

Cumulative effects assessment is not so SIMPLE

Authors

Katherine Witt, k.witt@uq.edu.au, University of Queensland, Australia

Will Rifkin, w.rifkin@uq.edu.au, University of Queensland, Australia

Lara Mottee lara.mottee@students.mq.edu.au, Macquarie University, Australia.

Jo-Anne Everingham, j.everingham1@uq.edu.au, University of Queensland, Australia

Abstract

As Social Impact Assessment (SIA) practitioners operate within the bounded context of government legislation and approvals process, and requirements for their industry client, there is a practical limitation in the assessment process for major developments in addressing cumulative impacts of multiple projects. Operating within these limitations brings into question the extent to which predictions made in a pre-project SIA match an academic analysis of cumulative, post-project outcomes, particularly when a project is assessed in the context of nearby developments occurring in a similar timeframe. With a focus on housing, this paper compares the results of a University of Queensland study into the cumulative socioeconomic impacts of multiple, billion-dollar plus, coal seam gas developments in Queensland, Australia with the predictions of likely social impacts published in the social impact management plans (SIMPs) of selected resource companies. While predictions about the nature of impacts were reasonably accurate, the severity and timing of the impacts, that contributed to their cumulative dimensions, were misjudged leaving long-term social implications for affected communities.

Introduction

Resource companies as well as regulators are placing increasing emphasis on considering and accounting for the needs of affected rural and regional communities in the project planning and approval process (Owen & Kemp 2012, Department of Infrastructure and Planning (DIP) 2010). Such shifts call for social impact assessment (SIA) methods that can both capture community concerns and respond to changes associated with rapid development of multiple, large resource projects in a single region, as has occurred with coal seam gas (CSG) development in Queensland. This shift requires not only a change in SIA methods, but also improved mechanisms to manage and measure cumulative socio-economic impacts.

Cumulative impacts are defined by Franks, Brereton and Moran (2010, p. 300) as, 'the successive, incremental and combined impacts of one, or more, activities on society, the economy, and the environment.' Cumulative impacts can result from the aggregation of impacts, and they can vary in temporal and spatial extent reflecting the complexity of multiple, simultaneous initiatives undertaken by different companies. This 'nonlinearity' means that cumulative impacts may trigger or be associated with tipping points, where a small additional impact can create a much larger, systemic change to environmental, social and economic systems (Franks, Brereton & Moran 2010, Uhlmann et al. 2014). Cumulative impacts also result from the interactions of new impacts with existing processes and practices, such as new gas development in an existing agricultural region experiencing drought and flood.

Cumulative socio-economic impacts caused by rapid resource development are challenging for regulators and industry. They can have lasting negative or positive impacts on communities depending on how they are managed (Centre for Coal Seam Gas (CCSG) 2015). In recent years, the management of these impacts in the resource industry - notably in Queensland - has been through

individual Social Impact Management Plans (SIMPs) for particular developments at individual locations. The SIMP's effectiveness can be hindered by the complexity of interactions of cumulative impacts (Franks et al. 2010). We argue for the coordination of an adaptive management approach that accommodates 'shared management' to monitor and respond to the cumulative socio-economic impacts of multiple resource projects in a region

Cumulative impacts of coal seam gas projects in Queensland

In the Western Downs region of Queensland, four major companies each initiated large projects to extract, transport and convert coal seam gas to liquefied natural gas (LNG). Together, they comprise one of the largest corporate investments in the southern hemisphere (Fensom 2012). While these projects are at various stages of development, all have included major phases of exploration and construction of the necessary infrastructure (e.g., wells, pipelines and roads) before becoming fully operational. Communities closest to the CSG development have been the most noticeably impacted by the projects, with rapid population growth during the exploration and construction phases creating immediate demands for services, housing and infrastructure. Many of these impacts were seen to have been beyond the towns' response capacities (Uhlmann et al. 2014). Rapid change can lead to a reduction of community cohesiveness, social instability and the perception that personal wellbeing is in decline (Jacquet 2009; Smith, Krannich & Hunter 2001; Rifkin et al. 2015).

The initial period of intense construction activity ended in 2014. The projects have transitioned to a more long-term operational workforce, leaving towns with significant changes in housing and commercial infrastructure, altered human networks and shifted population demographics. Recent data suggests that crime rates are increasing, perhaps coinciding with low-income families arriving to take advantage of low rents caused by a housing oversupply. Average incomes increased in some towns during the construction period, but the distribution of wealth appears to be skewed, with more welfare-dependent families arriving. Such outcomes highlight the complexity and diffuse nature of cumulative impacts that make allocating responsibility for their mitigation to any single project problematic for regulators.

Shortcomings of regulatory mechanisms

The Queensland government's approval process requires an environmental impact statement (EIS) for all large projects in Queensland. The EIS must include an SIA that is developed with community consultation to characterise the potential socio-economic impacts and benefits for affected areas. SIAs typically lead to the development of SIMPs. A SIMP outlines strategies that the company will take to mitigate predicted negative impacts of their project. It also specifies how they will measure and monitor any changes in these impacts over time. Often the SIMP management strategies prepared at the development application phase remain relatively static throughout the life cycle of a project (though some conditions can be adjusted by the regulator). Where monitoring feedback is obtained, a mitigation strategy can be adapted in response to observed changes. Such adaptation can be enhanced through the use of outcome indicators and monitoring methods incorporated within SIMPs. Indicator data provides proponents with the evidence required to demonstrate that they have achieved - or at least made satisfactory progress toward - the desired social outcomes at the conclusion of a project.

Current regulatory guidelines in Queensland state that the SIA must assess cumulative impacts resulting from the proposed project and other developments regionally. However, proponents are only required to mitigate impacts that are directly attributed to their own project. Furthermore, the guidelines state that mitigation measures are not required for existing issues and legacy issues that are not attributed to the project in question (DSDIP 2013). Further, cumulative impact assessment

sections of SIAs and SIMPs still state that there is no common, accepted method for conducting a cumulative impact assessment.

Thus, there is a practical limitation in the project assessment process in considering cumulative impacts of multiple projects, as practitioners operate within this regulatory context. This situation raises questions about the extent to which a pre-project SIA would match a university-led analysis of cumulative, post-project outcomes. Also, if an SIA is based upon best available information at the time of writing, is it possible to improve prediction, quantification, and management of cumulative impacts using a more adaptive and responsive assessment approach?

To address such questions, we have been studying the cumulative socio-economic impacts of coal seam gas (CSG) development in Queensland. The research team has selected a compact set of measurement indicators, which enable monitoring changes in affected communities in what aligns with an 'adaptive assessment' approach. The UQ Boomtown Toolkit (<https://boomtown-toolkit.org>) identifies key indicators that can be utilised to monitor changes in community assets as a result of resource development. The primary indicators selected are based on a range of research work, including interviews with people in the affected communities, North American case studies, and international development of sustainability indicators. Data is collected on a period of 15 years to capture periods prior to, during and after the CSG industry's peak construction period in this region. The data are from publically available databases, such as the Australian Population Census.

Predicted vs Measured Outcomes

We use housing impacts as an example to show that while the SIA process was able to predict the nature of impacts with reasonable accuracy, it could not adequately account for the timing or the severity of impacts. These facets represent the cumulative dimension of impacts when they are influenced by factors that, while interconnected, are exogenous to the project, such as outside investors funding new housing development egged on by hype about high rental returns.

The SIMP predicted that there would be demand for approximately 250 additional houses, and that this increased demand would potentially impact on housing availability and affordability. It also predicted that the potential cumulative demands on housing due to multiple CSG construction projects could result in increased housing stress for low-income households, requiring some households to relocate away from the region. It was predicted that low income households could experience increasing difficulty in maintaining secure housing.

The cumulative impacts study found that rents for a 3-bedroom house in some towns (Miles, Wandoan and Chinchilla) doubled or nearly tripled in the 3-4 years from pre-CSG in 2008 to the peak construction period in 2012/13. The SIMP did not predict that higher house sale prices would motivate some (particularly older) people to sell and move away. It did not note that high rents would trigger a real estate 'boom' with increases in private sector property investment and development activity. These forces combined with the project approval condition placed by the Queensland government on a resource company to build new houses to accommodate the predicted additional need of its own staff (though not contractors) and to fund construction of affordable housing, given the expected rise in rents. These strategies have resulted in a housing oversupply in some towns, with residents of one town of 6,000 residents being keenly aware of how many empty rental properties there are. The time lag between the immediate need for housing once the project was approved and the 2-year period for housing approvals, development and construction was underestimated. The time lag and developer hype resulted in oversupply, and both rents and house prices have dropped significantly since the construction period ended in 2014 (Figure 1).

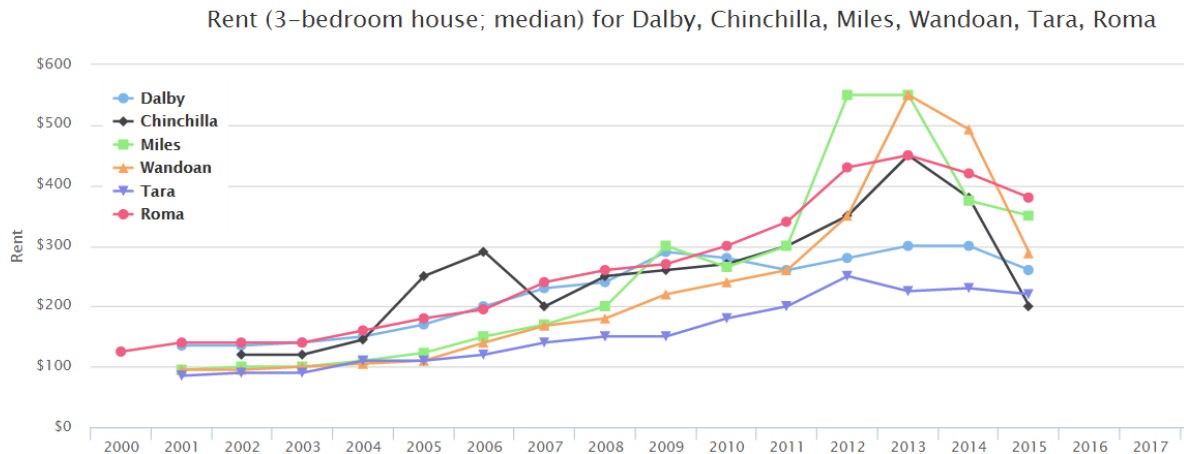


Figure 1: Rents increased and then decreased significantly in a short period of time.

Figure 2 suggests that very low rents and plentiful housing are attracting lower-income families to the towns. Interviews with school principals and community workers in these towns revealed the perception that many of the new residents have higher needs in terms of health and educational support, which can stretch local services. Neither of these impacts can be attributed to any single CSG project.

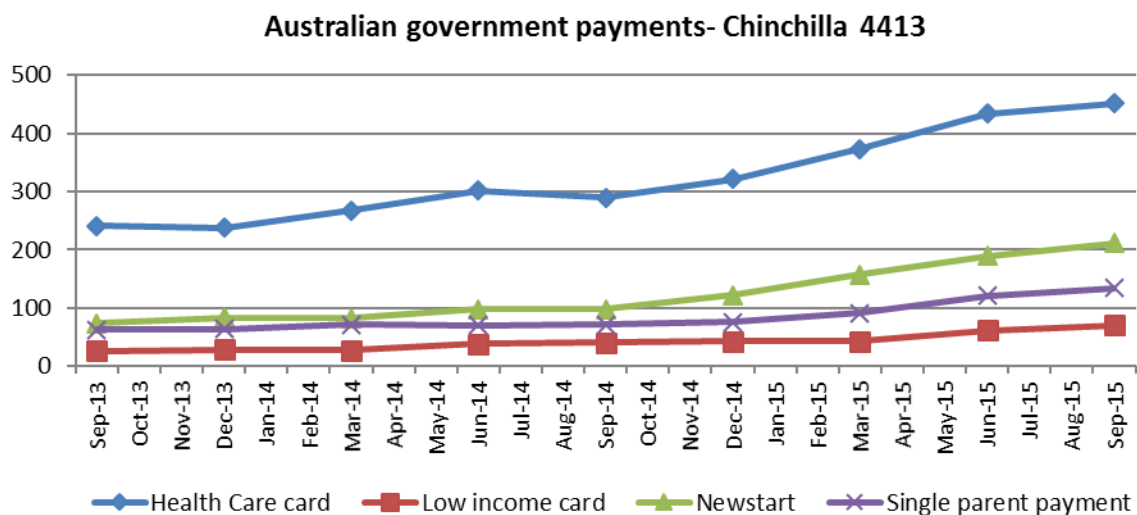


Figure 2: Since the end of the construction period in 2014, the number of people receiving Government payments has increased. The Newstart allowance is for unemployed persons.

Shared Management and Strategic Monitoring Framework

The analysis of trends across the indicators highlights the need for a focus on assessing cumulative impacts at the town level. It also suggests the importance of coordination across impact assessment studies in a region to contribute to an overarching monitoring framework. The trends and impacts highlighted in Figures 1 and 2 demonstrate that the prediction of socio-economic impacts during the SIA process may be generally accurate during construction. However, they also suggest that the experiences at the township level can be highly varied. That is, different towns can have different experiences, and different socioeconomic segments in a single town can have different experiences. The application of the toolkit indicators to illustrate these town-level impacts show that the nature of the impact on the region was more significant than predicted. Additionally, the lasting benefits

from additional housing, for example, have not yet been realised, quite the opposite, with near-term challenges.

These results indicate that there was an aggregated socio-economic impact from multiple projects in the region during the construction period. Had the analytical approach that we employed – and examples of its use - been available prior to the CSG development, a more adaptive assessment and management approach may have helped to mitigate some of these negative impacts.

Rifkin et al. (2015) note that coordination among industry operators and between them and government are required. That can help to address uncertainty surrounding potential cumulative impacts and managing resulting negative social outcomes from resource development, particularly when multiple projects are pursued in a given region. A shared management approach can address a sector's cumulative outcomes and provide means for collaborating to achieve shared goals (Ogain et al. 2013). In the case of the CSG sector, the shared goal is minimising the negative socio-economic impacts on local communities from the CSG projects, and enhancing long-term, positive legacies.

Such common goals are a foundation stone of a shared management system, including a strategic, adaptive, monitoring framework. The UQ toolkit, whose findings are illustrated here in assessing housing impacts, is an example of such an adaptive assessment approach. It is now being used to provide strategic monitoring for management of CSG socio-economic impacts, albeit on an emerging and voluntary basis. The Toolkit, or other such adaptive approach, provides a shift of focus away from the individual projects and individual business strategies, toward a more strategic approach to achieving a common social purpose.

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