Introduction

Interest in Arctic oil and gas resources has ignited as a result of new technologies, changing climate, and demand for energy. Industry is challenged to address both technical and non-technical risks in a unique operating environment characterized by sensitive ecological resources, uncertainties in climate change and cumulative effects, cultural shifts, capacity building and community concerns. An interdisciplinary approach to the impact assessment process can help address these challenges.

Companies operating in Arctic environments may understand that technical and non-technical risks they face are more acute, and that standard approaches to impact assessment, management planning and stakeholder engagement are not appropriate. Innovative and integrated ways of recognizing and adapting to Arctic conditions are required in order to:

- Recognize the high degree of uncertainty in the Arctic environment;
- Understand and meet evolving national, international and corporate regulations and standards;
- Establish a foundation for management of environmental and social performance;
- Account for high levels of interdependence between environmental and social impacts;
- Accommodate for limited stakeholder access to and understanding of technical information and traditional engagement processes; and
- Respond to local and international stakeholder expectations.

Key Challenges

There are significant challenges that limit innovation in impact assessment and planning:

Compartmentalizing

Many development projects necessarily involve different teams of people working on separate components of the larger project (e.g. project design, permitting, environmental impact assessment, social impact assessment, stakeholder relations, etc). When these workstreams are 'compartmentalized' into separate parallel tracks, the result is failure to recognize cross-cutting issues and opportunities.

Lack of Baseline Data

While studies in the Arctic have enhanced our understanding of the region, many uncertainties remain. For example, population estimates of many marine mammal species are lacking or outdated. In addition, little research exists on impacts of seismic surveys on wildlife behavior and distribution (Southam *et al* 2007). Underwater noise model results are often inconsistent due to the lack of baseline oceanographic data in Arctic regions, thus impact assessment and development of appropriate mitigation can be challenging. While reductions in the extent of sea ice, melting permafrost and other effects of climate change in the Arctic have been documented, baseline data necessary to assess the cumulative effects of climate change and other stressors are lacking.

Cumulative Effects of Incremental Development

Energy development on Alaska's North Slope has occurred incrementally. Questions are being raised regarding the timing and responsibility for common infrastructure planning, including transportation and utility corridors (Southam *et al* 2007). This issue is also being raised in Greenland, where 20 licenses

for offshore hydrocarbon exploration and exploitation have been issued and multiple large-scale oil companies either have initiated, or are preparing to initiate activities in the country. Individually, these activities could be considered relatively small-scale, with minimal impacts. Cumulatively, however, impacts may imply significant changes to the social and ecological environments.

Stakeholder Fatigue

Communities exposed to ongoing engagement over decades (such as in Alaska), or intensive engagement sustained over the past few years (as in Greenland) can easily become overloaded with meetings and hearings. This is particularly true when consultation efforts are one dimensional (providing or soliciting information only), and when they fail to acknowledge or build on past engagement activities. Coupled with inconsistent and unmet expectations, stakeholder engagement that fails to provide useful project and process information, and which fails to go beyond basic regulatory requirements risks exacerbating stakeholder frustration.

Gaps Between Regulatory Requirements and Public Expectations

Regulatory requirements should be viewed as minimum criteria for permit approval. Too often, regulatory guidelines are used as a script for impact assessment and stakeholder engagement, without appropriate consideration of the wider intent of these exercises. Regulatory permission to operate does not equate to social license to operate, although it can be withheld or delayed if social license is not secured. We have seen this in Greenland, where national governments base their election platforms on public opinion around resource extraction. In order to mitigate this risk, companies and impact assessment practitioners must look for ways to meet social expectations and needs within the existing regulatory framework, rather than simply follow the regulatory process as a recipe for successful ESHIA and stakeholder engagement.

Approach

Based on our experience in Alaska and Greenland, as well as a review of oil and gas projects in Alaska since the 1970s, we suggest the following methods for conducting integrated impact assessment and stakeholder engagement in the Arctic.

A Programmatic or Lifecycle Approach

A lifecycle or programmatic approach is an intelligent strategy for projects with the potential for multiple stages, components, or phases, as it provides the opportunity to view the project more holistically. A programmatic approach avoids segmentation of project components, therefore making it easier to explain the overall goals of the project to stakeholders. It must be emphasized that integration of design, assessment and engagement must be sustained throughout the project lifecycle in order to be successful. If, at some point during the project, this integrated process is degraded, the consequence can be increased costs to make major revisions to project design or re-investment in reputation building.

Uncertainty or Unknowns

As a relatively new environment for resource extraction, baseline data on Arctic species and characteristics is often incomplete or unavailable. Many Arctic species are migratory and the challenges with understanding under-ice conditions can be discouraging. Analysts are also required to address challenging topics like climate change and cumulative effects. The following steps provide means for evaluating potential impacts when data are lacking:

- Evaluate historical trends: For example, is a whale population increasing or decreasing? By understanding the historical context, assumptions can be made about what may occur in the future.

- Make assumptions based on parallel case studies: Are there similar projects nearby, or in similar environments that have documented impacts? Is there a surrogate species that has similar life-history characteristics that can be used as a basis for assumptions for the proposed impact analysis?

- Evaluate reasonable conditions or plausible mechanisms for impact: By describing in detail the environmental conditions and the potential mechanisms of exposure of a resource to a particular stressor, we are able to make assumptions about what could reasonably occur. Stakeholder input can also be an effective way to inform the analysis. By gathering local or agency input into how a resource could be affected, the impact assessment provides a more realistic examination of potential effects.

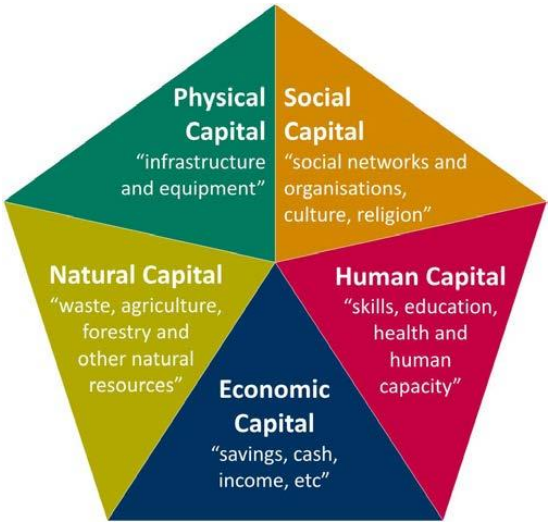
- Document steps and explain the rationale behind conclusions: Each of the steps above applies assumptions that must be explained. When conclusions are made with insufficient supporting evidence, the project becomes vulnerable to legal challenge.

Livelihood-Based Assessment

A key characteristic of the Arctic is the fact that entire communities and social groups (as well as regional economies) are dependent on the health of sensitive marine and terrestrial ecosystems for livelihood and cultural heritage. Our limited understanding about the potential impacts of resource activities on these ecosystems, coupled with few alternative livelihoods for many of these populations in the event of ecosystem failure, makes the need for a livelihood-based assessment of vulnerability imperative. Approaches such as the Sustainable Livelihoods Framework (DFID) allow assessors to understand the full scope of livelihood assets, and thereby focus the impact assessment on the most potentially vulnerable individuals and social groups.

Figure 1 presents the components of livelihood (or "assets") that are assessed as part of a Sustainable Livelihoods Framework.

Figure 1: Components of Livelihood



Source: (adapted from) DFID. *Sustainable Livelihoods Guidance Sheets* (2001) London, UK. p. 20.

Once livelihood assets have been identified and characterized, their pre-existing sensitivity to external events (such as seasonal variations, international trends or sudden shocks), is assessed to determine the vulnerability context. This is then merged with the socio-economic baseline information to understand the policies, procedures and institutions (formal and informal) that are in place to support or obstruct the range of livelihood assets and their vulnerability context.

This type of assessment is particularly useful in Arctic environments, where it provides impact assessment practitioners with a systematic approach and rationale to the integration of environmental, social and health indicators. This promotes better understanding of impacts as well as development of appropriate mitigation.

Appropriate Stakeholder Engagement

Consultation with local communities and agencies should be an iterative process. Stakeholder engagement must be meaningful, action oriented, timely, and measurable. In order for engagement to be sustainable, consultation activities should be mutually beneficial, build on existing capacity, and accommodate unique characteristics of the local community. The following guidelines are suited to Arctic projects:

- Early stakeholder identification and mapping must recognize that:
  - Due to traditional livelihood practices (*e.g.*, hunting & fishing) and low population, impacts could be felt far beyond local geographic area;
  - What clients or contractors consider to be a 'small-scale' project may be viewed as a large project with significant implications for communities and stakeholders;
  - There are strong linkages between stakeholders due to smaller populations;
  - In smaller societies, stakeholder interests and motivations may be layered, complex, and dynamic; and
  - Identification of stakeholder vulnerabilities and how to incorporate these groups is critical. In sparse and rural populations, vulnerable groups may be more hidden and inaccessible than in other places.

- Early information dissemination and sensitization:
  - Stakeholders are likely already aware of proposed project activities from other sources. While companies may prefer to wait until Project information is finalized, it is important to reach stakeholders early on so that public opinion can be based on well-founded information about proposed activities.
  - Provide appropriate context to ensure informed consultation. In areas where development is relatively new, proponents should include general information on oil and gas, general challenges encountered, lifecycle, regulatory process, studies to be undertaken and a draft schedule of those studies, when stakeholder input will be sought, and what the decision-making process will entail; and
  - Ensure that information is disseminated through appropriate channels and language so it is accessible to all stakeholders.

- Undertake appropriate stakeholder engagement:
  - Engagement activities should be commensurate with scale of project and anticipated impacts;
  - Use local contractors where possible to facilitate open dialogue, communication in native

languages and appropriate follow-up;
  - Make necessary efforts to reach stakeholders with varying perspectives. Do not assume that a few outspoken individuals represent the community, and understand that open discord in group settings may be culturally uncomfortable. Likewise, avoiding opposition means that those messages are not incorporated into the study. This undermines the assessment when that opposition is inevitably raised; and
  - Apply engagement techniques that are appropriate to the social setting, rather than reflexively falling back on standard processes. In some cases, less formal town-hall style meetings, telephone interviews, radio call-in shows, or social media may be more appropriate than formal hearings, focus group discussions or stakeholder interviews.

- Undertake appropriate disclosure:
  - Even when not required by national regulation, disclosure is a critical element of the process;
  - Stakeholders should understand how their input is being used;
  - Ensure that dissemination of impact assessment outputs is appropriate for stakeholders. Project summary reports should address not only project specifics, but when necessary, also explain broader implications in a wider context. Finally, make use of culturally appropriate media – not just standard media such as government or company webpages;
  - In public meeting forums, stakeholders should have opportunity to submit comments or questions confidentially, and in a way that does not require "face-to-face confrontation".

Conclusions

The Arctic presents a unique set of operating conditions and associated challenges. These are recognized by local inhabitants (who are increasingly better informed and involved in decision-making) as well as the international community (connected through cross-border associations and mass media). For consultants undertaking impact assessment and stakeholder engagement in these regions, it is not enough to follow the same formula applied in countless other regions, amended slightly to satisfy national permitting requirements. The Arctic presents an opportunity and responsibility to develop new methods of impact assessment and mitigation through integrated ESHIA.

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