

Expert Panel, Review of Environmental Assessment Processes
Canadian Environmental Assessment Agency
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Submitted online at www.eareview.ca.

December 23, 2016

Scientific integrity for environmental decision-making: A submission to Canada's Expert Panel for reform of the Canadian Environmental Assessment Act

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Executive Summary of Recommendations

This list summarises key recommendations for the Expert Panel to consider when reporting to the Minister of Environment and Climate Change regarding the Canadian Environmental Assessment Act. Further details, including suggestions for implementation, are given in the accompanying letter.

Recommendation 1: Standardize methods for integrating community and traditional knowledge throughout the project life-cycle. Traditional and community knowledge, both environmental and cultural, should be actively sought and integrated at all stages of the the decision-making process. Guidance should be given to collect and incorporate information in a standardized way to improve accountability and comparability between projects.

Recommendation 2: All proposals, interim reports, and Environmental Impact Statements should include detailed, replicable methods and open data. All scientific evidence submitted to an environmental assessment process should meet professional peer-reviewed standards. Reporting detailed methods and all data will strengthen the robustness of decisions and increase process transparency.

Recommendation 3: Provisions for peer-reviewed independent science and evidence through the establishment of either (1) a fund for stakeholders to contract environmental expertise in addition to the proponent, or (2) an independent, arms-length government body responsible for the entire impact assessment. Presently, the proponent hires contractors to prove that their project carries an acceptable level of risk. Although other stakeholders can contribute data, this is often beyond their resources. Funding communities and individuals besides the proponent, or situating impact assessments within an independent institution, will expand and strengthen the body of evidence.

Recommendation 4: Establish an independent, arms-length body for decision-making which uses transparent and consistent criteria for significant adverse effects. Transparency and accountability are paramount for the EA process to have public legitimacy. Instituting an independent regulator would limit vested interests of decision-makers in specific outcomes. Assessing similar projects using consistent criteria will likely also increase public trust.

Recommendation 5: Make follow-up reports mandatory and public, and allow the decision-making body to amend approvals and conditions based on new evidence. Projects have a long life after the assessment decision is made, and circumstances and conditions change. Mandating publically-available follow-up reports allows for longitudinal data on the health and sustainability of infrastructure and better adaptive management--particularly important in the context of cumulative effects and climate change.

Recommendation 6: Establish a comprehensive online public registry with a standardized format for all information and data concerning projects under the CEAA. A public registry of data increases the transparency of the process, and permits meta-analysis by internal evaluators, independent researchers, and journalists. This body of knowledge that can be used both to inform future assessments and to evaluate the efficacy the EA process.

Recommendation 7: Establish a program of regional or ecosystem-level assessment to evaluate impacts on environment, economy, society, and human health at multiple scales. Individual projects may carry an acceptable risk, but in combined across multiple projects it may reach unacceptable levels. Establishing a system by which regions or ecosystems are assessed as a whole for particular project-related impacts will more appropriately estimate risk factors across multiple projects.

Introduction

Evidence for Democracy is pleased to see that the federal government has appointed a panel to revisit legislation and regulations for the Canadian Environmental Assessment Act (CEAA). The changes enacted in 2012, under the previous government, significantly weakened the assessment process and reduced the scope of environmental assessments, and the West Coast Environmental Law Association suggests that there have been [thousands fewer federal environmental assessments](#) since the Act was amended. The environmental assessment (EA) process is a critical tool for managing and protecting local and regional environments and communities, and as such should be robust and evidence driven.

All EA processes and products rely heavily on scientific input, throughout all stages: scoping, collecting baseline data, generating impact predictions, generating mitigation measures, evaluating likelihood of risk, designing and implementing monitoring programs, and reviewing all of the relevant technical and scientific reports. Canadian scientists and experts have signed a number of open letters decrying the insufficiency of scientific evidence in project-specific CEAA decisions, including speaking out against the decision on the [Pacific Northwest LNG Terminal](#) (130+ signatures), the [Site C Dam](#) (200+ signatures), and the [Northern Gateway](#) Pipeline (300+ signatures). Recently, over 1800 young researchers [signed a letter](#) calling for improved scientific integrity in Canada's environmental assessment processes. The [Yellowstone to Yukon Conservation Initiative](#) has criticized the current EA process for including weak scientific standards, and the [Liber Ero fellows](#), representing some of Canada's top independent scientists, have specifically called for a stronger role for science in environmental assessment. The signatories of the Liber Ero fellows' letter echo a sentiment felt across the breadth of Canada's science and research community: "we are concerned that current environmental assessments and regulatory decision-making processes lack scientific rigour."

We strongly encourage the Expert Panel to recommend that CEAA be amended to bring it in line with modern, evidence-based standards of assessment. Particular care should be taken to ensure the scientific rigour of the process; without a full body of scientific evidence, any decision made as a result of the EA process will be compromised. The health of our communities, economy, and our

many and varied ecosystems rely on the stringent regulation of infrastructure process. Yet, currently the Act has weak requirements for the evidentiary threshold upon which decisions are made, the use of evidence collected after project approval, and transparency over collected data.

We have identified seven key characteristics that a revamped EA process should exemplify, and have situated them under four of the themes being considered by the Expert Panel. We sincerely hope these elements will be included in the Expert Panel's recommendations to the Minister for CEAA reform.

Overarching Indigenous Considerations

Recommendation 1: Standardize methods for integrating community and traditional knowledge throughout the project life-cycle.

Infrastructure projects are not built in abstract, general places: they are built in specific communities and contexts, and as such, there are unique issues and considerations for each project. As such, local knowledge is a key component of the body of evidence used to inform an environmental assessment. Traditional knowledge (TK) is the most common and comprehensive form of local knowledge, but local knowledge takes many forms. These forms of knowledge include an awareness of environmental factors that may not be apparent to non-local contractors, or an understanding of how the community will react to a particular project, and improper consultation has resulted in controversy and conflict (one of many examples is that the proponents of the development project at the Chaudière Falls are [currently facing resistance](#) from much of the local Algonquin community).

Indigenous communities often have a deep understanding of their environment, and histories of ecological patterns and changes. Currently the EA process requires TK to be incorporated into the body of evidence used to make a decision about a project. We recommend that the language be strengthened to require that local and traditional knowledge is actively solicited throughout the entire EA process. This conversation should start at the first steps of a project, when the proposal is being scoped and evaluated. This is important for inclusion, but in addition, pre-EA-approval scoping and researching activities may have an adverse effect natural areas and Indigenous Aboriginal lives, lands, and livelihoods early in the process.

Ongoing conversations with Indigenous groups are particularly imperative for projects carried out in or near Indigenous communities or grounds and waters traditionally visited to hunt, trap and gather food. In addition, community members should be both solicited for feedback and involved in the generation of follow-up evidence after project approval. This approach is supported by many of the Indigenous nations and organizations who have submitted feedback to the the EA review panel, including (but not limited to) the [BC Assembly of First Nations](#), the [Cowichan Tribes](#), [Kitigan Zibi Anishinabeg](#), [Wet'suwet'en](#), the [Métis Nation of Ontario](#), and [Premières Nations des Pekuakamiulnuatsh, des Innus Essipit et des Innus de Nutashkuan](#). Many Indigenous groups have expressed concern over trust issues between their communities and representatives of the Canadian government, and this chasm must be addressed for EA processes to be successful.

Although traditional knowledge may be considered during the EA process, there are concerns about the quality of this data and search effort. The [BC Assembly of First Nations](#) identified a number of issues, including (1) lack of baseline data, (2) unstandardized methodology, leading to different interpretations by the regulator, and (3) lack of thresholds specifically associated with TK for assessing risk. We recommend these concerns be addressed through standardized guidelines for acquiring, assessing, and reporting TK during the impact assessment process. For example, a one-year timeline to document the environment throughout all seasons is clearly unrealistic.

Conduct of Environmental Assessment

Recommendation 2: All proposals, interim reports, and Environmental Impact Statements should include detailed, replicable methods and open data.

It is currently mandated that the proponent provide an Environmental Impact Statement (EIS), which is available to the public for scrutiny and comment. However, data gathered by the proponent during surveying and environmental impact assessment is often proprietary and cannot be accessed by the public. To ensure the transparency of the process, all proposals, interim reports, and Environmental Impact Statement reports should (1) detail the methodologies of the study in enough detail as to be replicable by independent researchers, and (2) include in full all raw data collected

during environmental, social impact assessment, and/or cumulative effects assessment, which will be made available to the public for independent analysis.

The original source of the data, as well as parties responsible for updates or alterations, should be clearly recorded. The [Canadian Association for Laboratory Accreditation](#) suggests including the legal requirement for all laboratory testing for samples taken as part of EA studies to be undertaken at accredited facilities. Though this requirement may not be feasible or even desirable for academic research laboratories, chain-of-custody for data and samples should be documented, made publically available, and it should be indicated if practitioners are accredited or part of a body attesting to their qualifications. Analytical methods, quality control, detection limits / levels of quantitation must be defined and the indicator of sensitivity must be provided alongside all analytical data. Including this information is crucial for an accurate interpretation of the data, as some tests may not be sufficiently sensitive to detect contaminants present in a sample. For example, the [Alberta Energy Regulator Peace River Proceeding](#) had copious data indicating “zero” levels common airborne contaminants; these results were obtained with protocols with poor sensitivity and should instead have indicated that contaminants were “not detected” using those specific tests. The robustness of the scientific analysis used during the EA process is also a concern of several of the scientific organizations who submitted responses to the panel, including the [Liber Ero fellows](#) and the [College of Applied Biology](#).

Recommendation 3: Provisions for peer-reviewed independent science and evidence through the establishment of either (1) a fund for stakeholders to contract environmental expertise in addition to the proponent, or (2) an independent, arms-length government body responsible for the entire impact assessment.

In the EA process, the burden of evidence is on the proponent, who is required to demonstrate an acceptable level of environmental risk and tangible benefit to the community. As such, most scientific studies, evidence, and monitoring is completed by contractors hired by the proponent. However, although the proponent stands to gain the most benefit from a project, much of the environmental risk of infrastructure projects is borne by the community and ecosystems affected by the project.

We recommend moving away from the current proponent-funded, professional reliance model. This situation, where the proponent is responsible for hiring and overseeing the contractors providing the assessment, has been heavily criticized for introducing bias and skewing risk assessment. We see two possible solutions to this problem.

The first (1) solution is a proponent-funded, multi-stakeholder professional reliance model which maintains the proponent contributing evidence, but also establishes a process which other stakeholders, including governments, Indigenous and non-Indigenous communities, research institutions, and interested citizens, can contribute independent evidence and analysis. Affected communities are often unable to muster the significant resources required to hire and oversee qualified scientific and engineering consultants. This is particularly true for low-income and Indigenous communities, who are more likely to be vulnerable to environmental risk. The gathering of evidence by independent experts could be achieved through a fund, supplied by the proponent, to which independent stakeholders can apply. This money would be used to support the collection of evidence by independent scientific contractors. Both this independent evidence and the evidence contributed by the proponent would be subject to the same level of academic scrutiny, and follow requirements stated in Recommendation 2, whereby raw data is made publically available and methods are described in sufficient detail as to be replicated. This approach is favoured by some Indigenous groups, including the [BC Assembly of First Nations](#). If the Expert Panel recommends this model, they should consider including provisions for certification of qualified professionals, to ensure all contractors involved with gathering scientific data meet a professional standard of operation.

The second (2) solution is proponent-funded, agency-led through the creation of an independent, arms-length government body, funded by project proponents, which is responsible for conducting all impact assessments specified under the revised CEAA. This option would not engage the community as deeply as (1), however, it would be likely to restore public trust and both centralize and standardize the process by which scientific evidence is gathered for all EA processes. However, care must be taken to ensure that this standard is not static, but is flexible enough to evolve with the science that informs it. It would be necessary for this body to be protected from political or industrial interference by robust clauses ensuring scientific integrity, like those [recently implemented](#) for federal scientists. A peer review process should also be implemented. All reports and data collected or contributed by this organization would be available in a public registry. This option is favoured by [EcoJustice](#), [BC Nature](#), and other groups.

We believe the Expert Panel contains the expertise to evaluate and choose which of these options is most suitable in the Canadian context. Regardless of whether the contributed evidence is generated by external professionals or an independent government agency, all evidence submitted to the regulator should go through a peer review process by external experts (endorsed by [Wildlife Conservation Society Canada](#), [Skeena Fisheries Commission](#)), as is standard practice within the scientific community.

Decision and Follow-Up

Recommendation 4: Establish an independent, arms-length body for decision-making which uses transparent and consistent criteria for significant adverse effects.

The purpose of environmental assessment is to facilitate decision-making, and presumably, to ensure the best available evidence is considered during this process. However, the decision-making process regarding whether a project will cause significant adverse effects has received considerable criticism for lacking transparency and consistency across projects, times, and regions. In order to ensure that decisions are transparent, accountable, and consistent, an updated CEEA should contain provisions for the decision-making body to be arms-length, independent, and protected from partisan interests (a proposal supported by [EcoJustice](#), [BC Nature](#), and the [Canadian Environmental Law Association](#), among others). Evidence should be weighed against a clear standard developed by experts in multidisciplinary teams, and the same assessment criteria should be used across projects of the same type. It is unclear how the recent announcement of the creation of the post of a federal Chief Science Advisor will impact the recommendations made by the Expert Panel, but the CSA could play a role in overseeing assessment criteria, facilitating consultations with national scientific and academic organizations, and ensuring scientific advice is incorporated into the process.

Not only would siting decisions with an independent body facilitate more transparent evidence-based decision-making, but it would also more appropriately allow for ensuring that an appropriate procedure was followed, and ensure that all parties are held accountable for their role

in the process. It is likely that establishing such a process would reduce subsequent burdens on the federal government concerning court cases and Access to Information requests pertaining to decisions made under CEAA. All documents and information used in the decision-making process, including communications, should be posted on a public registry.

Recommendation 5: Make follow-up reports mandatory and public, and allow the decision-making body to amend approvals and conditions based on new evidence.

Long term considerations should not be an afterthought, but an integral aspect of the EA process. There currently are some legislative or policy requirements concerning follow-up and monitoring, which includes the collection of information about the success mitigation measures for the project, and which is supposed to inform adaptive management. There is, however, no process for amending decision statements based on updated or additional evidence, and current follow-up procedures lack transparency and consistency.

We echo the recommendations of the Canadian Environment Network (also endorsed by [Ecojustice](#)). We amend the wording of their suggestions slightly, and encourage the Review Panel to recommend (1) legally mandated status reports on follow-up programs, the text and data of which are publically available, (2) a requirement that the follow-up programs be evaluated for efficacy after a set period of time, which is to be paid for by the proponent, (3) a requirement that follow-up results be considered in future assessments, and (4) the ability of the decision-maker to amend conditions of approval based on results from follow-up reports. Other organizations that support allowing for amendment of decisions based on new evidence include the [Canadian Electricity Association](#).

Implementing these recommendations would also force the proponent to engage in long-term-horizon planning, as mandated monitoring and follow-up with consequences renders it in the proponent's best interest to design their project to be as sustainable as possible.

Public Involvement

Recommendation 6: Establish a comprehensive online public registry with a standardized format for all information and data concerning projects under the CEAA.

A common theme throughout this letter, in line with Evidence for Democracy's commitment to transparent evidence-based decision-making, is for all relevant documentation and data to be made publicly available. Establishing a public registry for projects under CEAA with a standardized format for data sharing would allow for a consistent and detailed way to maintain records. This would allow for greater transparency, public involvement, and the opportunity for independent verification of evidence.

At present, although proposals and EIS reports are available for public comment, revised proposals and other interim changes are not available to the public. These should be made available for public view and comment as a matter of course. Increased transparency throughout also allows outside observers to independently monitor the EA process; this is particularly helpful for watchdog organizations, local advocacy groups, and journalists, and would instill faith in the process. It is also an important tool for early warnings of unexpected consequences (e.g. fracking-related groundwater contamination and depletion). Making use of interested eyes on the landscape would not only improve the use of gathered evidence, but likely be a cost-effective means to trigger adaptive management.

Furthermore, a public registry would allow for additional evaluation and assessment. Standardizing and sharing data would allow for straightforward comparison between similar projects and could help the government assess risk and summary statistics across the entire federal EA program. Datasets from individual projects could be included in meta-analyses to evaluate outcomes and ensure the program is operating efficiently. Implementing a public registry is supported by a number of organizations across a breadth of areas, including the [Canadian Electricity Association](#), [Nova Scotia Power](#), the [Peace Valley Environment Association](#), [BC Nature](#), the [Wildlife Conservation Society of Canada](#), the [Liber Ero fellows](#), and [Enbridge](#).

Coordination

Recommendation 7: Establish a program of regional or ecosystem-level assessment to evaluate impacts on environment, economy, society, and human health at multiple scales.

Assessing projects in isolation may not provide the complete picture necessary to make a robust decision, particularly if there are other projects proposed or underway in the vicinity. A single project may carry an acceptable risk at the site level for a region, but when combined with other proposed projects, the risk may compound significantly. Cumulative effects assessment is included in CEAA 2012, but has not been adequately operationalized or utilized to date. Rather than evaluating cumulative effects of each project, it would be more streamlined, less costly, and likely more effective to establish a standardized system for implementing regional or strategic assessment frameworks.

Such a framework may perform best when defined by ecological boundaries rather than political ones (e.g. watersheds, ecoregions, or marine biogeographic provinces), and as such there should be a protocol for including evidence gathered from data from municipal, provincial, and Indigenous efforts in the EA process. Regional assessment should not be limited to environmental impact assessment, but should include human health impact assessment, economic impact assessment, and social impact assessment. Regional assessments will necessarily mean overlap between federal, provincial, regional and/or Indigenous jurisdictions in these assessments, so it is imperative that serious effort be made to clarify and streamline jurisdictional issues surrounding EA in Canada. Incorporation of open data from other jurisdictions could inform EA related processes.

The application of proactive regional assessments has also received broad support from NGOs and industry for its potential both to better conserve ecosystems and to increase efficiency of the EA process. [Nature Canada](#) gives detailed recommendations for when regional and strategic assessments should be required; their guidelines are also endorsed by [Ecojustice](#), and a similar principle is supported by [BC Nature](#) and [Sierra Club of BC](#). Regional assessment also receives support from industry, and [ConocoPhillips](#) identified that they “felt regional assessment has strong potential

to improve overall EA processes and decision-making by bridging the gap between federal environmental policy implementation and project-level EA... a thoughtfully planned and executed regional assessment can significantly improve indigenous participation, cumulative effects management, and environmental and social-economic baselines.” This approach is also supported by Indigenous communities and groups (e.g. [Skeena Fisheries Commission](#)). For example, the submission from [Métis communities within the Wood Buffalo region](#) states that “properly carried out, [regional assessment] has considerable potential to address concerns about cumulative effects on aboriginal and treaty rights and provide an objective framework to allow development and aboriginal communities to co-exist.”

Conclusion

Thank you for this opportunity to contribute our recommendations to the Expert Panel. Evidence for Democracy previously submitted a [response to consultation](#) on the Expert Panel’s Terms of Reference. We were pleased at the appointment of an independent panel engaging in a transparent process, with a strong mandate for public consultation. We again stress the importance of having scientists involved in recommending and setting policy related to the EA process, and ultimately sitting on EA panels. Decisions throughout the EA process rely on technical evidence, and as such including scientists well-versed in the relevant body of knowledge strengthens the EA process. We also requested that the Expert Panel indicate by what standards it evaluates evidence, including scientific research and Indigenous knowledge, though this has not yet been made publicly available.

We are hopeful that the Expert Panel’s recommendations will emphasize scientific integrity and evidence-based decision-making throughout all proposed reforms for CEAA. Reworking the assessment process to put transparency and scientific rigour at its centre would increase Canadians’ confidence that infrastructure projects are approved on the basis of evidence, not lobbying. EA decisions are by nature an act of evidence-informed decision-making, and provisions must be made to ensure the evidence is unfettered and of the highest quality. The national consultations have provided a solid body of evidence for the panel to consider, and we look forward to invigorated recommendations that focus on transparency, inclusion, scientific integrity, and evidence.

The authors would like to thank Kathleen Walsh and Dr. Meg Sears and for their advice when preparing this response.