Lessons from Integrated Assessment: Shell Canada

Marla Orenstein

Introduction

This paper presents a case study of an Integrated Assessment (IA) that took place in Alberta, Canada. The purpose is to present some innovative elements of the study and key lessons on integration that may help practitioners and project proponents improve the practice of integrated assessment in the future.

Background on the Project

In February 2006, Shell Canada (Shell) acquired hydrocarbon leases in north-central Alberta in an area that was predicted to contain hydrocarbon reserves. To test the reserves and assess the feasibility of a full-scale commercial project, Shell planned a pilot project, called the North Field Test (NFT) project. The NFT project consisted of four key components:

- in-field facilities and equipment for the test (power plant, accommodation, drilling site etc)
- a pipeline to supply gas for the power plant
- an airport upgrade
- a road upgrade (of approximately 115 km of a dirt/gravel forestry road) to facilitate the transfer of materials and personnel.

The pilot was expected to produce no more than the equivalent of 30 barrels of oil a day.

The NFT project was sited about 20 km by road from the community of Chipewyan Lake, a small and traditional Aboriginal community (population approximately 90) whose residents are virtually all members of the Bigstone Cree First Nation. The community has little employment, and is located about 130 km by road from the nearest town. The majority of residents combine traditional livelihoods (e.g., hunting, trapping, fishing) with participation in wage-based economic activities (e.g., seasonal oil and gas and forestry employment). Because the biophysical environment plays a central role in socio-economic and cultural life, and because little other economic opportunity exists, there was a large potential for the NFT project and any subsequent commercial development to significantly impact lives and livelihoods in both positive and negative ways.

Since the NFT project would be Shell's first significant and permanent activity in the lease area, Shell wanted the project to be designed, constructed and operated in way that reduced adverse social, health or environmental impacts and also maximized any potential local benefits. Although it was not needed to meet regulatory expectations, Shell's internal standards required that an IA be undertaken on the NFT pilot project. From Shell's perspective, a key factor that makes an assessment "integrated" is that it must examine environmental, social (including economic) and health impacts in an integrated manner, with a balanced emphasis on each and exploring the interconnections between issues. This is essential to present effects in a manner that mirrors the way stakeholders experience them. Another critical element of integration is to ensure that the results of the assessment

are integrated continuously and effectively into the project decision-making process, so that the project can be optimized from a local stakeholder perspective. The IA was undertaken in 2007-2008.

Key Lessons

While there were many things that were learned during the NFT IA, this paper focuses on four key aspects that strengthened the IA process and added value to the outcome. Certain of the key lessons discussed below are not necessarily unique to IAs, and could be employed in more traditional types of impact assessments.

1. Integrated Assessment of Issues

A defining feature of Integrated Assessment is a cross-disciplinary examination of project effects. IA is intended to bring together environmental, social, economic and health analyses in a single study and to synthesize information into insights that cannot be derived from a single disciplinary analysis. In the case of the NFT IA, this required integrating environmental, social and health specialists from three different companies, who had not previously worked together.

To assist in this process, the NFT IA team used joint technical working sessions among the different specialists where issues of concern were evaluated and discussed from the perspectives of each discipline area. These discussions focused on delineating pathways, analyzing impacts, ranking significance and developing mitigation strategies. New tools were developed to assist integration. These tools included a "baseline data matrix" that identified the topic areas to be examined and set out how this information would be collected and shared among the team. Also useful were "key issue maps" that documented potential effect pathways relevant to topic areas such as water, traditional lifestyles and safety. These key issue maps helped the environmental, social and health leads to explore and understand how their respective areas overlapped and thus where collaboration was required.

This joint approach was carried over to documentation and presentation of the IA results. Rather than organizing the assessment under separate headings for each discipline component (e.g. atmospheric, terrestrial, hydrology, socio-cultural, etc.) the presentation of results were organized around topic areas that were of concern to local residents and that spanned multiple disciplines – for example, the potential effects of the NFT on residents' ability to hunt and fish, or how the road upgrade would affect the community. Relevant information was pulled together from all disciplines to provide a unified and coherent response.

> *Lesson: It is recommended that key technical specialists responsible for all the various biophysical and human environment issues participate in early meetings to discuss and document issue linkages early in the IA process and to identify an assessment methodology that is 'workable' for all disciplines. This will facilitate an understanding of what information needs to be produced and shared, and how*

disciplines can work together throughout the process. A 'flat' collaborative structure among all consultants is extremely helpful in ensuring that there is a balanced understanding and representation of issues and methodologies, and in developing a truly integrated approach.

2. Team Organization to Ensure Integrated Assessment

A second component that promoted success in this IA was the project organizational structure within Shell. A logistic hurdle was that the Shell design team responsible for the NFT was located in Houston, Texas, while the IA team was based in Calgary, Alberta, more than 3,000 kilometers away. The NFT IA employed three techniques for effectively integrating results of the IA into Shell project planning processes.

The first was to have a cross-functional team from Shell working very closely with the consultants. This included a dedicated resource in Houston whose role was to interface directly with the project team. The second was a process of continuous feedback between the IA consultants and the Shell Grosmont project team. Rather than waiting for a final report, emerging issues and recommendations were fed back to the Shell project team from the IA consultants throughout the assessment process. This allowed the project team to identify if recommendations were feasible, if they were already covered by existing plans and who would be accountable. Thus, by the time the final report was written, the recommendations were already familiar to, vetted by and accepted by the Shell project team. The final technique was the development of an Environmental, Social and Health Impact Management Plan (ESHIMP). The ESHIMP comprised a spreadsheet in which mitigation measures could be filtered either by issues or project phase and where specific personnel responsible for each action were identified. This allowed the ESHIMP to be embedded within the project action-tracking tool that was already in use within Shell, and that had a pre-existing tracking system for ensuring delivery of commitments.

Lesson: Integration extends to the project proponent as well as to the impact assessors. It can be helpful to situate business operation resources directly within the project design team. This may facilitate integration of the IA findings into relevant internal decision-making processes.

3. Meaningful Communication of Results

The communication of results is critical to the acceptance of the IA as a valid process and to the adoption of mitigation and management strategies that are developed. Two important elements of effective communication were: (i) translating findings into communication mechanisms that are relevant to different audiences; and (ii) ensuring that the perspectives of these audiences are reflected in the way that information is delivered.

For the NFT IA, there were several distinct audiences to be considered. These were Shell project management, the Shell design and engineering team, and key local stakeholders.

Because the NFT IA was not intended to satisfy a regulatory requirement, government regulators were not a primary audience of the report.

For community residents and for members of the local government bodies, a Community Report was created. A non-technical summary is a common approach to summarising the highlights from an impact assessment. However, most summaries are written from the perspective of a project developer or with the regulator in mind. In contrast, the Community Report for the NFT IA was written with the community residents firmly as the target audience. The language used in this report was community-friendly, with deliberate attempts made to use non-technical and non-business language. The report used a question and answer format to reflect the way in which issues were raised during the scoping phase and to make it easier for community members to identify their input to the IA. The formatting of the report included the extensive use of pictures to illustrate certain issues, and employed direct quotes from community members. The Community Report was presented in person to members of each individual community, and the draft results discussed openly.

For those requiring additional technical information, the consultant team prepared a very detailed technical appendix, which looked more like a traditional impact assessment required for a regulatory application. The appendix provided detailed baseline data, as well as impact assessment methodology and results. It was, however, written to reflect the integrated understanding and analysis of issues, and discussed all environmental, social, and health implications associated with each primary topic area.

Finally, as described above, results were communicated to the Shell project design team in a way that would facilitate integrating results into project planning processes. This included the use of continuous feedback on recommendations, and the use of the ESHIMP project action-tracking tool.

> *Lesson: Recognize different target audiences and the need to tailor products accordingly. Traditional EIAs focus largely on technical detail and as such are inaccessible to key stakeholders, such as local communities and local government organizations. It is equally important to ensure results can be easily translatable to the project proponent, so mitigation and monitoring can be understood, accepted, and tracked in a corporate environment. IA results may need to be translated into several different working documents so they are understood by all key audiences.*

4. Community Engagement and the Role of Local Assistants

A critical success factor in the NFT IA was the hiring of two Community Coordinators from the community of Chipewyan Lake. This was originally suggested by the leaders of the Chipewyan Lake community association who indicated that the IA would be significantly more meaningful to the local community if there were an opportunity for more direct community participation in the IA process. The two people who were hired were mature adults who were well-connected in this small and traditional

community, and who were therefore well-positioned to assist with community access and gathering and sharing information.

The tasks undertaken by the Community Coordinators included arranging and facilitating local meetings, independently conducting interviews with Elders and other members of the community, and acting as a local Cree-speaking resource to help the community understand the NFT project and the NFT IA. Ultimately, the two Coordinators helped present the results of the IA back to the community in the local Cree language.

The model of working with local Community Coordinators was highly successful. The Coordinators were able to obtain information efficiently and likely in more openness than the consultants would have encountered. Because of their daily presence in the community, issues were continually discussed and refined at the community level, and their involvement helped develop the capacity of the community to understand and participate in future impact assessments for other oil and gas related activity. The increased level of understanding about the project and its potential impacts resulted in advanced trust being built between Shell and community members. Not only did community members express satisfaction about their increased understanding, but they also expressed appreciation for Shell's willingness to be open and transparent about its plans and to seek external feedback on how these plans could be enhanced from the community's perspective.

> *Lesson: Community Coordinators can play a valuable role in facilitating the integration of local input and local knowledge into an IA. This model can provide local stakeholders with a greater sense of ownership of the predicted impacts, the proposed mitigation measures, and the project itself. Using experienced and well-respected adults can greatly aid in the success of this approach.*

Conclusions

This paper has presented four aspects that provided value to an integrated assessment of a proposed heavy oil project in Alberta, Canada. These elements could also be applied to other types of assessments to enhance their value and outcomes.

The IA process provided value by enabling Shell to understand the full range of impacts, to create appropriate mitigation strategies, to improve efficiency by avoiding duplication of efforts by different disciplines, and to build stakeholder trust by fully addressing local concerns in a way that reflected their own understanding of issues.

Overall, an IA can be done so that it provides benefits to industry and its stakeholders. It can help stakeholders and regulators develop their understanding and comfort level with the impact assessment process in general, while at the same time building acceptance and understanding of the project at hand. The key is defining early what constitutes success for each group, being comfortable that the desired outcomes may be dissimilar, continuously tailoring the methods and process to meet evolving needs, and tailoring the communication of results to meet the needs of different audiences.