CUMULATIVE IMPACTS PUBLIC AND PRIVATE SECTOR CHALLENGES

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INTRODUCTION

Across the globe many regions are experiencing unprecedented resource development, which can have a range of social, economic, cultural, environmental and other impacts for affected communities and their environment. Governments, civil society and industry have become increasingly aware of the need to respond proactively to how multiple projects, sometimes involving different industries, are affecting water, energy, and public services and infrastructure, including housing needs, within a geographical area. The subsequent burden of community expectations regarding positive economic impacts of resource projects, along with heightened public scrutiny over potential negative social and environmental impacts have combined to add increased urgency to the debate.

This paper presents two case studies of rapidly growing resource-rich regions in Australia and Alaska. The findings are drawn from field experience in assessing social and environmental cumulative impacts and discusses the variety of lessons learnt which can support resource projects and regional development stakeholders alike.

CASE STUDY 1 - AUSTRALIA

Figure 1: Pilbara Region, Western Australia[2]

The Pilbara is one of the most vital and dynamic wealth producing regions in Western Australia (WA). It is the source of two of the largest export revenue earners for the State, iron ore and Liquefied Natural Gas. Other significant economic activities in the Pilbara include the mining of base metals, the production of oil, gas and salt[1]. This case study explores the findings and lessons learnt in developing a revised Social Baseline expanded to incorporate changing nature of the Pilbara region for an oil and gas client.

In 2011, the client found themselves eight years after their project Social Economic Impact Assessment (SEIA) was undertaken in a rapidly changing regional socio-economic context. Our firm has a long history of engagement with this client, including the development of multiple social and environmental impact studies resulting in regulatory approval of the Project in 2007. When the assignment began, the Project was two years into the construction period with over 4,000 people directly employed and with an estimated 10,000 direct and indirect jobs expected during peak construction.

The results of the study revealed a number of key changes to the socio-economic context in the state of Western Australia and more specifically to the Pilbara region. Numerous elements of the regional context had changed since the 2005 SEIA. The key findings are listed as follows:

- *Infrastructure:* Over the last 10 years infrastructure capacity in the Pilbara had not increased in line with economic and population growth to the extent that it was constraining economic productivity and impacting on the effective functioning of communities. The Gross Regional Product increased from 4.8 billion in 2004-05 to 32.5 billion in

[1] Pilbara Development Commission (2010) Pilbara What is the Future A Possible View 2010-2016

[2] Wall Street Journal (April 27, 2011), Go South, Old Man: Does Australia Need Chinese Workers?

2011-12[3]. The population grew from 39,461 people in 2001 to 62, 736 people in 2011[4]. Specifically, the capacity of energy and power distribution networks was insufficient and as a result was affecting the release of residential, commercial and industrial land[5]. For example there was a significant amount of latent demand for housing, estimated at 3,878 dwellings across the region at the time of the study[6]. As such, the number one issue in the Pilbara had become the lack of availability and affordability of land for residential, commercial and industrial purposes[7].

- *Regional Business Development:* The findings of this study revealed that despite rapid economic growth caused by resource sector development in the region, small and medium business growth had been limited (3.8% increase 2004-07)[8]. Although interest and demand for business development was strong, significant business turnover was limiting growth levels. High business turnover have been attributed to a range of circumstances and constraints such as, the lack of availability and affordability of land for residential, commercial and industrial purposes; difficult tender and compliance processes for large opportunities; and significant human resource overheads (e.g. high salaries); and a lack of affordable accommodation for new staff.
- *Employment & Training:* The region had modest labour force growth of 12.3% between 2003 and 2010, from 24,100 to 27,100 persons[9]. This was primarily attributed to labour force needs being met by Fly-in-Fly-Out (FIFO) workforces[10]. Retention issues were further complicated by varying contractor HR policies and systems. The FIFO workforce was primarily drawn from the state labour pool, however a trend seen by the Project's contractors was a 20% increase in workforce turnover in a 12 month period, directly attributed to roster schedules.
- *Indigenous Participation:* Indigenous participation in the labour market had slightly decreased for the region. With significant investments by mining companies, it was believed that the labour pool had been exhausted. A small labour pool remained of those with low levels of literacy, numeracy and fitness for work attributes, which precluded them from taking up training and employment opportunities. The results of this study identified additional constraints and barriers to participation in the Project (both employment and businesses) including cumbersome contractor procurement processes; the need for long term capacity building programs that are based in the region; and individuals confidence in work history.

CASE STUDY 2 – ALASKA

The United States Geological Survey (USGS) has estimated that 30% of global undiscovered gas and possibly 20% of undiscovered petroleum hydrocarbons could reside in the Arctic[11]. Interest in energy development in the Arctic has been met with of concerns among stakeholders ranging from cumulative impacts to threats to subsistence ways of life. As resource companies increasing their focus in the region, so too has the international community. This case study explores the cumulative effects of incremental development based on lessons learned on various Alaskan North Slope projects.

Cumulative Effects of Incremental Development

Energy development in Artic regions such as the North Slope has occurred incrementally, with Prudhoe Bay being the largest hub. Located in the North Slope Borough in the state of Alaska, Prudhoe Bay is the unofficial northern terminus

[3] Pilbara Development Commission (2013) Economic Profile

[4] Australia Bureau of Statistics (2013) Regional Population Growth, Cat. 3218.0

[5] Western Australian Department of Planning and Western Australian Planning Commission (2010) Karratha Regional Hotspots, Land Supply Update

[6] WA Department of Planning and WAPC (2010) Karratha Regional Hotspots, Land Supply Update

[7] Pilbara Development Commission (2010) Pilbara What is the Future A Possible View 2010-2016

[8] Australia Bureau of Statistics (2010) National Regional Profiles

[9] Department of Training and Workforce Development (2011) Western Australia Regional Profile

[10] Fly-in-Fly-out refers to workforce arrangements where employees are flown to a remote work site, rather than relocated to a town near the site. Rosters vary between proponents, but are generally a period of weeks at the site and weeks off site on break.

[11] USGS (2009) Assessment of Undiscovered Oil and Gas in the Arctic, Science, 324, pp.175-179

of the Pan-American Highway. While its population was 2,174 people in 2010[12] at any given time, several thousand transient workers support the Prudhoe Bay oil field.

Questions are being raised regarding the timing and responsibility for common infrastructure planning, including transportation and utility corridors[13]. Cumulative effects result not just from interrelationships between large projects, but are also a function of government policy, trends in economic development and increasing mobility of people. Collectively, these changes need to be assessed. However, studies into long-term and cumulative impacts are challenged by competition between companies, specific project scopes, varying internal corporate standards, and a lack of central record keeping. Supporting this can be the management of Non-Technical Risks (NTRs) which are discussed in more detail in the following section.

Figure 2: North Slope, Alaska[14]

Strategies for Managing Non-Technical Risks

Recognition of the role played by what are commonly called 'Above Ground Factors' or 'Non-Technical Risks' has emphasised the criticality of the position of external stakeholders in setting the agenda. These non-technical factors are typically, but not necessarily limited to social, environmental, safety, health and political issues that can affect a proposed development. Managing NTRs is a key success factor for resource companies and other regional development stakeholders in supporting the approach to addressing cumulative impacts. Fundamental strategies for managing non-technical risks are described below.

Management

Resource companies usually have a technical/financial-driven culture, and the non-quantifiable nature of these 'soft risks' has historically resulted in NTRs being seen as difficult to address and hence being accorded a lower priority in the enterprise risk picture. Addressing NTRs requires a holistic approach for dealing with enterprise risk, strategic alignment in the organisation structure and systems to manage and improve non-technical performance. It also places demands on the leadership team in driving the internal transformation needed to align all levels of the organization (corporate, assets level and functional level). This alignment although difficult, can support the organization to identify new types of risk holistically and to integrate their response strategy into the core business process.

Incorporating local knowledge

Local knowledge needs to be recognised and considered in sustainable natural resource development in the Arctic. Communities want to be involved in the identification of relevant criteria and indicators linked directly to valued components of the natural environment, community wellness, and in data collection and interpretation. Traditional knowledge is both related to ecological understanding and can also provide valuable information on the social fabric of communities. Who better to assess the causes and impacts of social, economic and cultural change than the people who have lived through it?

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[12] U.S. Census Bureau, 2010. 2010 Census of Population and Housing, Population and Housing Unit Counts, CPH-2-3, Alaska U.S. Government Printing Office, Washington, DC.

[13] Southam, A.L, Kluwe, J., Isaacs, Jon D. (2007) Arctic Energy and Cumulative Effects: Growing Demands, paper presented at the 2007 Arctic Energy Summit, Anchorage, Alaska.

[14] Lonely Planet (2013) North American Maps, http://www.lonelyplanet.com/maps/north-america/usa/alaska

Ideally, stakeholder engagement would occur throughout the process. Taking a lifecycle approach, for example, would promote communication between project design and impact assessment, using stakeholder engagement to inform the process. Stakeholder concerns and feedback can be a valuable source of information, leading to improved project design and outcomes, and help to identify and control external risks. Stakeholders may propose mitigation measures (methods or plans to avoid, reduce, or compensate for adverse project impacts), or development benefits and opportunities, although most likely there will be limitations, both commercial and practical, to which stakeholder demands can be met.

There are several challenges with this stakeholder input-intensive approach. Communities may feel that consultation efforts have few measurable outcomes, particularly for them. Local organizations dedicated to assessing socio-economic impacts often lack the resources to contribute their perspectives. Where multiple projects may be proposed, co-ordination of outreach efforts can help minimize stakeholder fatigue.

Early stakeholder Engagement

Proactive identification of stakeholders promotes better understanding of the social context of a project. Through this process, the project team not only identifies stakeholder interests and vulnerabilities, it suggests how to effectively incorporate these groups into the consultation process. Recognising and defining key issues early on, as required by international standards, allows time for project teams to develop appropriate response actions and identify data needs. Many Arctic communities believe that developers could put in more effort during initial impact assessment when considering public concerns and could start earlier, preferably during the pre-feasibility stage, but also throughout the process. The opinions and interests of stakeholders can influence the feasibility phase of projects, including helping to improve project planning and design. The advantages to strategically narrowing the issues of concern early are that proponents can eliminate unnecessary analyses, manage stakeholder and regulatory expectations, and increase public confidence in the process. Good early engagement can lead to a better understanding of potential adverse impacts and thereby refinements in project design, which would decrease the likelihood of these impacts. It can also lead to a greater likelihood that groups such as Aboriginal People will be engaged in economic opportunities that may arise from a project.

A lifecycle approach

A lifecycle or programmatic approach is an intelligent strategy for projects with the potential for multiple phases. As it provides the opportunity for a holistic view that avoids segmentation, thereby making it easier to explain overall project goals to stakeholders. The lifecycle approach promotes communication between project design and impact assessment, using stakeholder engagement to inform the process. The integration of engineering and baseline data, with relevant input from stakeholders should help to meet the following goals:

- Timely sharing of information, for more informed decision-making;
- Definition of commitments and regulatory obligations; and
- Identification of mitigation measures through engineering design, impact assessment and stakeholder input.

CONCLUSION: SOME LESSONS LEARNED

Takeaways for Resource Projects

The cumulative effects of multiple resource developments have the potential to constrain or support positive impacts. Lessons learnt on how to minimise these constraints for resource projects are as follows:

- Focus should be given to preparations of the operations period for engaging regional businesses and suppliers. Smaller regional businesses prefer longer term sustainable work which occurs during the operation phases of resource projects. The process for engagement of regional business should also be simplified to reduce cumbersome tendering and compliance processes.

- Ongoing relationship building and permanent capacity development programs are preferable to one-off short term initiatives for Aboriginal business. A long term approach is important for providing capacity support to Aboriginal businesses ability to participate in the variety of resource project opportunities available.
- Address barriers to employment in advance of operations. Barriers such as education level requirements, the need for identification documents and fitness for work criteria should be considered as early as possible. Scheduling which is conducive for families can also be an effective way of reducing FIFO workforce turnover in competitive markets.
- The recognition of indigenous cultures and the incorporation of traditional knowledge to solve problems and develop co-operative solutions is essential for sustainable operability in resource rich regions. When proponents dedicate the time necessary to inform stakeholders and to gather feedback about proposed activities, anxiety and uncertainty can be minimised.
- An integrated lifecycle approach makes it possible to develop cost-effective strategies for mitigating environmental and social effects in the region.
- Technical approaches need to form the core of a strategy managing non-technical performance. This strategy involves integrating these non-technical or sustainability issues into the core business process rather than being perceived as compliance issues to be dealt with at a functional level in the organization.
- As exploration and development extends in resource rich regions, there is an opportunity to conduct more comprehensive assessments to include cumulative impacts and to design and implement collective mitigation measures[15]. This is an area where collaboration between proponents will be essential and effective collective interface with government will be required. Many questions of exactly how this is to be done remain. Who will be responsible for addressing cumulative impacts in regions with multiple actors and with different levels of impacts over time? A strategic level of environmental assessment is likely the best approach in such situations of complex jurisdictions and resource overlap.

Takeaways for Regional Development

- Water and Power - the root of all issues: energy and power distribution networks can affect the release of residential, commercial and industrial land; and have significant effects on regional economic development. Medium and long term strategies need to be established to with government to ensure fundamental infrastructure capacity can meet current and projected demands.
- The importance of land availability: The delivery of land can inhibit regional and local economic development. As above, insufficient power and water supplies combined with high costs of preparing land for release can affect land availability. Early planning in collaboration with various levels of government including state/or province and national governments is essential to securing both funding and approval to begin addressing infrastructure and land needs in regional hotspots.
- Lack of accommodation equals lack of regional economic development: Until housing availability issues are resolved increasing the number and size of regional businesses (to meet resource project supplier/contractor needs) will be challenging. Central urban planning initiatives in collaboration with all levels of government can be a supportive step in starting to address zoning, land release and land development projects.

[15] Southam, A.L, Kluwe, J., Isaacs, Jon D. (2007) Arctic Energy and Cumulative Effects: Growing Demands, paper presented at the 2007 Arctic Energy Summit, Anchorage, Alaska.