

APRIL 2012

OUR NATURAL
ADVANTAGE PROJECT



Keeping Pace

Improving Environmental Decision-Making in Canada

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CanadaWest
FOUNDATION

Our Natural Advantage

IMPROVING ENVIRONMENTAL DECISION-MAKING IN CANADA'S NATURAL RESOURCE SECTOR

Led by Executive in Residence and Max Bell Foundation Senior Fellow Barry Worbets, *Our Natural Advantage* is examining options for improving the decision-making process for addressing the environmental implications of natural resource development. Funding for this project has been provided by the Max Bell Foundation.



The report was prepared by Canada West Foundation Vice President of Research Robert Roach and Max Bell Foundation Senior Fellow Barry Worbets. The authors wish to express their sincere thanks to the interview participants whose input forms the basis of this report. The authors also acknowledge the very helpful background research provided by Canada West Foundation Intern David Hume. Notwithstanding direct quotations drawn from the interviews, the opinions expressed in this document are those of the authors only and are not necessarily those of the interview participants or the Canada West Foundation's Board of Directors, advisors and funders. Permission to use or reproduce this report is granted for personal or classroom use without fee and without formal request provided that it is properly cited. Copies may not be made or distributed for profit or commercial advantage. The report can be downloaded from the Canada West Foundation's website (www.cwf.ca).

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ISBN 978-1-897-423-95-0

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Foreword

Having spent over three decades in the environmental business, and being involved in the environmental decision-making process in almost every jurisdiction in the country, I am both excited and concerned by the state of affairs in Canada. I am excited by the progress some jurisdictions have made, but I am concerned how we have allowed ourselves to become complacent and lose our focus. As a result, we find ourselves in the international environmental penalty box.

The 23 experts we had the privilege of interviewing for this report provided us with surprising consistency with respect to our path forward. The collective wisdom of these retired senior civil servants, industry leaders, former Cabinet ministers, internationally-renowned scientists and ENGO leaders was impressive. Considering the diverse background of these Canadian thought leaders there was surprising agreement, especially on three overarching themes:

First, everyone agreed that environmental decision-making needs improvement – full stop. We are not at the top of our game when it comes to environmental stewardship in the resource sector.

Second, improving environmental decision-making is not about fixing the Canadian Environmental Assessment Act, the National Energy Board, the Alberta Energy Resources Conservation Board, BC Environment or some other government department or regulatory agency. Environmental decision-making has to be viewed in a broader policy context. Some changes are needed to the regulatory framework, but it is a small piece of the pie.

Unfortunately the regulatory framework is taking the brunt of the criticism right now. It shouldn't. Other components of the decision-making process such as regional plans, monitoring and compliance, strategic plans, clear goals and objectives, political leadership, meaningful consultation/collaboration are much more important. These elements have not kept pace with the public interest.

Third, we have moved from a relatively simple world into a much more complex one. The difference was described as a shift from “environmental challenges 1.0 to 2.0.” The 2.0 label has been famously applied to the World Wide Web to highlight the shift from passive viewing of websites (Web 1.0) to active online interaction and collaboration (Web 2.0). The web has gone from emails, news groups, desktop computers and basic websites to eBay, PayPal, instant messaging, YouTube, Facebook, Twitter, Wikipedia, 500,000+ apps, mobile Internet devices and cloud programming.

Environmental challenges have gone from a relatively straightforward set of problems and solutions to situations characterized by a wide range of stakeholders, heated rhetoric, competing scientific claims, incomplete information and responses that require broad social change and/or significant economic costs. Compare the challenge of acid rain to climate change: dealing with acid rain meant pulling together a well-defined group of emitters to deal with a clear problem that had an “end of pipe” solution that could be implemented without a great deal of economic disruption. Addressing climate change, on the other hand, involves adjusting virtually every aspect of modern life and, even if it can be done without crippling the economy, the scale of economic adjustment is massive. The same exponential jump in complexity is true of many other current environmental issues from the cumulative effects of multiple land uses on an ecosystem to improving how we develop, transport and steward our energy bounty in Canada.

Hence, we need to upgrade our environmental decision-making mechanisms. This will not be easy given the complexity of environmental challenges 2.0 combined with the resistance to change that typifies governmental processes and the limits set by tight budgets. Greatly improved monitoring and increased capacity to utilize the results of that monitoring are not free. Similarly, cultivating the long-term relationships needed to facilitate consensus among stakeholders requires a lot of political will and a major reworking of how decisions are made within government.

The good news is that the findings of this report show that we know what needs to be done—both the problems and the solutions are clear. We need to break down the silos that hamper effective intergovernmental cooperation; move beyond the polarized thinking that smothers consensus before it has a chance to develop; fully integrate science into the policy process while gathering the regional data needed to understand the situation on the ground; and have our political leaders clearly define their environmental objectives rather than hide behind mom and apple pie statements.

This is a tall order and the devil is likely hiding in the details, but the basic outline of what needs to change is clear. For this we are grateful to the individuals we interviewed for sharing their observations on this matter. We cannot say if our interpretation of what we heard over the course of the interviews will match the views of each of the people we spoke with, but we are hopeful that we have done justice to the spirit of what was shared.

I would also like to thank Rob Roach – the Canada West Foundation’s Vice President of Research – for putting pen to paper on this report. Both Rob and I want to acknowledge the Max Bell Foundation for its patience and for its support of this work.

Barry Worbets
Calgary, Alberta
March 2012

Executive Summary

Based on interviews with 23 experts, this report provides a diagnosis of the state of the current decision-making process used to manage the environmental effects of natural resource development in Canada. The findings indicate that the decision-making process is in dire need of upgrading if Canada is to be among the best in the world at environmental stewardship while developing its natural resources.

There are six main shortcomings undermining the environmental decision-making process:

Increased complexity and polarization

The decision-making process has not kept pace with the rising complexity of resource development, its environmental effects or the range of stakeholders involved. At the same time, the debate has become characterized by deeply divided camps that hinder attempts to achieve consensus and, more importantly, collaboration.

Lack of clear objectives

The attempt to “balance” economic and environmental goals combined with the aforementioned complexity has led to a policy fog that fails to provide the public, civil servants or stakeholders with a clear sense of direction or an honest account of the priorities and tradeoffs that are needed to guide decision-making and establish standards of accountability.

Intergovernmental silos

The policy process is often hindered by a lack of communication/cooperation within governments and across governments. This is particularly true in the area of environmental decision-making.

Inadequate consultation infrastructure

The current decision-making process is not particularly adept at building the relationships, establishing the trust or cultivating the consensus needed to obtain broad consensus and stakeholder buy-in on specific issues.

Science is underutilized

The decision-making process lacks the capacity to make full use of scientific information.

Inadequate monitoring and insufficient understanding of cumulative effects

Baseline data, particularly on a regional level, are in short supply as is the information needed to assess multiple effects on an ecosystem over time.

Six macro-level public policy changes are suggested as a prescription for improving the decision-making process:

Prioritize reforming the decision-making process

More time and effort need to be spent on rethinking the process and more resources (i.e., political will, staff and money) need to be dedicated to implementing promising practices.

Elected officials and government staff should resist the temptation to adopt polarizing positions

The search for common ground, mutual respect and constructive dialogue should happen across all stakeholder groups, but as the architects of the decision-making process and the keepers of the public interest, it is incumbent upon policy-makers to take the high road, stay above the rhetorical fray, and seek out meaningful collaboration.

Set clear and substantive policy directions at the outset

Premiers and the Prime Minister should commit the political capital needed to clearly articulate the overriding objectives of their respective government's environmental and natural resource policies, the implied tradeoffs and how conflict will be addressed (i.e., what takes precedence in what circumstances).

Calibrate environmental standards to ecological limits

Numerous interview participants argued that resource development decisions and the environmental standards to which they must currently adhere are not made with due regard to the actual ecological limits of our land, air and water.

Get the science right

In order to establish ecological limits, greater investments in science and the capacity to use it in the decision-making process are necessary. Governments must have the staff capacity to keep up with, understand, evaluate and internally communicate the latest scientific findings. At the same time, more monitoring and baseline/regional data collection are needed with an eye to understanding cumulative effects.

Governments must work harder to break down silos and engage in intergovernmental cooperation

This is an age-old challenge for governments of all stripes, but this should not deter decision-makers from continuing and increasing efforts to reduce duplication and take advantage of cooperative efforts.

In many ways, the prescribed changes “are not rocket science” and may seem obvious to those immersed in this area of public policy. Obvious (to some) or not, these changes are no less important and stressing them remains a key step toward seeing actual change take place.

Introduction

This report examines the strengths and weaknesses of the public policy decision-making process as it relates to the proactive and reactive management of the environmental implications of natural resource development in Canada. In less technical terms, it's about improving how public policy decisions are made so that the environmental impact of resource development is minimized.

We do not attempt to identify what the “right” or “best” public policy decisions are regarding specific resource development projects nor do we attempt to define the “appropriate” balance between environmental protection and economic development. We leave these decisions to the decision-makers and the Canadians they represent. Our focus, rather, is on the decision-making *process* and how it can be improved. The goal is to end up with a system that, even if stakeholders disagree with the decisions themselves, is seen to be fair, fact-based, in service to the public interest, democratic, efficient, transparent and able to achieve a high level of environmental stewardship. This is a tall order, but Canadians deserve nothing less and the goals—a healthy environment and strong economy—are worth the effort.

Core Assumptions

We begin with two core assumptions: 1) resource development is a vitally important economic objective for Canada; and 2) environmental protection must be as rigorous as possible when developing Canada's natural resources. In other words, we assume that natural resource development is needed, that it will take place (though not necessarily in all cases) and that it should be done in ways that meet very high standards of environmental stewardship that are based on the best scientific evidence. As one of the individuals interviewed for this report put it, *“if you are in the natural resource business, then you are in the environment business. There is no way that you can avoid being an environmental leader if you are going to be a leader in resources— they are sides of a coin.”*

Environmental effects such as drawing water out of aquifers and rivers, cutting down trees and the need to dispose of waste go hand-in-hand with resource development. There is always a footprint. The goal is to make the footprint as small as possible while giving industry the certainty it needs to generate jobs and economic prosperity for Canadians.

An immediate challenge is that phrases like “as rigorous as possible,” “high standards” and “as small as possible” are rather fuzzy yardsticks. The key question here is how much are we willing or able to bear in terms of missed opportunities or reduced returns on investment. For example, if the smallest footprint possible is defined in such a way that that a company would have to spend \$10 million on environmental measures for a project that will only yield \$1 million in profit, this is a nonstarter. Tradeoffs on both sides are required and the decision-making process—no matter how carefully it is designed—cannot eliminate the need for compromise or the need to make hard choices.

There will always be those who feel that particular projects should not go forward no matter what is done to mitigate the environmental effects or that we need to radically rethink our use of natural resources and economic system and, in turn, that any decision that involves allowing development to take place is a bad decision. This report's findings will not do much to change the minds of those who feel this way. However, it will appeal to those who believe that the environmental bar can be set high while also taking advantage of the economic opportunities presented by natural resources. It will also appeal to those who believe, as we do, that the better the decision-making process is, the more likely it will be that we will achieve a high level of environmental stewardship as we continue to develop our natural resources.

Setting High Standards

On the one hand, it is important to note that the existing environmental decision-making process in Canada and the environmental protection it has achieved in the face of resource development are both praise-worthy in many respects. Resource development in Canada is guided by stringent regulations, large tracts of land have been set aside as protected areas, land reclamation is common practice and in a variety of other ways the country's natural capital has been successfully stewarded for both current and future generations. According to one of the individuals interviewed for this report, *"our standards are pretty high, especially compared to those in many other countries that are criticizing us."*

On the other hand, we know that we can be doing more and better stewardship and that improvements to the decision-making processes in place in the provinces will facilitate this. The experts we interviewed shared story after story of choke points, insufficient information, compartmentalized thinking, lack of integration, missed opportunities and many other examples of deep-seated problems with the environmental decision-making process vis-à-vis resource development. These shortcomings erode confidence in the system¹ and reduce the effectiveness of stewardship efforts. In some cases the flaws work to the benefit of one stakeholder or another,² but the overall effect is that everybody is worse off.

Canada is not a "do whatever you want and to hell with the environment" country guided by ineffective environmental policy. But it is also not at the top of its game when it comes to environmental stewardship in the resource sector. A key reason for this is a decision-making process in need of significant retooling. The need for updating is highlighted by contrasting the tremendous technological advances in the resource sector with the static nature of the environmental decision-making process over the last two decades.

We cannot, moreover, wiggle out of this by pointing to the failures or lower standards of other jurisdictions. We want the bar set as high as possible because this is our home and environmental performance matters to us. In addition, because Canada has a resource-driven economy embedded within an open democratic system, it is subject to a great deal of scrutiny. As such, it has to prove to the world that it is developing its resources in an especially responsible manner. Using an analogy from the world of ice hockey, sometimes we deserve to find ourselves in the global environmental penalty box³ and sometimes the referee has made a bad call. Either way, we have to play as clean a game as possible.

¹ For example, a recent Environics poll for the Canada West Foundation found that 84% of western Canadians believe that environmental assessments for natural resource development unfairly favour either industry or environmental groups. See Robert Roach, *Green Expectations: Western Canadian Opinions on Environmental Issues* (http://cwff.ca/pdf-docs/publications/Green_Expectations.pdf).

² An individual who was interviewed for this report argued that *"some environmental groups like the overlap and duplication because if they don't get the answer they want from one order of government, they go to the other order of government and try again."*

³ Deborah Yedlin uses the penalty box imagery in the following article: "Time for a Leader Who Can Handle World Stage." *Calgary Herald*, September 20, 2011. <http://www.calgaryherald.com/technology/youtube/Yedlin+Time+leader+handle+world+stage/5428311/story.html>

“Canada is in a difficult position as a democracy. We are one of the largest energy producers in the world and one of the handful that is a democracy, so we are always going to be judged by a higher standard, have a higher level of civic engagement and a larger number of independent voices to hear from and satisfy. On the international stage, Canada’s position is very difficult. We are a wealthy society and we are hydrocarbon intensive, so when it comes to climate change negotiations, Canada is in a tough spot. We have to be seen as responsible, as a leader, as defining solutions and moving the world forward. If we are not seen this way, we become the bad boys at the table. We need to be on the cutting edge of environmental science and practices.”

It is our position that Canada has to be, and it has to be seen to be, among the best in the world at environmental stewardship while developing its natural resources. There are many elements in play, but this report is aimed at the public policy *process* that determines how governments address the environmental implications of natural resource development. How do we ensure that the best science is informing the decision-making process? How can we avoid unnecessary duplication of efforts across governments? How do we make sure that the process can take into account cumulative effects of multiple uses on the same land base? These process questions are not the only ones to ask, but the answers are critical to achieving the twin goals of resource development and environmental stewardship.

This is not meant to imply that we think every resource development project should go ahead, as there will be cases where either the direct or the cumulative negative environmental side-effects will be too great. What it does imply is that resource development and environmental protection are not, and cannot be, mutually exclusive.

If Canadian decision-makers do not address the shortcomings of the policy process outlined in this report, the result will be a further erosion of public confidence (and, in turn, the social license needed to effectively develop our natural resources), slower economic growth and subpar environmental management.

We have a natural advantage in Canada rooted in our resources, our environment and in the desire to be both developers and stewards at the same time. If we get the policy process right, this will go a long way toward maximizing that natural advantage and, at the same time, keeping us out of the global environmental penalty box.

Some of the people we interviewed believe that a better decision-making process will help enable the economic growth generated by the development of natural resources to be fully reconciled with environmental protection. Others were more pessimistic and argued that there will always be trade-offs between growth and protection, although it is possible for them to coexist in relative comfort. In both cases, there was unanimous agreement that breakdowns in the decision-making process are counterproductive and, in turn, that we will all be better off if we can figure out how to make the needed repairs.

Methodology

The feedstock for this report was generated by interviewing 23 people with extensive knowledge of the environmental decision-making process as it pertains to natural resources in Canada. The goal was not to interview a representative nor a random sample of stakeholders, but to identify and interview some of Canada's most insightful thinkers on the subject of environmental decision-making. Participants include former senior bureaucrats, former environment ministers, internationally renowned scientists, natural resource industry representatives and ENGO leaders.

Most of the participants are based in western Canada where the natural resource economy is particularly important with several located in Ontario and one working in the United States. The combined experience with environmental decision-making among participants totals well over 400 years.

As many interviews as possible were conducted in person with the remainder done over the phone. Each interview lasted about an hour and was focused on the following questions: Given our focus on *how decisions are made* regarding what to do about the environmental impacts of natural resource extraction, what is broken? What are the weak points in the process? Conversely, what is working well. What do we need to be doing more of?

An initial list of potential participants was developed by the authors and was supplemented by suggestions from the interviewees themselves. People currently holding elected office or positions in the civil service were excluded in order to ensure that the feedback we received was as frank and unencumbered as possible. We invited all interview participants to a follow-up roundtable that took place in Calgary on February 14, 2012. Eight of the interview participants were available and came to the roundtable at which a draft version of this report was used as the basis of a rich discussion. Those who were unable to attend were also given the opportunity to review the draft of the report.

We are deeply indebted to each participant for volunteering their time and for sharing their thoughts with us. Our summary of the discussions and the recommendations we present do not necessarily reflect the views of specific participants or the organizations with which they have been or are affiliated. The full list of interview participants can be found in Appendix 1.

Many readers will note the lack of discussion about the role of Aboriginal peoples in the environmental decision-making process. While the interests and perspectives of Aboriginal peoples are critically important to the future of natural resource development in Canada, we feel that this is too complex of a subject to do justice to in a paper of this sort. A key piece of this puzzle is to talk with a wide range of Aboriginal stakeholders—something that was beyond the resources and timeframe of this particular study.

Findings

When asked if the decision-making process for addressing the environmental implications of natural resource development in Canada could be significantly improved, the unanimous answer of our interview participants was an emphatic yes. Not every part of the process is broken and some of the problems are ongoing challenges that may never entirely go away. Nonetheless, there is clearly a need to take concerted action to improve the policy process.

As each interview participant reflected on what could be improved, two broad streams of thought emerged. The first is the need for greater clarity around just what it is we as Canadians want out of the environmental decision-making process. This stream of thought is at a philosophical level and involves wrestling with the forces that seek to define the public interest. What values are paramount? What are the overarching goals we are pursuing as a society? When there is a conflict between economic goals and environmental objectives, what takes precedence and under what conditions?

While interview participants agreed on the critical importance of answering these questions and, in turn, on the corrosive effect of a lack of answers or blurry answers on rational decision-making, the range of answers they provided highlights the challenge facing decision-makers. Ask ten different people how to balance economic needs with environmental ones and you are likely to get ten different answers. On one end of the continuum of possible responses are those who say the environment should trump the economy every time and that it is a matter of the survival of humans in the face of environmental devastation. On the other end of the continuum, you have those who say that economic activity should always take precedence and that the environmental effects are either exaggerated or manageable. In between is an almost endless array of positions that seek to marry these two extremes in some way. This is analogous to the debate about health care in Canada in that there is no shortage of opinions, divergent perspectives, emotional responses, information (good and bad), political spin, impassioned rhetoric, personal stories, old grudges, new grudges, foreseen and unforeseen consequences and so on.

Some of our interview participants feel strongly that a lot more needs to be done to protect the environment in the face of resource development: *“The goalpost is moved so close to the current field position that there are no drivers or incentives to move forward in a big way.”* *“There has been major slippage in the capacity to protect and regulate the environment.”* Other participants, while recognizing that more can be done, stressed the high standards of protection that are in place and the need to communicate this: *“Canadians have a genius for developing resources in an environmentally responsible way.”* *“We have come an awful long way. When I look back on how we did things in the 1970s and 80s, we are way ahead. That is not to say that we are where we want to be, but things are better than they were.”* Everyone we spoke with agreed that environmental protection is critical and that we can and should get better at it, but there was a wide range of opinions when it came to where to draw the line on development versus protection.

We know that we need a consistent set of answers to the questions created by the task of balancing economic prosperity and environmental protection, but we also know that landing on these answers is extremely difficult. It is not a surprise that the current answers provided by public policy are not always clear, sometimes contradictory and subject to change as different decision-makers, circumstances and public moods come into play. Ultimately, the task of achieving greater clarity falls on our elected officials who are tasked with weighing the options and defining what is and what is not in the public interest. Inevitably, clear and consistent decisions about the public interest will not please everyone, but at least they will help reduce uncertainty, improve accountability, avoid ad hocery and provide direction to decision-makers at all stages of the policy process.

The second stream of thought evident in the interviews is the more prosaic need for technical improvements to how the decision-making process works. Whether we can or can't achieve greater clarity as a society on the overarching issues and on the tradeoffs that are required, there is a lot that can be done to shore up the practical aspects of the decision-making process. This ranges from tweaking things to major reform efforts. This could involve something as "simple" as improving communication between governments to a long-term restructuring aimed at finally breaking down the decision-making silos that hamstringing the policy process. It could, and should, also involve more room for innovative ideas.

Both streams are important and both offer the chance to create what most would see as a "better" process (i.e., more predictable, more accountable, based on the best information available, fully informed by stakeholder and public input, fairer, faster, cheaper and able to find a balance between economic and environmental goals that pleases a wide range of interests) for making decisions about how to address the environmental implications of resource development. We say "most" because there are those who benefit from the broken process and there are those who feel that any process that attempts to limit either economic growth or environmental protection is a bad system. Some may feel, for example, that a slow and confused regulatory approval system allows them to have greater influence on the outcome than if it was a faster and more streamlined affair. Similarly, you can imagine people preferring a fuzzy or contradictory set of goals to a clear set with which they totally disagree. Others are so entrenched in their positions (be they pro-environmental protection or pro-economic development) that they cannot accept any process other than one that does exactly what they want it to do. As noted earlier, there is little in this report for those who feel this way. Fortunately, there are many who are convinced that a better process is possible and worth pursuing.

As our interview participants shared their thoughts regarding the decision-making process, the following themes emerged:

Increased complexity and polarization

Numerous interview participants noted that issues related to resource development and its environmental impact have become more complex over time. Looking back at the challenge of acid rain, for example, scientists were able to draw a clear link between cause and effect, the number of players was manageable, the solution was relatively straightforward and concrete results were achievable in a short timeframe. This was contrasted with the problem of climate change: *"The solution space of climate change is in how we produce and use energy, which touches on every segment of society at some level. We are all part of the problem and we are all part of the solution and it will take decades to complete the transition. This is a totally different type of problem than acid rain. How do you get the buy-in required when there is no silver bullet? Addressing climate change requires action in all segments of the economy. Our decision-making process gets overwhelmed by this complexity. Some issues are still straightforward, but now we have these new highly complex problems as well."*

Numerous participants lamented that the environmental decision-making process has not kept pace with resource development in Canada. Participants cited outdated policies, insufficient capacity and a "deer in the headlights" situation in which policy stalls while the number and complexity of the pressures on land, water and air keep multiplying. The result is outdated policy that is overwhelmed by the pressures on the land base and often unable to take advantage of new information and options. *"A huge problem in my province is an antiquated system of water rights and water allocation that made a lot of sense when it was an empty land to which we were trying to attract people so they could develop it. But with today's pressures, our first-in-time first-in-right approach doesn't make a damn bit of sense anymore. Entrenched interests make this a very difficult thing to address."*

“We know a lot now about minimum river flow functioning but government decision-makers are still talking about outdated science. We are still in the dark ages compared to where the science is.”

Progress on this front has been hampered by a deepening of divisions among those engaged in the decision-making process. Interview participants felt that the camps that have formed around environmental issues have become more entrenched over time. *“As the significance and complexity of the issues has gone up, the caliber of dialogue and engagement has gone down. People are defaulting to polarized positions rather than seeking deep engagement on solutions. People are not coming together but drifting apart. Conflict is easier than problem solving. You don’t need to do too much analysis or deep thinking to define what you are against. It is harder to define what you are for.”* Participants highlighted the rise of an us-versus-them mentality. Some placed the blame for this on government and industry while others pointed the finger at environmental groups. It was also suggested that anxiety is a root cause of the polarization. Because the potential consequences (e.g., environmental catastrophe or economic meltdown) are very worrisome, an anxiety response is triggered that narrows the frame of reference and leads to extreme positions. The result is emotionally-driven conflict that is hard to overcome.

Regardless of who (or what) is at fault, the deepening sense of division was seen as counterproductive to the policy process and something that needs to be rectified. Although no one was suggesting that there was a golden era that we should try to get back to, many participants felt that past efforts were marked by more creativity, innovation and collaboration than we see today. Although injecting more of these features into current processes will not be easy, the past successes indicate that it is possible if the appropriate steps are taken and resources committed.

“Things are so polarized that if you explore the middle ground, you are considered to be consorting with the enemy or selling out. You get demonized.”

“Industry is seen as an important stakeholder that brings economic development. Whereas the ENGOs and the independent academic expertise is not seen as bringing any positive value to the table by government. They are seen as bringing problems to the table that have to be managed.”

Putting the horse before the cart

Most interview participants noted the critical importance of having a clear set of macro-level objectives in place that can guide the decision-making process from start to finish. These objectives need to be informed by science but set by elected officials based on their best sense of what is in the public interest and vetted by voters. They should not be made by default, by civil servants or behind closed doors. This is the steering function of elected officials and it should not be delegated or put off to another day. The tough subjective, value-based decisions have to be made up front and in the open by the elected government of the day.

“You need ministers working together and you need a structure for doing this that is supported by the premier. You need a premier that holds the ministers accountable.”

It was noted by several participants that, while this is an admirable goal, it may be naïve to think that politicians will be willing to take the political risks and spend the political capital necessary to do this when playing their cards closer to their chests has proven to be the safer route to electoral success. We recognize that the request for clarity on exactly where a government stands on something as tricky as, for example, jobs versus environmental protection is naïve in the face of the Machiavellian world of contemporary Canadian politics. Despite this, we are hopeful that enlightened leadership can overcome the short-term imperatives of the political cycle.

“The broad policy context is the problem, not the regulatory framework. You end up having debates about guiding policy within the regulatory process. This is the wrong place for this to happen.”

The guiding policy objectives have to be firm (i.e., the government of the day has to stand behind them), they have to go beyond rhetoric (e.g., it is not sufficient to say “we will balance environmental protection and economic growth”), they have to be flexible enough to apply broadly, and they have to identify what factors take precedence in what circumstances. When does development trump the environment and when does the environment trump development? What is the primary goal? How much say do stakeholders have? How much say does the general public have? How is the input to be evaluated and used? The answers to these kinds of questions set the stage for more specific policy frameworks and regional plans, for public consultation processes, for the regulatory decisions about specific development proposals and for the monitoring of both specific outcomes and cumulative effects (see Figure 1).

“You have to have clear objectives in place to drive things. In most cases, we don’t. As a result, the regulatory decisions are made in a vacuum.”

“A lot of the core policies have not been articulated very well, so you end up trying to make decisions within a context of uncertainty and ambiguity.”

“Governments are playing in the regulatory policy arena but without the proper policy context in mind. Wind power in Ontario is a case in point. They don’t have a context for what their energy system needs to be or where they are going so each project becomes a lightening rod and collapses into a debate about what the energy mix should be.”

Figure 1: Key Stages in the Decision-Making Process

1	2	3	4	5	6
Societal Values & Objectives	Broad Strategic Plans	Specific Policy Frameworks	Regional Plans & Compliance	Regulatory Process	Monitoring

The “big” decisions have to be made at stages 1 and 2. The big decisions can then shape decision-making at the later stages.

Source: Adapted by the authors based on input from George Greene.

Note: There are other ways to conceptualize the stages of the decision-making process, but the argument that the “big decisions need to be made up front” is a common theme. See Appendix B for another example of how to depict the stages of the policy process.

These are tough decisions to make and making them will not please everyone, but if clear high-level objectives are not in place to guide subsequent decision-making, two problems arise. First, inconsistency, ad hocery and confusion are introduced into the decision-making process. This slows the process down, increases the cost of doing business and undermines the ability to determine what success looks like and if it is being achieved. As one participant put it, *“confusion at the front end multiplies as you move through the process.”* Second, an absence of clear high-level objectives pushes decisions about the public good down to the wrong people at the wrong points in the policy process. This undermines accountability and efficiency. The principles defining the public good should not be set at the regulatory stage but should be in place long before the technical aspects of a particular project are being considered. *“The regulatory process gets overloaded and becomes the outlet for public hostility because the appropriate policies and governance structure have not been set up front.”*

“Part of it is understanding where the appropriate spot is for certain decisions. The broad policy issues (i.e., the political or value-based decisions that set the stage for specific decisions) are not getting addressed at the Cabinet level but are getting shoved down into departments or the regulatory review process.”

It was noted that in Alberta, the Klein government had a clear core policy objective; namely, to maximize the development of the province’s natural resources. Environmental controls were in place, but the dominant guiding principle was to facilitate development. Is this the “right” guiding policy objective in the current context? Our assumption that the provinces need to be among the best in the world at addressing the environmental dimensions of resource development suggests that it is not a sufficiently robust guide to decision-making. But ultimately, this sort of decision is up to citizens via their elected representatives and the Klein government can be applauded for at least sending a relatively clear message.

The point is that these decisions have to be made and they have to be articulated in a way that provides clear and consistent direction to the policy process. Wishy-washy articulations of the public interest when it comes to resource development and the environment are recipes for poor decision-making, stakeholder frustration, sub-optimal outcomes and public mistrust. *“People all agree we need ‘balance,’ but once you get to the nuts and bolts, you get polarization on what the ‘right’ balance is.”* The democratic process has step in here and our leaders have to put their cards on the table.

“Having strategic context matters—decision-making toward a destination. This is why an energy strategy context is an enabling condition for effective decision-making. If you don’t know where you are going, then decision-making outcomes won’t have the necessary buy-in and won’t be sustainable.”

“Someone high up needs to make a decision. Is the goal to save all the caribou or just some of them? What is the tradeoff between development and protecting an area? Which resources are we going to develop and under what terms. Be clear.”

“You need to define what environmental success looks like at an appropriate geographic scale or you will get into trouble. We still haven’t landed on what those environmental outcomes and regional limits are. This will prompt a huge debate. You need to balance economic benefits with environmental outcomes. At some point you need to make value-based judgments. Ironically, governments are not very eager to make these value-based choices.”

Indeed, before other policy decisions are made, senior government officials with a clear mandate from their premier/prime minister have to articulate and implement a general policy framework that decides between two different approaches. The first option is to prioritize resource development but seek to ensure that its environmental effects are minimized by way of an unambiguous set of environmental standards. The second option is to prioritize environmental protection by developing a stringent set of environmental goals and standards that place concrete limits on resource development. The choice is not between completely unfettered development or no development at all, as each option leaves room for both development and environmental protection to take place, but you cannot prioritize both options equally and expect to have a clear sense of overall policy direction. Most interview participants feel that the de facto approach taken in most cases by governments is the first option of developing and then managing the environmental implications.

The preference among many of the participants is to adopt the second option of setting environmental limits based on ecosystem functioning as defined by scientific inquiry and then only allowing development that stays within them. As one participant put it, *“we can’t develop resources ad infinitum. We have to recognize that there are limits set by ecosystem functioning.”*

CASE IN POINT: SHIPPING OIL & GAS TO ASIA

The proposed Enbridge Northern Gateway pipeline project has become a lightning rod for debate regarding everything from the dangers of tanker traffic off the BC coast and the environmental effects of the oil sands to the value of selling oil and gas to Asian customers and competition between BC gas and Alberta oil. The National Energy Board (NEB)—an agency respected for its independence and expertise—is examining the project and will make a decision after conducting public hearings and conducting extensive research. The NEB process and a process mandated by the Canadian Environmental Assessment Act are being conducted simultaneously, thereby bringing the economic and environmental issues forward for examination together. Not everyone is happy with the process, but it is one of the soundest such processes in the world and it is far better than a propaganda war among misinformed celebrities and angry politicians.

Nonetheless, the process highlights the need for the big picture decisions to be made before considering the merits of a specific project like the Northern Gateway. What should be a discussion of the technical aspects of the project has mushroomed into a heated debate about whether there should be pipeline access to the West Coast at all, why BC should get more of the benefits of a pipeline, the role of environmental non-governmental organizations funded by foreign interests in the process, how to prioritize the sale of BC gas versus Alberta oil, the environmental effects of the source of the oil that would go into the pipe (the oil sands) and a long list of First Nations issues. Arguably, these sorts of debates and the decisions that come out of them should take place at the political level rather than find themselves stuffed into a regulatory review of a specific project. The result is a slow process, uncertainty regarding what factors will have the most influence in the decision and badly blurred lines of accountability.

CASE IN POINT: THE ALBERTA LAND USE FRAMEWORK

Developed after several years of stakeholder engagement, Alberta's Land Use Framework was cited by many interview participants as an example of the kind of macro-level policy guidance that is needed. According to the Government of Alberta's Land Use Framework website, "The framework provides the overall context to help us make decisions to address Alberta's land management pressures. Pressures like recreation, municipal development and agriculture competing for the same piece of land. ... The framework calls for the development of seven regional plans based on seven land-use regions. This regional approach recognizes the great diversity of Alberta's regions, while helping to enable co-ordination between provincial-level decisions and local land-use decisions."

(<https://landuse.alberta.ca/Planning/Pages/default.aspx>)

“The struggle is often that a lot of the policies have not been integrated and haven’t been well-articulated, so you end up trying to make decisions within a context of uncertainty and ambiguity.”

Moreover, these broad outlines should be determined at the highest political level. They should not be open to arbitrary revision at later stages in the policy process. Put another way, someone with the authority to make it stick has to make a decision regarding how much environmental protection will or will not take place and be accountable for it in front of the electorate. Not everyone is going to like the decision, but it will at least provide the direction needed for subsequent regional and project-level decisions and give voters a clear choice. We argue that the environmental bar should, for a variety of reasons, be set quite high. However, this is ultimately up to Canadians by way of the elected officials they select to make these decisions on their behalf.

“The Alberta Land Use Framework is a good start because it talks about setting social objectives up front. This provides a context for making individual decisions.”

A defining set of goals is needed to ensure that the decision-making process is more than a stage play. As one interview participant put it: *“I sometimes think that we get too preoccupied with the mechanics of the review process and lose sight of outcomes. You can have a great process that dots all the i’s and crosses all the t’s but results in very little actual environmental protection.”* It is also important to note that the guiding principles are not set in stone for all time. If a new government wants to go in a different direction, however, it should do this in an explicit way and introduce a new set of guiding principles and objectives rather than sneak changes in at other stages of the decision-making process. Similarly, a government’s role in setting broad policy should not be seen as a blank cheque to undermine established processes at later stages in the decision-making process. If, for example, one of the guiding principles set by elected officials is that public and stakeholder input will be sought and heeded before projects are approved, it would be inappropriate to bypass or seek to unduly influence the input process. Guiding policy should not be changed on a whim and has to be applied consistently.

There is no “I” in team

A classic stumbling block in the way of good public policy is the lack of integration within government departments/agencies, across departments/agencies and between levels of government. How, for example, do you develop rational policy regarding water use when the water licensing unit is not talking to the water monitoring unit in the same department, when the department responsible for the provincial environment is unaware of what’s happening in the department responsible for resource development, and when the provincial environment minister is working at cross purposes to the federal environment minister? Duplication, confusion, open conflict, blurred accountability and many other policy ills can be traced back to the difficulties associated with aligning the efforts of the various levels, departments and agencies of government.

“Some of the more effective intergovernmental cooperation mechanisms seem to have fallen into, if not disuse, then a state of disrepair.”

Greater cooperation does not have to mean less local control, the watering down of policy in an effort to please all parties, working together simply for the sake of it or overcomplicating things by having more cooks around the policy pot. What it does mean is that bureaucrats and elected officials find ways to maximize the benefits of working together while maintaining appropriate jurisdictional and functional boundaries. Identifying and pursuing opportunities to improve policy by working together is an ongoing challenge that requires *constant* diligence because the natural tendency of government is to form into silos, be they geographic, functional or sector-based. This is a challenge in all areas of public policy, but it is particularly relevant to environmental decisions related to natural resource development because they often require the involvement of multiple departments and levels of government.

“You need to meet and work through issues together. It seems obvious, but it takes work and commitment and a mandate from the leader.”

Unfortunately, there is no easy-to-apply solution; cooperation is always a work in progress: *“Endemic to every government is the organization into silos and we are very poor at the cooperation between the various areas of government.”* It was also pointed out that while more cooperation is a laudable goal, the real brass ring is collaboration: *“We often use the term collaboration, but at best it's cooperation. Cooperation involves pursuing your individual interests jointly. This means keeping your cards close to your chest and trying to manipulate things to get the outcome that you want. Collaboration involves joint effort toward a common goal.”*

CASE IN POINT: THE CLEAN AIR STRATEGIC ALLIANCE

An example of effective collaboration cited by several interview participants is the Clean Air Strategic Alliance (CASA). According to the CASA website, “The Clean Air Strategic Alliance is a multi-stakeholder partnership composed of representatives selected by industry, government and non-government stakeholders. All CASA groups and teams, including the board of directors, make decisions and recommendations by consensus. The CASA vision is: The air will have no adverse odour, taste or visual impact and have no measurable short or long-term adverse effects on people, animals or the environment.”

(www.casahome.org)

“We hit a homerun with CASA and the flaring venting improvements in Alberta.”

A report on the efforts of the Flaring and Venting Project Team states that “Flaring and venting of solution gas has been a long standing issue of concern for Albertans that was first brought to the Clean Air Strategic Alliance (CASA) Board of Directors in November 1996. Since that time, the CASA Board has created several iterations of a Flaring and Venting Project Team. In turn, these teams have created a number of recommendations to achieve the goal of reducing routine flaring and venting of solution gas. A number of these recommendations have been implemented through regulations and best management practices and resulted in significant reductions in flaring and venting.”

(http://casahome.org/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=842&PortalId=0&TabId=78)

While interview participants stressed the value of better communication and cooperation within and among governments, it was also noted that greater clarity around exactly who is responsible for what is necessary. In cases of overlapping jurisdiction between the federal government and a province, for example, which government is in charge? Who has the chair at intergovernmental meetings and who ensures compliance with what is decided? These are not easy wrinkles to iron out, but to the degree that they can be, they should be.

“The Canadian Council of Ministers of the Environment in the late 1980s mid-1990s was an active and effective organization. A big issue back then was that the federal government – through its environmental assessment process – was getting into environmental approvals in a big way. This created a huge problem for industry as it was dealing with two separate approval processes. CCME did some good work in harmonizing those processes. The harmonization exists to this day. It’s imperfect, but it brought some rationality to a system that was threatening to become totally irrational. In recent years, CCME has fallen on hard times and is not a very effective or active organization anymore.”

“The guiding policies need to be in place so you are not caught trying to decide who has the trump card: is it energy, forestry, or environment on this issue? It has to be driven from the top. The ministers have to be on board.”

“In the mid-1990s, there was a lot of tension with the federal government over environmental issues. The feds were coming into provincial offices with guns demanding files! We agreed that we couldn’t disentangle everything, but surely we could rationalize who was doing what rather than just accept that everything was shared? At one point, we thought we had it worked out, but all these years later we still have overlap in responsibilities in environment.”

In addition, having a framework in place that has been vetted and given status as an authoritative guide to policy decisions avoids the problem of constantly having to find room for environmental issues on busy government agendas: *“If you are having trouble making a decision at the Cabinet table, you have to be careful not to push these decisions down to be resolved by deputies who push it down to ADMs such that it can’t get resolved because they don’t have the authority. But it can be very difficult to get the issue onto a crowded Cabinet agenda. It’s not easy.”*

Building bridges

There is no doubt that there is a wide range of interests and perspectives among the stakeholders involved in the environmental aspects of natural resource development. And while the current policy process seeks to hear from these divergent interests in a variety of ways, several interview participants stressed the need to get much better at consultation. This is partly a matter of attitude and partly a matter of structure. With regard to attitude, interview participants stressed the need for greater respect for diverse views, more openness toward change and innovation and the deconstruction of paradigms that lock people into narrow thinking: *“People with a dominant economic paradigm say we should tackle the problem but the most important thing is to preserve the economy while doing it. Those with an environmental paradigm say that the most important thing is to protect the environment. But if you see things as interdependent and are truly in the mode of listening, you have to keep your mind open to the other interests. You have to bust through the paradigms because the problems don’t honour the boundaries of the paradigms.”* There is only so much (if much at all) that public policy can do to change the attitudes of stakeholders. There is little that governments can do in the face of sentiments such as “there can be no compromise in the name of Mother Earth” or “those hippies don’t have a clue about reality.” What policy-makers can do, however, is seek to ensure that their own minds are open to diverse views and make this known to stakeholders in the hope that it will encourage them to also be more open to other views.

“If its just rhetorical statements about two headed fish, what do you do with that?
Sorting the facts out from the fiction is badly needed.”

With regard to structure, several participants suggested scrapping current practices and adopting *“a consultative process that brings diverse people into a room in a respectful consensus-building process.”* A key part of this is to put a lot more effort into relationship building: *“We have lost the plot around trust between groups and personal relationships among leaders in different sectors. It is a fragile thing. This is a capacity that has to be fostered and sustained in itself so you can collaborate when you need to. You have to cultivate relationships and treat them with respect.”* One participant suggested adopting a roundtable approach that would involve professionally facilitated meetings designed to find consensus (as opposed to unanimous consent) on key issues that would then be used by policy-makers to draft policy. Sufficient time has to be committed to the roundtables so that relationships can develop and empathy for divergent points of view can be fostered. The roundtables should include a fact-finding component that brings the available scientific information into the discussions. Whatever model is used, participants argued that consultation and collaboration rest on long-term relationships that take time and effort to build. The lesson here is that the time and effort have to be committed by all parties.

CASE IN POINT: THE FRASER BASIN COUNCIL

Several interview participants cited BC’s Fraser Basin Council (FBC) as an example of successful collaboration. According to the FBC website, “The Fraser Basin Council is a non-profit society that advances sustainability in the Fraser River Basin and across BC. Established in 1997, the Council is a collaboration of four orders of government (Federal, Provincial, Local and First Nations) and those from the private sector and civil society. FBC helps bring people together to find solutions to sustainability issues, and works on such issues as flood management, smart planning for communities, climate change action and adaptation, air quality, green fleets, sustainable watersheds and fisheries, and sustainability reporting and education.”

(www.fraserbasin.bc.ca)

“The media are entirely unhelpful because it encourages polarized views. Problem solving where you have to roll up the sleeves, make tough calls and do it based on deep engagement does not get any profile or credit.”

“We need to tee up a collaborative problem solving framework for each policy priority. We need to relearn how to do this and break through the gridlock.”

Science is key, but it is not “The Answer”

There was unanimous consensus that science has a fundamental role to play in environmental decision-making. At the same time, there was a recognition that science is not able to parachute into the policy process and provide definitive answers to all questions. Making tradeoffs, setting priorities and determining minimum standards can all be (and should all be) informed by science, but ultimately they are subjective value choices that cannot be decided by scientific inquiry. Scientific input is a valuable tool but it is not an effective judge and jury—politics, compromise, listening to other perspectives and all the other soft components of the policy process remain in play no matter how many hard facts are brought to bear. For example, a scientific study may show that a particular resource development will reduce the caribou population in a given area by 50%. This is important to know, but it still has to be decided if this is an “acceptable” cost. In short, is it worth it? This remains a subjective question even though there is objective evidence to consider.

“People see the world through separate, deeply held paradigms. You can show people the exact same data and they will interpret it entirely differently.”

Despite the limitations of science to address all decision-making challenges, interview participants were in agreement that a science-based policy process is absolutely essential: *“Whether you are developing the policy at the front end or reporting to the public at the back end, it has to be evidence-based.”* *“If you have credible data, everything else flows from that.”*

A number of barriers to the effective use of science were noted during the interviews, including a lack of capacity, poor communication and anti-science sentiment.

Capacity: This barrier takes two broad forms. First, there is a need for more high quality scientific information. This requires additional funding and long-term commitments to baseline studies, monitoring and knowledge transfer. Collecting data related to specific development projects is not particularly useful because what is needed is watershed or ecosystem level analysis that integrates a range of data and incorporates an understanding of cumulative effects (more on this below). Second, there is a lack of capacity within government to absorb and evaluate scientific information. Most elected officials and civil servants are not scientists and those who are may not have the time to stay abreast of the latest research. As one interview participant noted, *“We need to get back to having more scientists in the bureaucracy.”*

CASE IN POINT: THE UK GOVERNMENT'S CHIEF SCIENTIFIC ADVISER

A number of interview participants suggested that Canada may want to adopt the Chief Scientific Adviser model used in the UK. The Chief Scientific Advisor model signals the importance of science to the UK government and, through the Office for Science, provides the Prime Minister and Cabinet with scientific expertise. In addition, "major science-using departments" have their own Chief Scientific Advisor. The current Government Chief Scientific Advisor, Sir John Beddington, has the following vision for science and engineering as it pertains to the UK government:

- Government policy and decision-making are underpinned by robust science and engineering evidence and long-term thinking.
- The UK stands as a beacon of good practice in the use of science and engineering evidence by Government.
- The Government Office for Science is widely recognized as authoritative and influential across the whole of Government.
- Science and scientific evidence clearly contribute to the effective handling of major challenges.
- Foresight and Horizon Scanning are both widely recognised as key elements of long term, strategic planning.
- The status of scientists and engineers across Government improves significantly.
- In addition, getting the triangular relationship right between government, society and science and engineering has never been more important to ensure that, as a nation, the UK is successful in realizing its potential in the 21st century.
- UK science and engineering enjoy a leading place on the world stage.
- The Government Office for Science contributes internationally to developing thinking on global issues.

(www.bis.gov.uk/go-science/chief-scientific-adviser)

Communication: The scientists we spoke with were quite critical of the scientific community's track record when it comes to communicating scientific findings and how they apply to public policy. As one interview participant noted, *"it's always a challenge taking the science and converting it into layman's language."* Interview participants argued that scientific findings are presented in too much detail and that this needs to change such that the results are presented in ways that policy-makers can easily and quickly understand.

One negative consequence of this noted by numerous participants is the large amount of misinformation floating around the decision-making process and the broader public debate. Sometimes the misinformation is provided on purpose, but it is more often the result of opinions simply filling the void left by the lack of accessible and easy-to-understand science-based information. This leaves the decision-making process at the mercy of an ill-informed court of public opinion and policy-makers unsure of what is fact and what is fiction. Misinformation is also culpable in the deepening polarization of the debate as different camps accuse each other, and exaggerations and errors get repeated over time. This then snowballs into a lack of public trust in the process and in what industry, government and environmental groups are saying.

“We need bridge builders between the science world and the pragmatic problem-solving world.”

“We seem to be in an era of anti-science sentiment in government.”

“We don’t quantify the environmental outcomes well enough for decision-makers.”

Another wrinkle here is the need for more environmental monitoring and much better communication of the findings of that monitoring. Interview participants routinely cited the corrosive effects on the policy process caused by an insufficient supply of credible science-based monitoring that can be understood by policy-makers, stakeholders, the media and the general public. Science—more of it and more clearly communicated—is needed to *“get us away from the war of headlines in the media.”* One challenge here is that monitoring is not a glamorous business and, as one participant noted, *“politicians can’t get elected by pointing with pride to monitoring programs that they have put in place.”* Another participant argued that governments are afraid of the results of monitoring. Politicians assume the results will be negative and they don’t want to be the bearers of bad news. This attitude is a barrier to more monitoring and using the monitoring results that we have.

“I was involved in a water quality study. The scientists gave me the numbers and I had to report them at public meetings. I asked if I could show the ‘good,’ ‘fair’ and ‘poor’ areas on a map. The scientists said, ‘you can’t do that, it’s more complex than that.’ Determining just what the science is telling us is always a challenge.”

“Scientists are at fault. We have not communicated well with policy-makers. Public outreach is key but there are no incentives in Canadian universities for improved communication of scientific information. The TerreWEB program at UBC is a notable exception.”

“Unfortunately, pop environmentalism is ruling the day.”

CASE IN POINT: THE TERREWEB PROGRAM AT UBC

Recognizing the importance of not just gathering scientific information but effectively communicating it as well, the TerreWEB Program at the University of British Columbia is an attempt to integrate science and communications. "TerreWEB aims to have Master and PhD students integrate global change science, social science and communications research." According to the TerreWEB website, TerreWEB involves 11 UBC faculty members and 34 collaborators who expressed concern over scientific communication methods and wanted to embrace the communication revolution that has the potential to influence the effects of global change in our behaviour. TerreWEB's overall goal is to develop collaborative, graduate educational programs that focus on global change, behavioural decision making and multimedia communications for informing stakeholders and the public using interactive assessment research and complex systems theory that contribute to the development of communication strategies for the dissemination of knowledge and to alter human behaviour." The next step is for policy-makers to ensure that they are open and able to receive the information from this and similar efforts at improving the communication of scientific findings.

(<http://terreweb.ubc.ca>)

Attitude: Numerous participants talked about how a negative attitude toward science undermines its use as a tool for making good policy decisions. *"There can be a lack of trust and understanding that hampers the effective use of scientific evidence."* In some cases, this was linked to the desire for certainty among policy-makers. This desire leads to frustration when scientists present probabilities instead of absolutes or if different studies show different results. This makes it easier for decision-makers to dismiss scientific evidence or delay using it while more research is conducted in the name of achieving that elusive certainty. In many ways, this links back to governments having the in-house capacity to assess the scientific information on hand. Government staff do not necessarily have to be doing the science themselves, but they need to have the time and expertise to tell decision-makers what the scientific findings mean and how reliable they are.

In other cases, the anti-science sentiment is rooted in a distrust of the agendas of scientists. Some decision-makers may see scientists as in the pocket of anti-development groups while others may be skeptics (witness the backlash against climate change science) and still others may feel that scientists have too narrow a focus on their data and not enough understanding of the need for compromise and consideration of other factors such as public opinion and political realities. There may also be instances where an elected official or civil servant simply ignores scientific evidence because it conflicts with their personal objectives or their take on what is in the public interest. These attitudes create large gaps between the scientific community and policy-makers that undermine the ability of science to inform the decision-making process. Given this, the decision-making process needs to be designed such that politics does not interfere with the gathering and communication of scientific evidence and that science does not slip into the realm of ideological rhetoric and partisan politics. Both "sides" need to understand and respect each other such that the information flows into the policy process (which means that it gets gathered in the first place) and is then used by decision-makers. The scientific conclusions may not always carry the day, but they should be fully considered and assessed in a transparent process. For example, it does not do much good if someone says that a particular project will cause all the caribou in an area to die while someone else says that only a handful of the animals will be affected. It is much better to have a scientific study that estimates a decline in the caribou population of X%. Policy-makers can then decide if that is an acceptable outcome or not.

Credibility: A fundamental issue affecting the ability of science to play its role in the policy process is the question of who pays for it and who does it. Interview participants answered this question in different ways. Some argued that government—particularly the federal government—needs to be doing a lot more of the heavy lifting around baseline studies, monitoring and the funding of science in general. Others suggested that the best option is for the science to be as independent from both government and industry as possible, but with funding from both. Still others felt that industry should not be involved at all: *“If industry funds the science, it’s not believed.”* There was a general consensus that, although industry has a core role to play in the development of new technology and greener processes, it cannot be the source of baseline data or the main monitor of ongoing environmental effects because—rightly or wrongly—it is not seen as credible due to its self-interest in the outcome.

It was also mentioned that when science is linked to advocacy, its credibility suffers. This highlights the value of having multiple and independent scientific investigations taking place to ensure that confidence in the results is as high as possible.

More data and more open data: While some participants felt that the science is “out there” and that it is more of a translation problem or a matter of convincing decision-makers to listen to the science, most argued that there is a need for more data and more analysis. A good deal of blame was placed on government for not doing enough in this regard: *“The federal government has reduced its capacity to monitor the environment. Government has abdicated some of its responsibilities in the area of data collection.”* Participants cited the need for studies that can help find solutions, facilitate innovation and gather the baseline information about resources and the environment. It was also suggested that environmental data should be made available to all comers so it can be used and vetted by a wide range of stakeholders and researchers. *“Scientific information is behind the pace of change – we say it should be science-based, but we haven’t even done the science yet.”* Examples of good sources of data mentioned by participants include the Geological Survey of Canada, the U.S. Geological Survey and the Fisheries Research Board of Canada.

At the same time, policy-makers must not set their expectations of science too high. They need to be comfortable with the fact that two studies of the same phenomenon may yield different conclusions. For example, one interview participant cited studies of lice in salmon populations: one study said the lice are a problem, the other said they are not a problem. One scientist will say that x parts per million of a pollutant is “safe” and another will say that it is not. *“There is often no single answer in science, no matter how much money you spend.”*

“Governments need to ensure that the science capacity is in place to inform decision-making at every level. This is a public good and a fundamental role for government.”

“When it comes to monitoring, you need rigour and independence so the public has confidence in it. It has to have integrity and be seen as having integrity.”

Cumulative effects

Due to decision-making silos, a lack of scientific capacity and a general lack of effort, cumulative effects are still poorly understood and poorly integrated into the decision-making process. This is compounded by the fact that a lot of attention gets paid to major projects but there is a multitude of small-scale projects that, when added together, have a huge impact on the environment. The combined effects of resource development and other stresses on an ecosystem such as residential development and recreation also need to be taken into account. More monitoring and more monitoring across the full range of land, water and air uses is needed and must be plugged into the decision-making process. With regard to the latter, it is essential that governments have the capacity in place to understand, process and act on the information on cumulative effects (and other data).

“The current system is designed to assess single projects one-by-one. It is not equipped to address intense development across multiple projects and cumulative effects over time in a fixed area.”

“You can issue individual approvals, but where are you going to end up? So you take a step back and say, okay, what are our environmental objectives/what are we trying to accomplish? Let’s take a look at this water basin or air shed and ask what are our objectives for this area? What kind of water quality and air quality do we want? You have to take a look at the starting state of the area’s environment and then you can say we can allow this much waste discharge or whatever. You start managing things to make sure that you stay within the cumulative threshold that you have set. You can show the public what you are trying to do in that area and you can show that the individual decisions are within the framework. You do the monitoring and report back on the state of the environment using indicators to show that you are within the thresholds and you adjust if you have to.”

Just do it

A number of interview participants expressed frustration at the reluctance of governments to adopt best practices such as watershed level planning and adaptive management (i.e., the modification of policy responses based on observable changes): *“It’s not a shortage of tools that we are suffering from. The problem is that we are still not doing it. Adaptive management is an example. It is a simple, useful technique. We have talked about this forever but how often do we actually do it?”* Some participants pointed to a general small-c conservatism among environmental policy-makers that resists new approaches: *“There has been massive innovation in the area of information technology, but relatively little in environmental policy. It is very conservative. ‘No, you can’t do that’ is the attitude. We need incentives for innovation in environmental management. Without these, we will not make a lot of progress.”*

Reforming the regulatory review process

The regulatory review process was a popular topic among interview participants with most seeing the need to introduce some dramatic reforms. In addition to the need to ensure that the regulatory process does not become a focal point for input and decisions that should be happening at the political level discussed above, some participants argued for a more efficient and faster regulatory system: *“It is a national disgrace that the Mackenzie Valley Pipeline took so long to get to a decision. People have every right to try to hijack the process and express their views, but in some way the regulatory bodies need to restrict the proceedings to their terms of reference.”*

Others stressed that public engagement and stakeholder input are not substitutes for the fact-based decision-making that should characterize the regulatory stage of the policy process: *“You can’t substitute a stakeholder process for a scientific process no matter how good the intentions. Reflecting stakeholder perspectives is not science – again, no matter how well-intentioned.”*

Staff capacity was also cited as concern: *“Regulators have to be well-versed in the industry so things can proceed quickly.” “If you have staff that don’t know enough about the industry they are reviewing, the process is slow and prone to errors.”*

“The civil service needs the capacity and training to make environmental decisions. There needs to be more investment in the human capital that can be applied to the decision-making process.”

Federalism

Interview participants addressed federal-provincial relations in a variety of ways, but there was general agreement that both orders of government have a responsibility to “get over themselves” and ensure that they are not engaging in turf wars or other counterproductive behaviour. Instances of bullying on the part of the federal government were cited as were instances of stubbornness and bad temper on the part of the provinces. The bottom line is that the two orders of government need to put more effort into their relationship and avoid setting off policy grenades.

“You need federal-provincial cooperation. People have been pretty jealously guarding their jurisdiction and not cooperating as well as they could. The provinces tend to see the arrival of Environment Canada as an intrusion on their jurisdiction and the harbinger of the feds taking control of things and pushing them out, so they are quite guarded. It can be fixed but it takes someone saying this is important. There are excellent illustrations of working together, but they tend to be sporadic rather than systemic. There is a Council of Canadian Environment Ministers that has the potential to be a coordinating body, but it is largely ineffective in this role due to bad structural design (though it has done some good work on technical issues).”

As with any discussion of federal-provincial relations in Canada, there was a diversity of opinion regarding which order of government should have more or less responsibility in which areas. For example, some interview participants would like to see a much larger role for the federal government in terms of setting national priorities and standards while others felt that the federal government should restrict itself to trans-boundary issues and let the provinces take the lead on matters that are local in nature. These views are part of the ongoing conversation about the merits of centralization versus decentralization and the appropriate role of the federal government vis-à-vis the provinces. As such, they are best left aside for now as they threaten to open a Pandora's box of issues that will detract from the progress that can be made in other areas.

There are a couple of exceptions to this. One is the suggestion made by several participants that the federal government should do more to ensure the availability of good environmental science that would be of use to the provinces (and other stakeholders). The argument here is that the federal government has much greater capacity to support science than the provinces and should, therefore, take on this task on behalf of the provinces: *"The federal government has to exercise scientific leadership because it has access to scientific resources and international organizations that the provinces don't have. Provinces can bring scientific expertise to the table, but the feds should lead."* An excellent example of a positive role for the federal government is provided by its involvement in addressing acid rain in the 1980s. Canada's federal government supported the scientific research that convinced a reluctant US administration that action was necessary.

A second exception is rooted in the argument that the environment does not honour political boundaries and, in turn, that governments must collaborate in at least some areas. This means that the provinces need to be committed to cooperation and collaboration with both one another and the national government. As one participant noted, *"everyone benefitted when the Canadian Council of Ministers of the Environment was working effectively."*

Public Policy Recommendations

The themes that arose during the interviews point to a number of public policy recommendations that range from changing the attitude of decision-makers to practical measures aimed at gathering more scientific data:

- 1) Prioritize reforming the decision-making process.** There was a strong sense among interview participants that the decision-making process has been allowed to languish while the complexity of the environmental problems and pace of resource development have both increased. More time and effort need to be spent on rethinking the process and more resources (i.e., political will, staff and money) need to be dedicated to implementing promising practices.
- 2) Elected officials and government staff should resist the temptation to adopt polarizing positions.** The search for common ground, mutual respect and constructive dialogue should happen across all stakeholder groups, but as the architects of the decision-making process and the keepers of the public interest, it is incumbent upon policy-makers to take the high road, stay above the rhetorical fray and seek out meaningful collaboration. Like it or not, government is in the best position to hold out the olive branch and attempt to repair relations between the entrenched camps that plague the environmental decision-making process. The goal should be to develop, implement and support mechanisms that enable not just constructive dialogue but also meaningful collaboration. This will require time to develop and nurture relationships and it will require a major investment in innovative approaches to stakeholder engagement.
- 3) Set clear and substantive policy directions at the outset.** Premiers and the Prime Minister should commit the political capital needed to clearly articulate the overriding objectives of their government's environmental and natural resource policies, the implied tradeoffs and how conflict will be addressed (i.e., what takes precedence in what circumstances). This overarching policy framework can then serve as the guidebook to all subsequent policy. The alternative to having these tough decisions "in the can" is a decision-making process marked by blurred accountability, ad hocery and suboptimal environmental and economic outcomes.
- 4) Calibrate environmental standards to ecological limits.** Numerous interview participants argued that resource development decisions and the environmental standards to which they must currently adhere are not made with due regard to the actual ecological limits of our land, air and water. The idea here is to embed the decision-making process in a science-based ecological context that informs development decisions. In this scenario, the economic benefits of resource development are not ignored, but they are subservient to empirical ecological limits.

- 5) Get the science right.** In order to establish the ecological limits mentioned in recommendation #4, greater investments in science and the capacity to use it in the decision-making process are necessary. Governments must have the staff capacity to keep up with, understand, evaluate and internally communicate the latest scientific findings. More science is not the answer to all the challenges facing the decision-making process, but it is a prerequisite to those challenges being met.
- 6) There needs to be more rigour, transparency and independence in data collection, monitoring and reporting with emphasis on regional information and cumulative effects.** Without this information, decision-makers, the experts they rely on for scientific advice and stakeholders are all operating in the dark.
- 7) Governments must work harder to break down silos and engage in intergovernmental cooperation.** This is an age-old challenge for governments of all stripes, but this should not deter decision-makers from continuing and increasing efforts to reduce duplication and confusion and take advantage of cooperative efforts.

Conclusion

Canadians care deeply about their environment and expect industry and government to be doing the best possible job of stewarding the country's natural capital. In addition, since we are a country that is both blessed with, and heavily dependent on, resource extraction, the eyes of the world are on us. The world is hungry for our bounty of safe and reliable natural resources including timber, agricultural products, hydro, oil, natural gas, coal, uranium, potash and other minerals. To maintain our global license to operate we have to lead the charge on improving environmental performance in the resource sector. We need to be global leaders in sustainable environmental practices. The pressure is on.

Despite a great deal of progress in this area and a solid list of successes, it is fair to say that we can do better, and that there are specific weaknesses that we need to address. Among these weaknesses is an environmental decision-making process that is hobbling along when we need it to be sprinting toward the best possible environmental outcomes we can achieve. As a result, we often find ourselves in the environmental penalty box. We need to find ways to improve our environmental policy process so we can stay in the game, put economic points on the board and steward our natural capital for future generations. We have a natural advantage, but we are not maximizing it.

Appendix A

Interview Participants

Pierre Alvarez, Vice President, Corporate Relations, Nexen

George Greene, Chair, Stratos and former Assistant Director General International Union for Conservation of Nature (IUCN), Geneva

Andrew Bevan, Executive Director, Canadian Boreal Forest Agreement Secretariat

Norman Brandson, former Deputy Minister of Environment, Government of Manitoba

Elizabeth Dowdeswell, President and CEO, Council of Canadian Academies

Brenda Eaton, former Deputy Minister to the Premier, Government of BC

Eleanor Fast, Program Director, Council of Canadian Academies

Howard Heffler, Chair, RiverWatch and retired petroleum and pipeline industry environmental manager and regulatory expert

Ronald Hicks, former Deputy Minister of Executive Council, Government of Alberta

Charles Jago, Chair, Canfor Pulp Products Inc. and Chair, Fraser Basin Council

Gordon Lambert, Vice President, Sustainable Development, Suncor Energy

Rob Macintosh, Co-Founder, Pembina Institute

Hon. Elaine McCoy, Senator, Government of Canada

Neil McCrank, former Chair of the Alberta Energy and Utilities Board

Patrick Moore, Chair and Chief Scientist, Greenspirit Strategies Ltd.
and original member of Greenpeace

Jon O'Riordon, former Deputy Minister of the Ministry of Sustainable Resource Management, Government of BC

David Poulton, Environmental Strategies Consultant, former Executive Director of the Canadian Parks and Wilderness Society, Southern Alberta Chapter

Jim Prentice, former Minister of Environment, Government of Canada

David Schindler, Killam Memorial Professor of Ecology, Department of Biological Sciences, University of Alberta

Hans Schreier, Professor, Faculty of Land and Food Systems, University of British Columbia

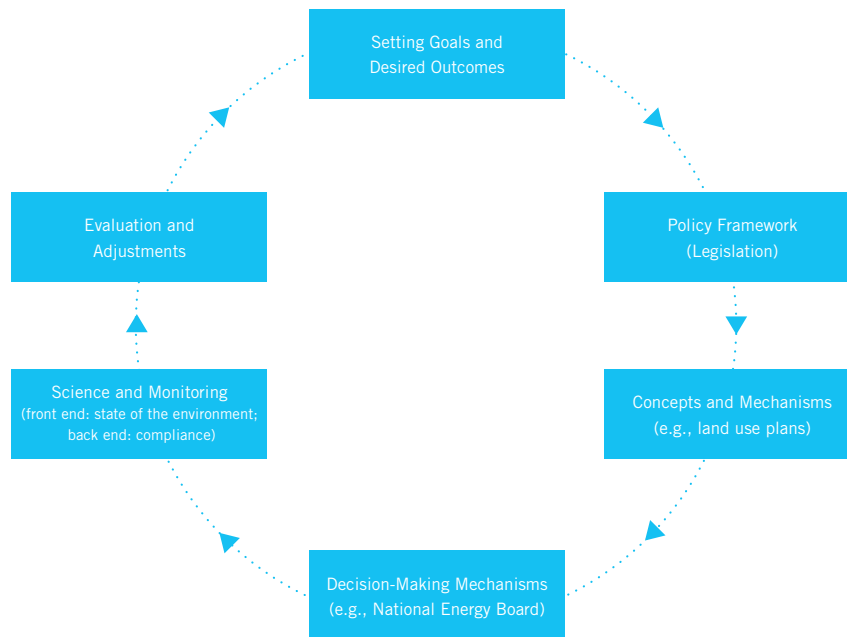
Lorne Taylor, former Minister of Environment, Government of Alberta

Henry Vaux, Professor in the Graduate School at the University of California, Berkeley

Patricia Youzwa, former President and CEO, SaskPower

Appendix B

The Environmental Decision-Making Process



Adapted by the authors based on input from Ronald Hicks.

A Western Voice on National Policy Issues

In 1971, the Canada West Foundation was established to give the people of the West—British Columbia, Alberta, Saskatchewan and Manitoba—a voice for their dreams, interests and concerns. In doing so, the goal was to put the West on the national agenda and be at the forefront of the most important issues and debates.

Since then, the Canada West Foundation has successfully met that goal, proving itself to be one of Canada's premier research institutes. The Canada West Foundation is the only think tank dedicated to being the objective, nonpartisan voice for issues of vital concern to western Canadians.

For over 40 years, we have represented western viewpoints. We are proud of our accomplishments and know that our research and commentary have improved government policy and decision-making.

Today the West is in, but we won't stop there. We continue to promote important issues and debates that provide made-in-the-West solutions to national problems and keep the West thriving.

CANADA IS STRONGER WHEN THE WEST IS THRIVING!

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