was a clear separation in the majority of EIAs between the assessment of social impacts and the process of community participation, with separate plans developed and implemented by separate teams of consultants the norm.

#### *Community participation practices*

As noted above, some discrepancy has emerged between the emphasis placed by government departments and peak mining industry groups on 'best practice' in community engagement (see Commonwealth EPA, 1995; MCMPR, 2004) and the minimum provisions for community consultation actually included in EIA legislation. Similarly, a distinct shift was evident among mine operators in the Bowen Basin towards the implementation of continuous participation processes as opposed to *ad hoc* attempts to consult the public in response to short-term needs or requirements. Such efforts often were documented in stand-alone reports that supplemented those submitted as part of the EIA process. The focus of early and ongoing participation was on enlisting the assistance of potentially impacted communities to identify issues, develop solutions and avoid project obstacles. Proponents viewed such participation as a way to build relationships with the local community should proposed projects proceed, to manage community expectations (particularly in regard to economic development opportunities), and to develop an ultimately more successful project. It was common for senior staff to make themselves available throughout the community participation process.

As with SIA, participation processes were generally undertaken by specialist professionals. In some cases, these were the same professionals who undertook SIA studies as part of the EIA process. However, it was more common for separate firms to handle this on behalf of mine operators. Similarly, while, in some cases, outcomes of community consultation processes were used to inform SIA studies, in no case did this extend beyond the identification of community values and concerns and mine operator plans to manage these. Such a process assumes both that impacted publics are aware, in advance, of how they will be affected by a project and that

engagement techniques such as community surveys are able to access these publics, including marginalised groups who would not typically be involved in local politics and planning.

As with EcIA, considerable variation was evident in the approaches taken to community participation within the EIA process. Techniques included public workshops, newsletters, community attitude surveys, and meetings with potentially affected property owners and with local school groups. The transparency of community participation processes also varied. While confidentiality may be considered appropriate under specific circumstances (e.g. where community members have requested anonymity), the lack of detail available on some participation exercises can leave the impression that reports were prepared more as public relations documents than as comprehensive reviews of consultation processes and outcomes. Despite this question mark over the intent of some community participation exercises, as the only activity among those reviewed here that was undertaken, in at least some circumstances, throughout the life of a mining project, community participation activities were the only ones with potential to be monitored and reviewed over time.

#### *The social and economic scope of EIA studies in the Bowen Basin*

Some may argue that the apparently limited social and economic scope of EIA studies conducted in the Bowen Basin reflects an environment in which negative social and economic consequences arising from mine development have been objectively less serious than elsewhere. However, while the relative severity of impacts in different locales is likely to vary dramatically there is still good reason to argue that the scope of studies conducted in the Bowen Basin has been unduly limited.

The regional stakeholder workshop referred to above, for example (for more detailed reporting on this see Rolfe *et al*, 2007b), identified six inter-related social and economic issues that were not, it was believed, dealt with adequately within existing EIA studies: housing shortages and high rental prices; skills shortages; information flows; longer-term planning and infrastructure development; responsibilities for funding; and deficiencies within the environmental impact statement itself as an approvals process. While several EcIAs did make mention of housing and labour shortages, none examined the social or economic consequences of such shortages. With housing costs in some Bowen Basin towns almost double those of the state capital, Brisbane, lower-income workers, and even professionals such as allied health workers and teachers, were unable to take jobs in the region unless living with family or supported by their employers. It is highly unlikely, under these circumstances, that concerns about housing and workforce recruitment were not raised by local residents, governments and businesses

### **Workshop participants argued that existing planning mechanisms were hamstrung by reluctance on the part of mining companies to provide advance warning of new developments**

in the context of compulsory consultation processes. Despite this, the functional separation of SIA and EcIA from consultation and engagement resulted in a failure to incorporate these issues in the EIA process.

Workshop participants argued that existing planning mechanisms were hamstrung by reluctance on the part of mining companies to provide advance warning of new developments. Even though mining companies negotiated with key state government departments, concerns about commercial information meant that other departments and the local governments responsible for services and infrastructure provision were not made aware of proposals until late in the planning and approval cycle. Regional planning processes were forced to be reactive to change and struggled to adapt to the rapid shift from a declining to a booming mining sector and from resident to drive-in/drive-out workforces. Uncertainty and debate over who held, or should have held, responsibility to fund social services and infrastructure placed further restrictions on regional planning processes. In light of these issues, the majority of workshop participants believed that the EIA process used to plan and approve major new projects in Queensland was neither comprehensive enough in relation to social and economic impacts nor sensitive enough to the cumulative effects of multiple simultaneous projects within the region.

In sum, the 2006 stakeholder workshop was supportive of the analysis provided above of broad limitations in EcIA, SIA and community participation practice. The two independent *ex post* SIA studies of the Coppabella mine suggest a number of more locally specific ways in which the scope of impact assessment practices within the basin may have been unduly limited. Table 1 illustrates this by comparing the outcomes of the two independent *ex post* studies referred to above with social and economic issues raised by the Bowen Basin EIA reports included in this review.<sup>2</sup> Table 1 makes no comment on the magnitude or direction of impacts (positive or negative), nor on how thoroughly those impacts were reviewed. The ticks in the right-hand column indicate simply the number of EIA studies that mentioned each of the impacts identified in the independent studies of the Coppabella mine.

In terms of scope, Table 1 suggests that the majority of EIA reports have dealt with a limited range of



**Table 1. Comparison of impacts identified in independent studies of Coppabella Coal Mine and eight other EIA studies in the Bowen Basin**

Generic social processes and impacts*		Independent studies	EIA review		
Social change processes	Demographic processes	Dramatic shift to transient male population living in temporary accommodation during shift.	✓✓		
		Statistics show absolute and relative loss of women and children from local government area. Other evidence suggests that long-term unemployed who have not gained work in mining have also left.	✓		
Economic processes	Economic processes	Relocation of mine workers and families to rural locations limited by lack of suitable accommodation.			
		Labour shortages in non-mining industries.	✓✓✓		
		Some attempts at diversification. However, lack of secondary industry and accommodation limits capacity of local area to capture economic benefits of mine investment and salaries.	✓		
		Dramatic increase in average incomes. However, increasingly difficult for those in non-mining activities to cope with increased cost of housing and associated out-migration.			
Geographic processes	Geographic processes	Dramatic inflation in accommodation costs.			
		High impact of land acquisition and conversion on affected landholders but minimal impact at regional scale.	✓✓		
		Significant improvements in road and communications infrastructure.			
Institutional and legal processes	Institutional and legal processes	High impact of physical splintering on limited number of affected landholders but minimal impact at regional scale.	✓		
		Operational decisions made locally but major investment decisions made in metropolitan head office.			
Emancipatory and empowerment processes	Emancipatory and empowerment processes	No direct role for impacted stakeholders in decision-making.			
		No direct marginalisation or exclusion.			
Sociocultural processes	Sociocultural processes	Training programs in place to assist local indigenous people and other residents.	✓✓✓		
		Informal sanctions imposed by mine operator on employees or contractors engaging in anti-social behaviour while off-site breaking down as itinerant workforce in area continues to grow.			
Social impacts	Health and social well-being	Increase in incidence of serious road accidents.			
		Mine operator concerned to maintain physical fitness of workforce as well as ensure appropriate occupational health and safety. Fitness required to avoid fatigue but not enhanced by essentially sedentary nature of machinery operation.			
		Stress among itinerant workers caused by extended periods of separation from family.			
		Some conflict among residents regarding how development should be managed. General belief that locals should be preferred for jobs to protect local communities.	✓		
		Fear/uncertainty towards strangers amplified by large numbers of itinerant workers.			
		General acceptance of regional need for primary industries including mining, but concerns over management of particular mines and their impacts on local residents.	✓✓		
		Liveability	Liveability	Noise, dust and vibration all considered as potential impacts, but no formal complaints to date.	✓✓
				Mine operator has made recreation facilities provided to employees available to residents. Focus on personal fitness facilities/programs.	✓
				Mine spoil piled near roadways a major aesthetic impact for some but acceptable to others.	✓✓✓
				Serious decline in housing availability, suitability and quality.	✓✓✓
Liveability	Liveability	Transport and communications infrastructure improved. Limited changes to other physical infrastructure due to move away from building company towns.	✓✓✓		
		Low level of human service provision.	✓✓✓✓		
Liveability	Liveability	Increased road traffic and the incidence of drivers travelling home to coast while fatigued following end of shift.	✓✓		
		Increased fear of crime and violence not initially correlated with increased incidence. Anecdotal reports this has changed with continued expansion of itinerant workforce.			

(continued)

Table 1 (continued)

Generic social processes and impacts*		Independent studies	EIA review	
Social impacts (continued)	Economic impacts and material well-being	Change to 12-hour shifts and non-traditional shift rosters (e.g. five days on, five days off).		
		Standard of living higher than state averages due to high mine incomes.		
		Prosperity has increased, but the capacity of the local economy to deal with a decline in the mining sector has arguably decreased due to outmigration of non-mine employees, concentration of non-mine development on secondary service industries and loss of skilled labour in agriculture and other sectors.		
		Urban property values and rents have increased dramatically.	✓✓	
		The local and regional areas have attained essentially full employment as those who are either not employed or do not own their own house have been forced to leave. Most employment is well paid but unskilled or semi-skilled in nature.		
		Future possibility of conflict over access to water resources.	✓✓	
		Dependency on mining increased.		
		Anecdotal evidence of high levels of personal debt among mine employees.		
		Cultural impacts	Conflict and anxiety over shift from 'rural community' to 'mining town'.	✓✓
			Long-term improvement in access to culturally important land for indigenous people.	✓
Cultural heritage on minesite identified and managed in cooperation with indigenous people.	✓✓✓✓			
Family and community impacts	Increase in number of families for whom at least one parent is absent for several days at a time.			
	Limited research into affects of fly-in/fly-out operations on family well-being.			
	Anecdotal reports suggesting shifting of family violence problems to larger centres.			
	Limited interaction between local networks and mine employees/contractors. Pressure on local groups/clubs to maintain viability as population not involved in mining declines.	✓		
	Limited identification with local communities or participation in community groups and events by new or itinerant residents.			
	Community cohesion under pressure due to limited participation of mine workers in local networks and conflict among residents over management of change.			
Institutional, legal, political and equity impacts	Dramatic economic polarisation.			
	Some uncertainty over land tenure for small number of affected landowners. Frequent communication to resolve this from mine operator.			
	Local feeling of exclusion from decision-making extends to local government representatives who believe important decisions are taken at state level.			
	Positive economic benefits concentrated among small number of local businesspeople and employees.			
Gender relations	Highly masculinised mine workforce. Concentration of women in less well paid service sector jobs.			

Note: \* Adapted from Van Schooten *et al* (2003)

social issues. Consideration of demographic change, for example, was focused on the implications of population change for the delivery of services such as education and, to a lesser extent, on the ability of local communities to supply appropriately skilled labour (see also Rossouw and Malan, 2007). No reports considered the impact of demographic change on the likely sustainability of impacted communities or on their ability to cope with mine closures or job shedding. Further, consideration of services and infrastructure was focused on those matters that were of most direct concern to mine workforces and the issues thus faced by mine operators in recruiting and housing their workforces. EIA reports commonly mentioned the provision of training programs for indigenous peoples but few dealt in detail with the

rather more complex issues of cultural heritage and native title which are directly, and profoundly, impacted by mining operations. That said, it must be acknowledged that a limited number of EIA processes did include detailed cultural heritage surveys undertaken in collaboration with indigenous people and with a deliberate focus on capacity building and indigenous enterprise development. These particular studies represented a significant advance both on legislative requirements and on other studies which, to the extent that indigenous people were considered at all, dealt only with the identification of sites of archaeological interest.

The only negative socio-economic impact consistently mentioned was the possibility of labour shortages in non-mining industries. Income polarisation,

inflation, and other distributional issues were not addressed either in SIA or EcIA studies. Surprisingly little attention was paid to the impact of mining on immediately adjacent landholders who generally would be expected to bear significant livelihood disruption as well as heightened exposure to environmental impacts such as noise, dust, reduced visual amenity, and so on. Further, little or no consideration was given to the impact of mine development and workforce management processes on the identity, culture and viability of communities exposed to large itinerant workforces or to the impacts of long-distance commuting on mine employees and their families.

## Conclusion

Environmental impact assessment processes, as applied in the Bowen Basin coal industry, have gone some way to addressing criticism that they have historically ignored social and economic impacts. At the same time, mine operators have become more serious about community participation and are undertaking more comprehensive consultation with impacted communities than they are required to under legislative provisions for EIA.

Perhaps the most important feature of contemporary EcIA, SIA and community participation practice in the Bowen Basin was the relative independence of community participation from the impact assessment process. While consultation remains a critical compliance issue within EIA legislation, mine operators are increasingly adopting strategies to progress community engagement beyond those requirements by initiating communication with impacted communities earlier in the development of project proposals and then extending that communication throughout the life of the project. There is no doubt that this is a positive development. In fact, to suggest that moves towards more serious community engagement might be anything other than positive may appear somewhat churlish.

Nevertheless, the framing of public participation in terms of community engagement, rather than democratisation, may also be described, in at least three ways, as an opportunity lost. First, all aspects of impact assessment would benefit from a similar extension of focus and activity beyond minimum compliance matters. This is particularly the case for social and economic assessment since ongoing monitoring and reporting of social and economic outcomes seldom figures in the licence conditions for mine operation. Second, the technical quality of all three of the activities reviewed in this paper — SIA, EcIA and community participation — are significantly enhanced when practitioners are able to make use of the data generated by the other activities and limited, conversely, when practitioners are not able to make use of that data. Social impact assessors, for example, are able to offer more robust

predictions about the likely consequences of development when they know how costs and benefits will be distributed and how communities are likely to respond to proposed change.

Assessment of economic impacts is similarly enhanced through detailed understanding of community aspirations and capacities. The same understanding allows better targeting of community participation, and so on. Third, separation of impact assessment and community participation potentially drives both in arguably undesirable directions. With minimum community input, impact assessment is pushed towards a predictive, or technical, paradigm that is insensitive to the possibility that social and economic impacts will change when project proponents and other stakeholders invest significant time in the social learning involved in negotiating their way through a variety of potential development paths (Dale and Lane, 1994; Lockie *et al*, 1999). The corollary of this is that participation processes are also pushed away from joint decision-making and towards expectation and impression management.

The development and adoption of community participation processes indicates that mine operators consider such techniques to provide tangible benefits. It is incumbent on social and economic impact assessment professionals, regulators and others to make the case that expanding the scope of social and economic impact studies — together with expanding the concept of participation to include better integration of impact assessment and the democratisation of decision-making — will further extend those benefits.

## Notes

1. This undertaking may appear odd since EIAs are public documents released for the specific purpose of soliciting potentially critical feedback. However, the Queensland Government does not make EIAs available through any kind of open repository following compulsory consultation periods. While a limited number of reports may be found in public libraries, researchers and other interested parties must mostly approach mines directly for access. Ensuring anonymity with respect to individual mining operations facilitated this process. Additionally, given that many mine operators would agree that a number of EIAs undertaken to fulfil minimum legislative requirements have, in fact, been inadequate, and that some of those mines are involved in ongoing research to improve understanding of the cumulative social and economic impacts of mining development, the authors would suggest that the potential benefits of mining sector cooperation outweigh concerns about individual operators avoiding criticism.
2. Data in Table 1 are organised according to the generic list of social changes and impacts provided in Van Schooten *et al* (2003). Social changes and impacts that are identified by Van Schooten *et al*, but which were not identified in the independent study, include natural birth and death rates, currency exchange fluctuation, urbanisation and urban sprawl, institutional globalisation and concentration, privatisation, marginalisation and exclusion, social globalisation, segregation, social disintegration, cultural differentiation, nutrition, perceived health, autonomy, cultural affrontage, cultural marginalisation, loss of language, functioning of government agencies, integrity of government and government agencies, human rights, access

to legal procedures and advice, personal autonomy of women, access and control over resources for women, and political equity.

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