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The Lower Churchill Panel Review: Sustainability Assessment under Legislative Constraints

Meinhard Doelle*

Introduction

The Lower Churchill Joint Review Panel was established in 2007 to carry out a public environmental assessment (EA) review of a proposed hydroelectric power generation project in Labrador, Canada. Labrador is located along the Atlantic coast of Canada, north of the island of Newfoundland, and south of the territory of Nunavut. The project involved two dams on Labrador's Churchill River with a combined capacity of about 3000 megawatts of electricity. As such, it offered the potential for secure, renewable, low greenhouse gas emitting energy for much of Atlantic Canada and beyond. At the same time, large-scale dam projects are known to cause adverse biophysical effects and a range of positive and negative social and economic effects. The potential for sustainability criteria to contribute to good decision making, including whether and how such a project should be permitted to proceed, was considerable in light of this combination of potential benefits and adverse impacts. This chapter explores the efforts made by the Lower Churchill Joint Review Panel to develop and apply sustainability criteria, and what lessons this experience may offer.

The Lower Churchill Joint Federal-Provincial Panel Review took place at an important time in the evolution of environmental assessment in Canada. It came on the heels of four other joint environmental assessment review panels in Canada that had experimented with sustainability criteria.¹ In line with these prior experiments, the Lower Churchill panel chose to develop a sustainability based decision-making framework to help with the ultimate project decisions. The author was one of five panel members who carried out the Lower Churchill EA review between January 2009 and August 2011.

The experience of the Lower Churchill Panel Review demonstrates that sustainability assessments are possible, and that the criteria developed in the literature challenge decision makers to consider critical issues in determining whether and under what conditions to permit proposed new developments. The Lower Churchill experience also demonstrates the importance of giving panels a clear mandate, of establishing a firm legislative basis for sustainability assessments, and of providing clear guidance to participants and decision makers.

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The Lower Churchill Panel Review Process

The Lower Churchill Joint Review Panel was appointed jointly by the province of Newfoundland and Labrador and the federal government in January 2009. The review process was designed to meet both jurisdictions' legislated requirements for environmental assessments. The project proponent, Nalcor Energy, is a Newfoundland and Labrador provincial crown corporation responsible for a range of energy enterprises. The sites of the project's two proposed hydroelectric dams on the Churchill River are downstream from the massive and controversial Churchill Falls hydropower facility commissioned in the early 1970s. The new dams would be at Gull Island about 230 km downstream, and Muskrat Falls, about 60 km further downstream and about 30 km upstream of the central Labrador community of Happy Valley-Goose Bay. The generating station at the 100 meter high Gull Island dam would have a maximum capacity of over 2000 MW. The Muskrat Falls facility with a 30 meter high dam would have a capacity of 800 MW (LC JRP, 2011).

Also included in the project for purposes of the panel review was a transmission line that would connect both facilities with each other and with the existing grid in Labrador. Not included in the scope of the project for assessment were new transmission lines needed to take the power to markets in coastal areas of Labrador, on the island of Newfoundland, and in Eastern Canada and the New England states of the US. A proposed transmission link connecting Labrador to the island of Newfoundland was the subject of a separate environmental assessment (CEAA, 2010). A third assessment was carried out for the subsea Maritime Link Transmission Project between Newfoundland and Nova Scotia (CEAA, 2012).

The Panel's mandate was not unlike that of other joint review panels in Canada in that the Panel was asked to consider the full range of biophysical, social, economic, and cultural effects of the project and their significance, and mitigation measures to reduce or eliminate any impacts identified. Included in the mandate were the purpose of the project, the need and rationale for the project, alternatives and alternative means of carrying out the project, accidents and malfunctions, cumulative effects, and monitoring and follow-up. The panel was also asked to consider benefits of the project and ways to enhance those benefits (LC JRP, 2011, Appendix 2).

The mandate of the Lower Churchill panel differed from some other Canadian assessment review panels in that the panel was not asked to draft guidelines for the proponent to follow in preparing its Environmental Impact Statement, or otherwise to engage in a scoping process. Scoping hearings had long been the norm for panel reviews, but this practice had recently been discontinued. In another departure from past practice (Doelle, 2008), the terms of reference did not specifically ask the panel for an overall recommendation on whether the project should proceed or not.

The process followed by the Lower Churchill Panel was otherwise quite standard for panel reviews carried out in Canada since legislated federal environmental assessment began in 1995. The process was initiated with the release of a memorandum of understanding between Canada and the province of Newfoundland and Labrador, the panel's terms of reference, and the guidelines for the proponent's preparation of its Environmental Impact Statement (EIS) in the fall of 2008. The appointment of the joint review panel by the federal and provincial Ministers of the Environment followed in January 2009. The proponent released its EIS in February 2009, followed by a public comment period on its adequacy (LC JRP, 2011).

Based on its own review of the EIS and comments filed by government departments and other intervenors, the panel determined that it required additional information from the proponent before it could proceed to hearings. The panel submitted over 200 information requests through four rounds of questions between the spring of 2009 and the end of 2010. Most of the time was taken up with the proponent gathering the information needed to respond to the questions, but each round also included an opportunity for the public to comment on the information provided (LC JRP, 2011).

The final round of information requests was submitted in late fall of 2010 in part due to a change to the project by the proponent. Initially, the proponent had proposed to commence with the construction of the Gull Island facility, followed by the Muskrat Falls facility. The proponent advised the panel in late 2010 that it now anticipated commencing with Muskrat Falls first, largely because it had entered into an agreement with Emera of Nova Scotia, the parent company of the Nova Scotia power utility, for the transmission of excess power from Muskrat Falls to markets in Nova Scotia and beyond. Responses to this last round of information requests were filed by January 2011 (LC JRP, 2011).

In January 2011, the panel determined that it had sufficient information from the proponent to proceed to the hearings. This determination was based on the panel's review of the information provided by the proponent in light of the EIS guidelines issued by the Minister and the comments and questions submitted by government departments and other intervenors. The hearings took place between March 2 and April 15, 2011. Most of the hearings took place in Happy Valley-Goose Bay; however, the panel also traveled to St John's, Sept-Isles, Mud Lake, Northwest River and Sheshatshiu.

The process involved fewer active participants than some other panel reviews, though the numbers were significant for the population size of affected communities. Participants included community members, aboriginal representatives, government officials, and industry organizations.

Aboriginal representation was strongest from the Inuit of Labrador, represented by the Nunatsiavut Government, and from the Innu Nation of Labrador. The participation of the Labrador Métis association, Nunatukavut, was more limited. Seven aboriginal communities in Quebec participated in some form in the process, most by presenting to the panel during the community hearings in Sept-Isles (Lower Churchill Panel Report, 2011). Seven aboriginal communities physically located in Quebec claim rights and title

to land and resources potentially affected by the project. Most of these communities have claims that overlap with those of aboriginal groups in Labrador.

Other intervenors included the Sierra Club, the Grand River Keepers, local and provincial economic development associations and members of the public. Hydro-Québec commented on the adequacy of the EIS, but otherwise did not participate in the EA process. Many of the non-governmental intervenors were either generally opposed to the project or expressed concerns with specific aspects.

The strongest opposition to the project came from the Grand River Keepers and the Atlantic Chapter of the Sierra Club. At the heart of the opposition was the loss of the unimpeded flow of the river, which had important cultural and recreational significance to many local residents, and the impacts on local aquatic and terrestrial ecosystems. Some intervenors, such as economic development associations, were generally supportive of the project, largely in light of anticipated economic opportunities associated with the project. Most government departments focused on providing technical advice on areas within their mandate. Some provincial departments spoke in favour of the project, while federal representatives generally did not comment on the overall project (LC JRP, 2011).

A number of aboriginal communities, particularly the Nunatsiavut Government and Nunatukavut, expressed opposition to the project as proposed. A number of Quebec communities also raised concerns about the project or particular aspects of it. Most aboriginal community concerns centred on potential effects on aboriginal rights and title, and on traditional land use. The leadership of the Innu Nation was generally supportive of the project, but it also questioned specific aspects of the proposal. Individual members of aboriginal communities, particularly elders, did not always share the views of the leadership.

Views expressed about the project ranged from concerns about the biophysical impacts of the impoundment to dissatisfaction with the manner in which the project was proposed and how the costs and benefits were to be distributed. Many intervenors questioned the rationale for the project, and suggested that there were better ways to meet the stated objectives of energy security, energy price stability, reduced greenhouse gas emissions from electricity, and long-term revenues to the province. Participants who were more supportive of the project saw it as an important economic driver for the region and an opportunity for aboriginal communities, particularly the Innu Nation, to make the transition to a wage economy and develop the financial resources to take control of their own destiny (LC JRP, 2011).

On the basis of the evidence presented by the proponent and other participants in the review, the panel concluded that the project would have a number of significant adverse environmental effects, mostly related to the biophysical impacts associated with the impoundment of the river. Significant adverse impacts identified by the panel included the effect of the project on fish and riparian habitat, the loss of terrestrial habitat, effects on a local endangered caribou herd, and the loss of the river from a social and cultural perspective. Under Canadian environmental assessment law, identification of significant

adverse effects entails further consideration of whether those adverse effects can be “justified in the circumstances” (Canada, 1992; 2012b). A proposed project cannot be approved if it poses significant adverse effects that cannot be justified. While the law provides no explanation of how justification “in the circumstances” is to be determined, the purposes section refers to the promotion of sustainable development, and the common assumption is that there must be compensating gains of greater significance and/or grounds for concluding that no better alternative to the project is available.

In addition to significant adverse effects, the Lower Churchill panel identified a number of potential gains, chiefly social and economic benefits to the area and benefits associated with a long-term source of energy with low greenhouse gas emissions. However, despite its four rounds of information requests and other efforts to obtain an adequate basis for judgment, the panel found that it was not provided with sufficient information to support conclusions about whether the project was justified from an economic perspective or whether there were alternatives that were preferable to the project. The implications of the project for aboriginal rights and title and for current use of land and water for traditional purposes also could not be fully assessed by the Panel due to information gaps.

In light of the missing information and the inadequacy of the alternatives assessment, the panel was not in a position to reach an overall conclusion whether significant adverse effects were justified, or whether the project should proceed. The panel recommended an independent assessment of project alternatives and in place of an overall conclusion, the panel offered the government authorities a framework for reaching a decision. Essentially, the Panel’s advice was that a decision on whether the significant adverse effects were justified in the circumstances should be based on whether the project would make a net contribution to sustainability. As a general principle for decision makers to apply in determining whether the project would make a net contribution to sustainability, the Panel stated:

The effects, risks and uncertainties of the Project should be fairly distributed among affected communities, jurisdictions and generations, and the Project should result in net environmental, social and economic benefits (LC JRP, 2011, p.270).

As well, in Appendix 8 of its Report the panel specified a more detailed set of principles and criteria for making the “net contribution to sustainability” determination, and in Chapter 17, the panel discussed how the framework could be applied.

For the purposes of assessment decision making, the panel’s core conclusion was that in order for a project to make a net contribution to sustainability, it had to strive to provide net environmental, net social and net economic benefits. Furthermore, the benefits, impacts, risks and uncertainties should be distributed fairly both geographically and between current and future generations. Chapter 17 of the panel report offers additional analysis on how a decision on the project’s contribution to sustainability might be made, and how such an approach might affect whether and under what conditions the project might be approved. The panel’s sustainability decision-making framework was included in the final report, but the panel did not make a specific recommendation regarding

whether or how it should be used in subsequent decision-making on the project (LC JRP, 2011).

The provincial government either fully accepted or accepted the intent of most of the formal recommendations of the panel. However, the province did not accept the panel's recommendation for an independent alternatives assessment, taking the position that the proponent's alternatives assessment was adequate (NL, 2012). There was no indication in the government response or in subsequent project decisions whether the province made use of the sustainability framework in making project-related decisions. Moreover, the province did not provide a rationale as part of its decision to approve the project. Instead it simply released the project from the provincial environmental assessment process, and proceeded to issue required licences.

The federal government similarly accepted most of the panel's formal recommendations. The federal response went a step further than the province by setting out an explicit final position on the project from a federal perspective. The federal government concluded that the significant adverse effects identified by the panel were justified in light of the significant energy, economic, social and environmental benefits of the project. While the response refers to many of the issues raised by the panel in its sustainability framework, the federal government did not reference the framework or the Panel's discussion in its conclusion that the project merited federal approvals (Canada, 2012a).

In short, the Lower Churchill Panel Review is an example of an environmental assessment review that was not specifically directed to take a sustainability approach to its work and generally followed the well-established process for carrying out its work, but nonetheless based its final analysis largely on whether the project would make a net contribution to sustainability. The panel was hampered in its efforts by lack of clarity in its mandate and by lack of information to implement a full sustainability assessment. The end result was a sustainability assessment framework for government decision makers, but no clarity on whether and how it was applied.

The Development of the Panel's Sustainability Framework

As noted in the previous section, the Panel was not explicitly mandated to make an overall determination about whether the project should be approved, and it did not reach an overall conclusion. Instead, the Panel identified anticipated project effects and uncertainties and developed a framework for decision makers to determine whether the project would make a net contribution to sustainability in light of the effects, risks and uncertainties identified.

The Panel justified its framework and approach to considering the project's contribution to sustainability on the basis of its terms of reference and the underlying legislative mandate at the federal and provincial level. The terms of reference for the Lower Churchill panel review supported but did not explicitly require a sustainability approach. They asked the Panel to consider a broad range of positive and adverse social, cultural,

economic and biophysical impacts of the Project, but did not specifically ask the Panel to reach conclusions on the overall acceptability of these impacts.

The Panel looked beyond the terms of reference, given that it was struck to meet the EA requirements of the LC project under provincial and federal EA legislation and to assist government decision makers in determining whether and under what conditions the Project should be permitted to proceed. Most EA laws in Canada recognize in some manner that a purpose of EA is to encourage projects to contribute to sustainable development (Canada, 1992; Doelle, 2008).

As noted above, under federal EA law in Canada, the goal of contributing to sustainable development is partially met through the legal test that if a project is likely to cause significant adverse environmental effects, it can proceed only if federal decision makers conclude that the adverse impacts are justified in the circumstances. The test of “justified in the circumstances” allows federal decision makers to engage in a discussion of whether significant adverse effects identified in project EA reviews are warranted because of the overall benefits of the project. Although the Canadian federal EA process is mostly focused on identifying significant adverse environmental effects, its formal purposes are broader. In its better applications, that process has served to inform authorities about the broader implications of their decisions and to assist them in deciding whether to exercise their general discretion to approve or otherwise support the project (Doelle, 2008). Provincial decision makers generally have even broader discretion to determine whether a project should proceed in light of the results of the EA process.

The Lower Churchill panel was specifically mandated to consider the need for and purpose of the project, the economic justification for the project, benefits and ways to enhance them, and alternatives to the project. These are all issues that go beyond the identification of significant adverse environmental effects. They collectively challenged the Panel to consider how to assist federal and provincial decision makers in making their project decisions in light of the environmental effects identified.

In case of the Lower Churchill process, the panel report informs the provincial EA decision under section 67 of the Newfoundland and Labrador *Environmental Protection Act* (NL, 2002) and the federal decision under section 37 of the *Canadian Environmental Assessment Act* (Canada, 1992). In both cases, the decision maker is required to consider whether the project should proceed and if so, under what conditions. In both cases, the report of the panel is the only source of information for decision makers identified in the legislation.

In short, in cases of joint review panels such as Lower Churchill, both federal and provincial decision makers have to determine, in light of the adverse effects, benefits, risks and uncertainties identified in the panel report, whether the project should proceed. The Lower Churchill panel report offers as the test for this decision whether the project is likely to make a net positive contribution to sustainability (Lower Churchill Panel, 2011). This approach proposed by the Lower Churchill panel is similar to the approach taken in

other recent panel reports (VB JEAP, 1999; WP JRP, 2007; KN JRP, 2007; MGP JRP, 2010).

To assist federal and provincial decision makers in their respective decisions, the panel started to consider early in its deliberations how to determine whether the project as proposed would contribute to sustainable development in affected communities, in Labrador, and in the province of Newfoundland and Labrador. It eventually proposed a test for net positive contribution to sustainability and in the final report sought to demonstrate how such a test might be applied (LC JRP, 2011).

The panel drew heavily on sustainability assessment literature in preparing its sustainability decision-making framework (Gibson, 2005). The initial criteria were of a generic nature, with limited consideration given to the specific circumstances to which they would be applied. The concept at the start was that these generic criteria would become more project specific through the engagement with the proponent and intervenors throughout the panel review process.

Well before the hearings, the panel released for public comment draft criteria to determine whether the project would make a net positive contribution to sustainability. The panel furthermore scheduled a topic-specific hearing on cross-cutting issues during the regular hearing process, which included the topic of sustainable development. Feedback from intervenors on the draft framework before and during the hearing was limited.

In line with the draft framework and after considering the comments received, the panel finalized its proposed criteria for a net positive contribution to sustainability and included them in the report (LC JRP, 2011, Appendix 8). Given the limited feedback, and the decision by the panel not to apply the framework itself, but rather to offer it to government decision-makers to assist with their final decision-making process, there was little basis for or pressure to adjust the sustainability framework. More importantly, the panel found that the generic criteria held up well as the Panel reflected on them in light of the range of issues raised during the panel review process.

The framework has two main components. The first component consists of six criteria designed to assist in identifying the range of positive and negative effects the project is predicted to have, and to work towards minimizing adverse effects and maximizing benefits. The criteria are designed to include ecological, social, cultural and economic effects of the project, as well as their fair geographic and generational distribution. Finally, the criteria suggest a preference for integrated solutions over balancing of negative and positive effects.

These criteria challenge project proponents and decision makers to look for ways to ensure net biophysical, net social and net economic benefits. Individually, benefits in any one of these areas do not have to be distributed equally, but the framework is designed to ensure a fair overall distribution of benefits among affected communities and jurisdictions and between present and future generations.

The first component of the sustainability framework was designed to assist decision makers in identifying opportunities to avoid negative impacts, to enhance positive contributions to sustainability, and to look for integrated solutions to avoid adverse effects. Under ideal circumstances, the application of these criteria would result in a project that offers net positive contributions in all areas defined, requiring no trade-off decisions.

In recognition of the reality that this ideal would likely not be achieved in the Lower Churchill case, the second component of the framework sets out the panel's proposed approach to residual negative impacts and risks. The principles in this part are intended to assist the decision makers in assessing the range of positive and negative social, economic and biophysical impacts of the project to confirm whether the project can be expected to make a net positive contribution to sustainability and to ensure a fair distribution of impacts, benefits, risks and uncertainties. In short, the second component as detailed in Appendix 8 helps decision makers determine whether the adverse impacts, benefits, risks and uncertainties are distributed fairly, and whether the trade-offs are defensible from a sustainability perspective. (LC JRP, 2011)

In summary, at the heart of the Panel's approach was the concept that the benefits, costs, risks and uncertainties of the project should be clearly identified and fairly distributed among affected communities, jurisdictions and generations, and that the project should result in net biophysical, social and economic benefits (Gibson, 2005).

Application of the Framework to the Lower Churchill Project

The panel was unable to reach its own conclusion on the project due to information gaps. At the same time, the panel had engaged in considerable detail with many of the issues that would have to be considered in applying the decision-making framework it had developed. The panel therefore decided to include a chapter that summarized the panel's deliberations on how the framework would apply to the specific circumstances of the Lower Churchill project. The chapter makes reference to relevant information that was collected through the panel review process and noted information gaps that would have to be filled in order to allow authorities to apply the decision-making framework effectively (LC JRP, 2011, chap.17).

The starting point for the Panel's deliberations on the project's net contribution for sustainability was its conclusion that the project as proposed was likely to cause significant adverse biophysical impacts on the Churchill River ecosystem. It was also clear that the project had the potential to have positive biophysical effects to the extent that it might displace more harmful sources of electricity (such as coal or oil), and that it was likely to result in both adverse and positive social, cultural and economic effects, many of which were elaborated throughout the panel report.

The panel lacked adequate information about alternative ways to meet electricity needs in target markets to be able to determine the extent to which the project would in fact

displace more harmful sources of electricity. The absence of adequate information about alternative ways of meeting energy needs within the province through a combination of conservation, efficiency and other forms of renewable energy, for example, made it impossible for the panel to determine whether the proposed project was the best way to meet energy needs in Newfoundland. Similarly, information gaps on the effect of electricity from this project on the electricity mix in target markets beyond the province made it impossible for the panel to reach any final conclusion about the environmental benefits of the project. These potential benefits of the project could not be quantified without knowing to what extent the project would displace coal, gas, wind, or efficiency measures in target markets. As a result, the panel was not in a position to reach a final conclusion as to whether the adverse effects of the project could be justified in light of the benefits.

The panel recommended an independent assessment of alternatives to fill these critical information gaps. At the same time, the panel recognized the potential for power from the project to displace fossil fuel based power production in Newfoundland, the Maritime Provinces, and beyond. The panel therefore concluded that there was every opportunity to create environmental benefits from the project by ensuring that power from the project would displace more harmful sources of electricity and by linking the project approval to permanent protection of similar ecosystems in Labrador.

With respect to social, cultural, and economic effects of the project, the panel concluded that the overall ability to ensure net social and economic benefits largely hinged on the economic viability of the project. Inadequate information was provided by the proponent for the panel to reach a firm conclusion on the economic viability of the project. The panel therefore recommended that an independent economic assessment be carried out before a project decision. Whether lasting net social and economic benefits would in fact materialize would furthermore depend on the commitment of communities and government officials to make the effort needed to minimize negative social and economic effects in each community and to realize opportunities for long term gains through training initiatives, ongoing efforts to integrate native workers into the workforce, and the development and implementation of effective programs to enhance entrepreneurial skills.

This left the panel with the issue of fair distribution of benefits, impacts, risks and uncertainties. The panel suggested a community by community approach to consider carefully how each community would be affected by the project over time, the measures needed to minimize negative impacts and risks to communities, and how to ensure net benefits to each affected community. The cost of ensuring net benefits to each affected community would then factor into the overall viability of the project. In other words, the overall project would only be viable if it generated sufficient revenues to pay for the measures needed to ensure net benefits to each affected community.

Lessons Learned

The Lower Churchill experience with sustainability assessments offers a number of important lessons for the adoption of sustainability as a test for project decisions in EA. First, the lack of legal and administrative clarity about the role of sustainability in the Lower Churchill EA hampered all participants in the process.

This lack of clarity had a number of important effects directly on the panel. It made it more difficult for the panel to articulate the information it required from proponents and intervenors in the process. The lack of legal clarity created uncertainty among panel members about the proper role of sustainability criteria in their process. It also made the Panel reluctant to issue a specific recommendation for government decision makers to base their final project decisions on the sustainability framework it had developed.

Uncertainty about the role of the contribution to sustainability test affected other participants in the process as well. It resulted in the proponent not engaging on the issue of sustainability, even though the Panel had released draft sustainability criteria prior to the hearings, and held a specific hearing on sustainability issues. It also contributed to misunderstandings about the importance of more detailed information in three key areas: alternatives to the project, the economic viability of the project, and the impact of the project on aboriginal communities and their traditional activities in the project area.

The lack of clarity also affected intervenors. Most intervenors focused on information related to the significance of adverse environmental effects. While some also addressed social, cultural, and economic implications of the project, and many challenged the proponent's approach to alternatives, this did not result in significant intervenor engagement with the Panel's sustainability criteria.

The low engagement by intervenors in the development of the framework, in turn, contributed to the Panel's reluctance to make an explicit recommendation for decision makers to adopt the framework. By not formally recommending its adoption, the Panel in turn relieved government decision makers of the duty to respond to the framework proposal, allowing both levels of government ultimately to side step the question of whether and how their final project decision was informed in part or in whole by a commitment to ensuring positive contributions to sustainability.

In spite of these challenges, the Lower Churchill experience demonstrates that EA through the lens of net contribution to sustainability is within reach in Canada. Clarity can easily be provided through modest legislative changes. In the absence of legislative changes, such clarity can also be built up gradually case by case through panels responding as the Lower Churchill panel did to its basic duties in law and under its terms of reference.

Beyond this, guidance to panels and other participants in the EA process on how the information included in the scope of the EA, particularly information related to the need and rationale for a project, alternatives to a project, and the positive as well as adverse biophysical, social, cultural and economic effects of a project, would help encourage participants to engage more actively in the consideration of how the information already

gathered in most EAs can be used effectively for good decision making. This guidance is particularly needed for officials who negotiated joint panel review agreement, set terms of reference for panel reviews, and draft EIS guidelines.

An important lesson from the Lower Churchill experience is that the process of acquiring and analyzing information to determine whether there is a net contribution to sustainability is not overly complex. At the same time, more work is needed with respect to the ultimate evaluation and trade-offs of residual impacts and benefits. Such evaluations are probably best done by independent panels in transparent processes. It may be, however, that even if EAs focus on looking for integrated solutions to eliminate negative effects where possible, and leave the final trade-offs to be judged according to clear and transparent principles by government decision makers, much progress will have been made in the effort to improve decision making at the project EA level.

Conclusion

So far, Canadian EA review bodies such as the Lower Churchill panel have experimented with sustainability-based assessments without clear legislative or policy guidance. Considerable experience has been gained. Much of the experience so far has drawn on the sustainability literature, and the literature in turn has benefited from the early experimentation. There is, however, still a divergence of approaches, and the lack of law and policy clarity is limiting the effectiveness of the sustainability assessments carried out.

The lack of clarity in the terms of reference developed for panels has at times raised doubts among some participants about the appropriateness of sustainability assessments. Furthermore, few participants in our case were familiar with sustainability assessments. In the absence of clear guidance on the role of sustainability assessments in project EA and on how such assessments are to be conducted, many participants in the Lower Churchill process did not address sustainability issues and instead focused on what they knew – the more traditional issues related to significant adverse environmental effects. This, in turn, contributed to significant information gaps, which made application of the sustainability framework more difficult for the Lower Churchill panel.

These challenges with early efforts to incorporate sustainability assessments into project EAs suggest that it is time to recognize formally the contribution this approach makes to the effectiveness of project EA, and to offer clear legislative, regulatory and policy guidance to all participants. Only then can we expect proponents and intervenors to provide the information needed and to engage actively in this fundamental part of the project EA process. Such engagement, in turn, will enable Panels to utilize sustainability-based insights more fully to assist government decision makers in making project decisions that move us towards a more viable and desirable future.

Appendix 8 of the Lower Churchill Panel Report

Framework for Determining Whether Significant Adverse Environmental Effects are Justified and Whether the Project Should be Approved

This framework was developed by the Panel from a number of sources, including criteria suggested in the literature, criteria applied in previous panel reports, participant input on draft criteria released by the panel prior to the hearings, and information provided during the hearing process.

At the heart of the decision-making framework is the concept that the effects, risks and uncertainties of the Project should be fairly distributed among affected communities, jurisdictions and generations, and that the project should result in net environmental, social and economic benefits.

The framework consists of two main components:

- The first component is a set of sustainability criteria designed to assist in identifying the range of impacts on sustainability the project is predicted to have, and to work toward minimizing adverse effects and maximizing benefits. This component has guided much of the work of the Panel throughout the report and has assisted in identifying opportunities to avoid negative impacts and to enhance positive contributions to sustainability.
- The second component is a set of principles that set out the proposed approach to residual impacts. These principles are designed to assist in assessing the range of positive and negative social, economic and environmental impacts of the project and to determine whether, in light of the identified range of effects, risks and uncertainties, the project is expected to make a net positive contribution to sustainability.

Sustainability Criteria to Predict the Effects and Risks of the Project, and to Identify Uncertainties

1. ***Ecological Impacts, Benefit, Risks & Uncertainties*** – Are biophysical systems adequately protected throughout all phases of development, construction, operation, and decommissioning of the project?
 - Is the long-term integrity of biophysical systems ensured and are the irreplaceable life support functions protected upon which human as well as ecological well-being depends?
 - Are the complex interactions sufficiently understood?
 - Are potential adverse impacts minimized?
 - Does the project reduce threats to the long-term integrity of ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit?

2. ***Economic Impacts, Benefit, Risks & Uncertainties*** – Does the project provide net economic benefits to the people in the area surrounding the project, in the province, and in Canada?
 - Does the project enhance practically available livelihood choices and the power to choose?
 - Does the project reduce gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc.) between the rich and the poor?

3. ***Social and Cultural Impacts, Benefit, Risks & Uncertainties*** – Does the project contribute to community and social well being of all potentially affected people? Is it compatible with their cultural interests and aspirations?
 - How will the project affect individual communities?
 - Does the project assist in building the capacity, motivation and habitual inclination of individuals, communities and other collective decision-making bodies to apply sustainability requirements?
 - Does the project encourage more open and better informed deliberations, greater attention to fostering collective responsibility, and more integrated use of individual and collaborative collective decision-making practices?
 - Does the project strengthen individual and collective understanding of ecology and community, foster customary civility and ecological responsibility, and build civil capacity for effective involvement in collective decision making?

4. ***Fair Distribution of Effects, Risks & Uncertainties*** – Are the effects, risks, and uncertainties fairly distributed among potentially affected individuals, communities, regions and other interests?
 - Does the project consider carefully the geographical distribution of the social, economic and environmental effects, risks, and uncertainties of the project?
 - Will affected individuals and communities have the prerequisites for a decent life and the opportunities to seek improvements that do not compromise equivalent opportunities for future generations?
 - Is the diversity of those whose needs are being addressed appreciated? Is their involvement ensured?
 - Does the project emphasize less materially and energy intensive approaches to personal satisfactions among the advantaged, to permit material and energy sufficiency for all?

5. ***Present versus Future Generations*** – Does the project succeed in providing economic and social benefits now without compromising the ability of future

generations to benefit from the environment and natural resources in areas potentially affected by the project?

- Does the project favour options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably?
- Does the project assist in returning current resource exploitation and other pressures on ecological systems and their functions to levels that are safely within the perpetual capacity of those systems to provide resources and services likely to be needed by future generations?
- Does the project apply precaution, by respecting uncertainty, avoiding both well and poorly understood risks of serious or irreversible damage to the foundations for sustainability, planning to learn, designing for surprise, and managing for adaptation?
- Will decision makers act on incomplete but suggestive information where social and ecological systems that are crucial for sustainability are at risk?
- Has the proponent designed for surprise and active adaptation, favouring diversity, flexibility and reversibility?
- Has the proponent ensured the availability and practicality of backup alternatives?
- Has the proponent established mechanisms for effective monitoring and response?

6. **Integration** – Are all principles of sustainability applied together, seeking mutually supportive benefits and multiple gains?

- Integration is not the same as balancing because greater efficiency, equity, ecological integrity and civility are all necessary for sustainability, therefore, positive gains in all areas are essential for sustainability
- What happens in any one area affects what happens in all of the others
- It is reasonable to expect, but not safe to assume, that positive steps in different areas will be mutually reinforcing
- A sustainable project requires positive steps in all areas, at least in general and at least in the long term
- Sustainability requires decision makers to resist convenient immediate compromises unless they clearly promise an eventual gain

A key goal of these criteria is to encourage the search for integrated solutions that provide net immediate and long-term gains in all areas. This approach should reduce the need to consider whether negative impacts in one area are outweighed against positive effects in another area. In recognition that this ideal is rarely achieved, the following section proposes principles to guide the consideration of the range of positive and negative impacts identified through the application of the six criteria above.

Principles to Guide the Project Decision in Light of the Range of Positive and Negative Effects of the Project

Maximum net gains

- Overall, the project should deliver net progress towards meeting the requirements for sustainability; it should seek mutually reinforcing, cumulative and lasting contributions and should favour achievement of the most positive feasible overall result, while avoiding significant adverse effects.

Avoidance of significant adverse effects

- A significant adverse effect on any sustainability requirement area can only be justified if the alternative is the acceptance of a more significant adverse effect.
- Compromise is acceptable if it avoids further decline or risk of decline in a major area of existing concern, or if it improves prospects for resolving problems properly identified as global, national and/or local priorities.
- Incomplete mitigation of significant adverse effects is not acceptable if stronger mitigation efforts are feasible.

Principles of fairness

- No current or future generation should bear an unreasonable share of the adverse effects, risks or costs, or be denied a reasonable share of the benefits of the project.
- No geographic region affected by the project should bear an unreasonable share of the adverse effects, risks or costs, or be denied a reasonable share of the benefits.
- The project should make a net positive contribution to sustainability in each of the three main areas, the environment, the economy, and social conditions.

Explicit justification

- Any compromises on the overall effects, risks and uncertainties of the project and their distribution should be accompanied by an explicit and transparent justification based on openly identified, context specific priorities as well as the sustainability decision criteria.

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¹ The four earlier sustainability-based joint environmental assessment reviews were by the Voisey's Bay Mine and Mill Project Panel (VB JEAP, 1999); the Whites Point Quarry and Marine Terminal Panel (WP JRP, 2007), the Kemess North Mine Panel (KN JRP, 2007) and the Mackenzie Gas Project Panel (MGP JRP, 2009). All were established by the federal government and a provincial or territorial government. In the Voisey's Bay and Mackenzie cases, aboriginal government authorities were also involved in establishing the panels.