

BUILDING THE SYSTEM

Follow-up, monitoring & adaptive management



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TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
Acknowledgments	ii
UNFINISHED BUSINESS OF IA 1.0 BACKGROUND.....	1
1.1 Report Outline	2
1.2 Impact Assessment and Monitoring	4
1.3 Objectives.....	6
WHAT WE DID 2.0 METHODS.....	7
2.1 Phase I: Review of Theory and Practice	7
2.1.1 Literature	7
2.1.2 Legal Framework	7
2.1.3 Case Studies.....	8
2.2 Phase II: Workshop.....	8
RESULTS 3.0 GUIDANCE FROM LITERATURE.....	9
3.1 Adaptive Management	11
3.2 Learning To Support & Respect Indigenous Legal Orders.....	14
3.3 Revised Best Framework.....	15

RESULTS 4.0 DIRECTION FROM PRACTICE	18
4.1 Legal Framework	18
4.1.1 The law matters to follow-up and monitoring	18
4.1.2 Uneven legal guidance for follow-up and monitoring	19
4.2 Case studies.....	27
4.2.1 Whale Tail Pit and Haul Road, Nunavut.....	27
4.2.2 Woodfibre LNG Project, British Columbia	28
4.2.3 Manitoba Minnesota Transmission Project, Manitoba	29
SO WHAT? 5.0 IMPLICATIONS FOR THE IAA	31
5.1 Advisory Bodies	31
5.2 Regulation	32
5.3 Practitioner’s Guide & other material	33
MOVING FORWARD 6.0 CONCLUSION.....	34
6.1 Knowledge Mobilization Strategy.....	34
REFERENCES 7.0 BIBLIOGRAPHY	36
ANCILLARY INFORMATION APPENDIX 1:	41
APPENDIX 2: ADAPTIVE MANAGEMENT	43

LIST OF TABLES

Table 1: Barriers to effective post IA activities.....	2
Table 2: Principles for best practice follow-up	10
Table 3:IA-specific statutes consulted as part of this review.	20
Table 4: Important provisions of the IAA with relevance to follow-up and monitoring..	25

TABLE OF FIGURES

Figure 1: The dimensions of follow-up and monitoring.....	6
Figure 2: The adaptive management cycle for the Tasmanian Wilderness World Heritage Project	13

EXECUTIVE SUMMARY

Background: Does impact assessment (IA) end when the license has been granted?

While societal resources tend to focus on rigorous project approvals, what happens to the project, to the public and to the environment once approval is granted?

Follow up and monitoring are often an afterthought for legislators, public servants and proponents. But they are critical to public confidence and to ensuring that proponents live up to their commitments in a rapidly changing world.

Objectives: The purpose of this project is to identify and describe innovative approaches to follow-up and monitoring. It identifies what is considered best practice in the literature and considers how this direction connects with what is happening across Canada. It then identifies areas where follow-up and monitoring can be improved.

Results: Drawing from the extensive, international literature, the research identifies seven components of a best practice framework.

1. *Clarifying the purpose of follow-up and monitoring*
2. *Building Relationships with Indigenous Governments and Communities*
3. *Advancing the application of adaptive management (not managing adaptively)*
4. *Ensuring sufficient capacity (human and financial) to implement programs*
5. *Including penalties for non-compliance*
6. *Promoting transparency*
7. *Integrating results into subsequent processes*

Robust follow-up programs are enabled by integrative, authoritative governance systems and strong management and communication systems, underpinned by a comprehensive legal framework. There are widely divergent legislative approaches to integrating follow-up and monitoring within the broader IA schemes across Canada with significant shortcomings in all jurisdictions. The absence of legislative consensus regarding the purpose of follow-up and monitoring highlights the necessity of incorporating its purpose in legal frameworks to guide the efforts of legislators, proponents and public servants.

Case studies demonstrate that best practice is not an arcane academic exercise disconnected from the practical. The cases provide important examples of best practice in the areas of transparency and accountability including: a clear licensing format; publicly

accessible information; requiring post hoc analysis(es); and, demonstrating learning between projects. The case studies also illustrate the start of a model for recognizing the role of Indigenous Governments as regulators. However, this section also provide a cautionary tale, showing that in the absence of comprehensive legislative guidance, there is a risk of backsliding, and inconsistency between projects.

Key messages:

There are significant opportunities in the *Impact Assessment Act* S.C. 2019, c. 28 to further a systematic approach to follow-up and monitoring.

An advisory body (s. 156(2)(e)), with responsibility for providing advice with respect to follow-up and monitoring, could be an invaluable resource by:

- *providing direction on the scope of the follow-up and monitoring regulation;*
- *developing standard protocols for monitoring key species; and,*
- *building a more consistent approach to follow-up and monitoring, including adaptive management.*

Enacting follow-up and monitoring-specific regulations (s. 112 (1)) offers a chance to enhance systemic monitoring by establishing clear processes for the collection and utilization of project-specific follow-up and monitoring;

There are also substantial opportunities to weave best practice through existing Agency tools including each component of the practitioner's guide.

Ultimately, follow-up and monitoring should be central to all aspects of implementation including Agency advisory boards and Co-operation plans.

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UNFINISHED BUSINESS OF IA

1.0 BACKGROUND

The challenges with Impact Assessment (IA) follow-up and monitoring are chronic, long-standing and well-documented. Follow-up, at the project level, suffers from:

- *gaps in the legal framework [4-6];*
- *deficiencies at the Impact Assessment (IA) stage [4, 5, 7-9];*
- *implementation barriers [4-6, 9-13];*
- *ethical barriers [6];and,*
- *siloed approaches [4, 9, 12, 14].*

What ensues is significant variation in if, and how follow-up and monitoring are implemented [3, 13, 15, 16] (see also Table 1).

This becomes even more problematic when attempting to integrate the results into higher order assessments, such as sustainability assessment, strategic assessment and regional cumulative impact assessment (RCIA). Not only do follow-up programs suffer from the issues above [17, 18], additional challenges surround **fragmented governance**, where responsibility for different levels (e.g., planning, strategic assessment, regional assessment, etc.) are independent of one another [19, 20]; and **integrative barriers**, where the focus, design and implementation of programs at the short- and long-term level may be incompatible. The substantive and procedural flaws make it challenging to learn (across projects, sectors and jurisdictions) and problematic to develop a robust understanding of the implications of our actions.

Despite these obstacles, follow-up and monitoring are a well-recognized component of good practice [21, 22]. They are the primary tool by which we can manage uncertainties – the material and sometimes fundamentally differences between what we expect and what actually happens [23]. The purpose of this report, then, is to identify and describe innovative approaches to follow-up across Canada. These examples – current “good” or “better” practice in action – serve as a map for how to develop a robust follow-up system in federal IA.

Table 1: Barriers to effective post IA activities.

Barrier	
Gaps in the legal framework	Legislation lacks direction about the importance and purpose of follow-up and monitoring programs and the process by which to implement them [4-6].
Deficiencies at the Impact Assessment (IA) stage	Lack of information at the IA stage results in: inconsistent or incomplete information about which components should be subject to follow-up such as clear statements of certainty and significance [4, 5, 7]; inconsistent information about the design and/or implementation of the follow-up programs, including thresholds [8, 9]; and limited, if any, cost estimates [4]
Implementation barriers	Post approval activities are poorly defined, and can result in: an unclear understanding about what monitoring involves[10]; unassigned responsibility for implementation [9]; poor enforcement mechanisms[4, 6, 11], a lack of financial assurance [4]; and, inadequate resources for all involved [4, 5, 10-13].
Ethical barriers	The design of programs involve potential conflicts, such as requiring consultants to balance financial pressures of clients with environmental obligations in follow-up recommendations [6]; and challenges with proponent-led programs.
Siloed approaches	A lack of communication across stakeholders limit commitments outside the jurisdiction of the lead authority[4]; restrict information sharing across projects [4]; impede information-sharing and engagement with the public [4, 9, 12, 14]; and limit feedback mechanisms to improve future projects, as well as the IA process itself [4].
Fragmented governance	Responsibility for different levels (e.g., planning, strategic assessment, regional assessment, etc.) are independent of one another [19, 20].
Integrative barriers	The focus, design and implementation of programs at the short- and long-term level may be incompatible.

1.1 REPORT OUTLINE

This section lays out important background information, including identifying why follow-up and monitoring are critical to successful IAs. It then explores the different types of follow-up, and the supporting systems which enable best practice. The section ends by identifying the specific objectives of this project.

Section two reviews the methods employed in this research program. Phase I relies on an iterative literature review, a national legal framework analysis and three desk-top case studies. The results of this phase of the project are provided in this document. Phase II,

targeted for the fall of 2020, will involve a detailed case study of Manitoba Hydro's first post-hoc (or ex-ante) analysis of the Bipole III Transmission project.

Section 3 presents the results of the study. It begins by reviewing current international criteria for best practice follow-up. In providing a best practice framework, additional consideration is given to the important areas of adaptive management and Indigenous Legal Orders.

Section 4 turns to current practice across Canada. It first considers how follow-up is approached in federal, provincial/territorial and two claims-based processes across Canada. Recognizing there are material gaps in legal frameworks for follow-up and monitoring, attention is given to statutory frameworks which include helpful wording or elements of best practice. This is followed by three case studies which embody one or more element of best practice. These cases were chosen as each serve as a model to illustrate that best practice is achievable. Developing a system, which can be implemented over time, building on the innovations and investments of large-scale projects is key to creating an integrative approach to follow-up.

Section 5 identifies the opportunities to further develop follow-up at the federal level using tools identified in the IAA. In doing so, it explores what could best be addressed through Regulations, Assessment Advisory Bodies, Agency Guidance Material and Cooperative Agreements. Importantly, follow-up should be considered in each component (e.g., scoping material, impact statement direction, decision statements, etc.) and thematic area (e.g., gender-based analysis plus, sustainability analysis, etc) of IA. Given historic challenges in implementing follow-up and monitoring across Canadian jurisdictions, quality monitoring and accountability in the system are important [23].

Section 6 provides a brief discussion and conclusion. This is followed by a short review of planned knowledge mobilization activities.

1.2 IMPACT ASSESSMENT AND MONITORING¹

A good IA process does not end with project approval, or even construction. We now recognize that it is important to continue to scrutinize projects through operation, and into the decommissioning phase. Post-approval elements are broadly referred to as “follow-up and monitoring.”

At its core, follow-up and monitoring are about managing uncertainty [e.g., 23, 24]. Uncertainty arises from a variety of situations, including incomplete data, an inadequate or inappropriate understanding of how system components interact, and, unexpected or unanticipated events influencing the environment [25] (see inset). Despite best efforts, impact statements do not portend the future – they serve as educated estimates of what may occur. Uncertainty is important for framing predictions and structuring follow-up and monitoring programs [6, 24-30]. As summarized by Ray & Green [31] IA:

Uncertainty

There are different types of uncertainty [1]:

- *Risk: Know the odds.*
- *Uncertainty: Do not know the odds. May know the key parameters.*
- *Ignorance: Do not know what we should know. Do not even know what questions we should be posing.*
- *Indeterminacy: Causal chains or networks are open. Understanding not possible.”*

... is essentially a hypothesis framework, with approval resting on the assumption that the project will incur no significant adverse environmental impacts once mitigation measures have been deployed. This is a hypothesis that needs testing, and monitoring is a critical means to test this hypothesis. Once a project is approved and gets underway, monitoring is absolutely necessary to enable the learning needed to test and improve impact predictions, success of mitigation options, and most importantly, to enable learning between projects that are similar in nature (e.g., similar type of development or undertaking and/or impacts) or in the same general geography.

¹ Portions of this section are taken, with minor edits and adaptations, from Fitzpatrick [2]

Proponents, planners and governments make decisions based on the best information available at a specific point in time. But in making these decisions, it is important to develop robust systems and methods that can deal with the unknowns as they arise.

The importance of robust follow-up is well-described in the IA literature. Follow-up serves to ensure continued attention to the principles of IA [2, 32] by:

- *verifying impacts [5, 13, 26];*
- *increasing knowledge [5], including information about the effectiveness of mitigation measures [26], and improving environmental performance [33];*
- *including adaptive management [34, 35], to address surprises [13] and learn from unanticipated adverse effects [26];*
- *improving public awareness and acceptance [5]; and,*
- *integrating information with other systems [5], including industry practices [26] and higher order assessments [26],*

Figure 1 illustrates the types of activities captured in follow-up and monitoring programs. These include:

- *testing compliance with the terms and conditions of the license, as well as proponent commitments;*
- *monitoring to record changes in the environment, identify factors contributing to those changes and, where appropriate, implement adaptive management;*
- *auditing, an objective examination or comparison of observations with standards and expectations, including the success of mitigation measures (allowing opportunity for change); and,*
- *ex-post (or post hoc) evaluation, which involves a detailed comparison of the information provided in the impact statement, as compared with what happened, as recorded by the compliance, monitoring and auditing reports.*

To enable these activities, robust follow-up programs are enabled by strong management and communication systems (informing stakeholders and the public) [5, 36] and integrative, authoritative governance systems [37]. Collectively – the activities, management, communication and governance systems- are referred to as the dimensions of follow-up.

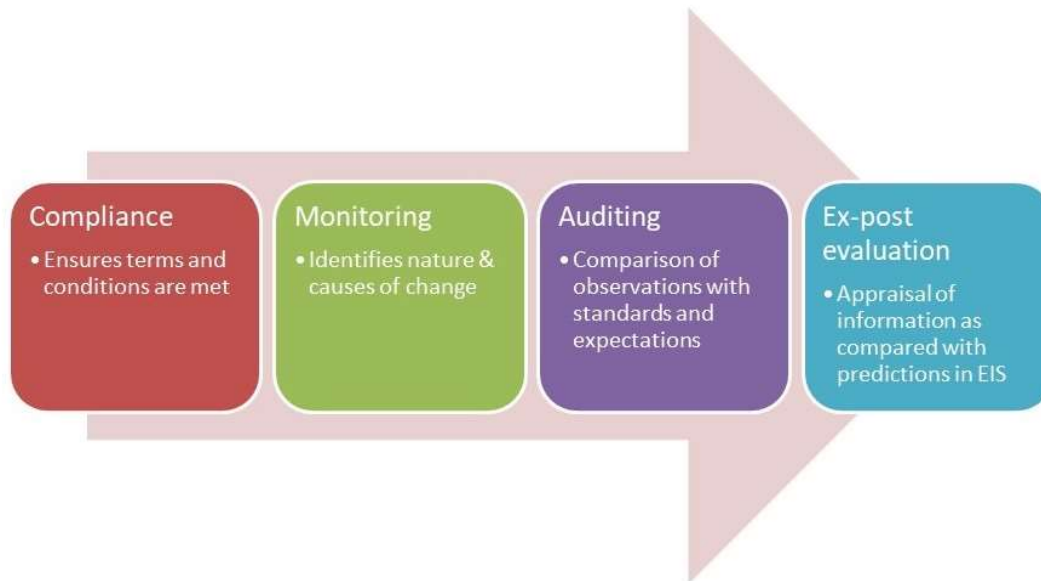


Figure 1: The dimensions of follow-up and monitoring (also known as the types of follow-up and monitoring), based on Noble [2]. See Fitzpatrick [3]

1.3 OBJECTIVES

The purpose of this project is to document how follow-up and monitoring is conducted across Canada. The specific objectives are to:

1. *Undertake a review of literature related to follow-up, monitoring and adaptive management in project/development specific Impact Assessments (IA).*
2. *Complete a legal review of requirements for follow-up, monitoring and adaptive management across Canada.*
3. *Investigate how follow-up, monitoring and adaptive management are implemented in three projects (construction complete) across Canada.*
4. *Drawing from the above objectives, identify avenues for best practice guidance.*

WHAT WE DID

2.0 METHODS

2.1 PHASE I: REVIEW OF THEORY AND PRACTICE

2.1.1 Literature

The initial phase of this report provides a synthesis in IA follow-up drawing from literature, legislation and practice. The literature search relies on an iterative approach, as recommended by Finfgeld-Connett and Johnson [38]. The first method relied on a search of Proquest Central, which includes more than 45 databases across disciplines. This query solicited all abstracts that included “impact assessment” OR “environmental assessment”; AND “monitoring” OR “follow-up”. This approach was abandoned, as although a five-year time frame returned more than 1000 documents, few were of direct relevance.

The next method drew from Fitzpatrick’s existing information management system [see for example 3], adding 125 references to the database. Next, key word searches for articles in important journals such as *Impact Assessment and Project Appraisal*, *EIA Review*, and *The Journal of Environmental Monitoring and Assessment* were fruitful (72 references in total). Third, important references cited in articles were added, where appropriate. Finally, a scan of the 1500 most relevant google scholar articles were added, resulting in a database of 231 articles (excluding legislation, regulation and case study documentation).

2.1.2 Legal Framework

The legal review focused on IA as implemented in Canada, including all federal and provincial/territorial processes. Relevant environmental assessment legislation and corresponding regulations were identified through a keyword search on Canlii (e.g., “environmental assessment”; “impact assessment”; “environment”). While guidance documents are generally not law, the review of the legal framework was supplemented by considering advisory material set out in the websites of relevant government departments and environmental decision-makers (ex. NWT’s Mackenzie Valley Review Board).

From this, it was possible to develop a short summary of any requirements for follow-up, monitoring and adaptive management found in different legislative schemes. Specific attention was paid to efforts to articulate, mandate and integrate follow-up monitoring

and adaptive management in legislative frameworks. Focus was also directed to guidance, if any, regarding public disclosure and participation, the role of Indigenous people, accountability and enforcement.

2.1.3 Case Studies

Case studies were selected based on elements of good practice in legislative framework (Nunavut); innovation in implementation (British Columbia, Manitoba); and availability of information. Analysis relied on similar material as Jalava et. al. [13]: the Proponent's Impact statement, the IA decision, the specific follow-up plans, and publicly available results. Importantly, while Jalava et. al [13] organized the analysis across specific VEC components, these case studies considered a variety of aspects including:

- *Type of program (What the plan addresses (e.g., compliance, monitoring, auditing etc));*
- *How is information managed? (What information manage system does the project employ? How are results communicated with stakeholders? Are the findings of programs publicly available?);*
- *What is the structure of Indigenous Partnerships (if included); and,*
- *What is the process through which findings were deemed to be acceptable? (How are results incorporated/addressed in subsequent years? Did the reporting show evidence of other benefits of follow-up?).*

2.2 PHASE II: WORKSHOP

The second phase of this research will involve a detailed case study of Manitoba Hydro's first post-hoc (or ex-ante) analysis of the Bipole III Transmission project. This review, as required by condition 12.1 of the provincial report on public hearings [39], and subsequently written into the project license, is set to compare the conclusions of the project impact statement with the actual impacts on the environment, as recorded through construction and one-year after operation. The post-hoc review is due April 2020 (see section 6.1 for additional information).

RESULTS

3.0 GUIDANCE FROM LITERATURE

The literature has a remarkably consistent approach to follow-up, developed and nurtured by members of the International Association of Impact Assessment (IAIA) Arts [4, 7, 30, 35, 39-42]; Morrison-Saunders [4, 7, 30, 35, 36, 40-46]; Marshall [41, 42, 47, 48]; Bond [36, 43, 44, 49] and Pope [36, 43, 44]. This approach builds on a range of IA-related work from the 1980s and 1990s canvassed aspects of follow-up and monitoring [50-55].

In 2000, the IAIA hosted a workshop of international experts to begin the process of developing a broad framework through which to critique proposed follow-up and monitoring plans [35]. To assist participant evaluation of proposed follow-up plans for individual projects, Pinto et. al [36] identify 24 probative questions (which are termed “criteria”). Appendix A maps out the core principles and related probative questions grouped according to the four dimensions of follow-up.

Table 2 provides the most recent iteration of that framework [36], supplemented by guidance derived from the literature [3, 9, 11, 16, 56-58]. The extensive principles are designed, first and foremost, to assist in the review of follow-up plans. They survey and integrate themes which are the responsibility of proponents and/or government. In doing so, the principles provide important insight for establishing legal frameworks grounded in best practice.

Table 2: Principles for best practice follow-up [36, 42], with the same organizational structure implemented by Bashour [3]. The original principle number (where relevant) appears at the end.

CORE VALUES (WHY?)
Follow-up is essential to determine outcomes [Principle 1]
Transparency and openness in follow-up is important [Principle 2]
IA should include a commitment to follow-up [Principle 3]
ROLES AND RESPONSIBILITIES OF PARTICIPANTS IN EIA FOLLOW-UP (WHO?)
Regulation should ensure that there is follow up [Principle 8]
The community should be involved in follow-up [Principle 9]
Who does the follow-up? Best practice varies:
The proponent of change must accept accountability for implementing follow-up [Principle 7]; OR
All parties should seek to cooperate openly and without prejudice in EIA follow-up [Principle 10]; OR
Follow-up is performed by an independent body [J]
NATURE OF FOLLOW-UP (WHAT?)
The program should include compliance monitoring and enforcement; effectiveness monitoring; and the responsibility to address unanticipated impacts. [P, J]
Follow-up should be appropriate for the culture and societal context [Principle 4]
Follow-up should consider cumulative effects and sustainability [Principle 5]
Follow-up should be timely, adaptive and action-oriented [Principle 6]
Follow-up should promote continuous learning from experience to improve future practice, at all levels of assessment [Principle 11]
HOW FOLLOW-UP SHOULD BE CONDUCTED (HOW?)
Follow-up should have a clear division of roles and responsibilities [Principle 12]
Follow-up should be objective-led and goal-oriented [Principle 13]
Follow-up should be ‘fit-for-purpose’ [Principle 14]
Follow-up should include the setting of clear performance criteria [Principle 15]
Follow-up should be sustained over the entire life of the activity [Principle 16]
Adequate resources should be provided [Principle 17]
Results from follow-up and monitoring should be publicly available and easily accessible [FR]
Follow-up should include sanctions and penalties for post-approval non-compliance [F]
Follow-up should be integrated into the planning cycle [SR]

[J] represents *Jospheh* [40]; [P] involves work by *Partidário* [17]; [R] is based on findings from *Rehhausen* [10, 12]; [F] involves thinking by *Fonseca* [41]; and [S] includes recommendations by *Stoeglehne* [42].

Please consult the references for a full list of contributing authors.

3.1 ADAPTIVE MANAGEMENT²

An important, but often poorly implemented design element of strong follow-up and monitoring programs is adaptive management. “[A]daptive management is a systematic process for improving strategies and practices by learning and acting on the outcomes of management experience” [43]. Adaptive management can be employed to monitor expected interactions, address unexpected outcomes [13], learn from unanticipated effects and make changes, as appropriate. [34, 35, 44].

It is possible to identify at least five design elements of effective adaptive management strategies. Adaptive management [3, 45-47]:

- *is **iterative**: decisions must be reviewed and reassessed on a regular basis;*
- *involves **on-going examination**: purposeful, well-conceived interventions are planned and implemented to address key uncertainties, and the findings are reflected in subsequent design;*
- ***relies on systematic monitoring**: detailed and robust records are needed to evaluate changes in the environment;*
- *emphasizes **feedback and learning**: by developing clear processes for using monitoring data, and incorporating outcomes from monitoring; and,*
- ***involves the community**: design and implementation should incorporate the experience and expertise of the broader policy community.*

Understanding how to implement adaptive management has been increasing, to the point where we now have a rich literature that can provide guidance [35, 48].

While people will often learn and adapt simply because of their experiences (*manage adaptively*), what distinguishes adaptive management from that type of reactive learning is it is purposeful and planned [35]. Perhaps a good colloquial explanation is that rather than learning simply from your mistakes (*manage adaptively*), adaptive management involves careful contingency planning to learn from experiences. Learning from error is minimized in favour of learning from design; an ad hoc approach is replaced by carefully designed tests, with clear opportunity to evaluate the choice(s) and alter the approach.

² This section is based on Fitzpatrick [2]

Importantly, adaptive management unfolds along a continuous learning cycle (see Figure 2). It follows an established process of: Plan; Do, or implement the plan; Evaluate, or check the real impacts of the plan as it unfolds; and, Act, by learning from your experience and implementing changes in your approach. In this way, it purposefully links design and implementation components on a continual basis. Figure 2 provides a useful, visual illustration of how adaptive management is iterative, and how it is essential to build lessons drawn from experience into monitoring design and implementation.

Concerns have been expressed in the literature about the misuse of the term adaptive management to encompass actions which would best be described as *managing adaptively*[49]. Adaptive management is not intended as a tool to sidestep discussions about potential adverse effects, nor as a measure to compensate for inadequate baseline information. Rather, it is a best practice mechanism to respond to inevitable unforeseen events impacting the design, implementation and operation of developments.

Experimentation is a core element of adaptive management [25, 50]. Actions are designed (from the outset) to test hypotheses about the behaviour of an ecosystem being changed [25].

This can be applied in two ways:

- *passive adaptive management; and*
- *active adaptive management.*

In passive adaptive management, historical data are used to frame a single best approach, to be taken along a path that is assumed to be correct. Faced with uncertainty, managers implement the alternative they think is ‘best’ (with respect to meeting management objectives), and then monitor to see if they were right, making informed adjustments if desired objectives are not met. A good example in a follow-up program could involve understanding if a new mitigation measure (or one employed in a different environment) is meeting its specific objective (i.e., minimize the adverse impact of on specific component). Planning through an adaptive management process would require a careful plan which includes metrics through which success (or failure) is established; a clear management strategy for implementing the program, including responding to the results; implementing the monitoring strategy; and evaluating results. If successful, the monitoring would continue. If unsuccessful, an alternative, *pre-determined* alternative mitigation strategy would be tested.

Active adaptive management is explicitly designed to provide data and feedback on the relative efficacy of a range of alternative management or policy options. Faced with uncertainty, managers implement more than one strategy as concurrent experiments to see which best meets management objectives. Using the above example, more than one mitigation measure is applied. Results are compared, and the “best/ most appropriate” measure is adopted. In this way, learning is enabled, outside the specific project.

It is critical that the application of active adaptive management should be carefully applied [49]. The proponent needs to optimize its investment and weigh the benefits and costs associated with implementing active adaptive management. This evaluation would include “the benefits associated with applying learning to subsequent management, the transient benefits accrued during the learning phase, the direct costs of learning, and the opportunity costs of learning (the resources not available for subsequent management.”[50] In addition, it is necessary to consider the potential costs associated with alternative options.

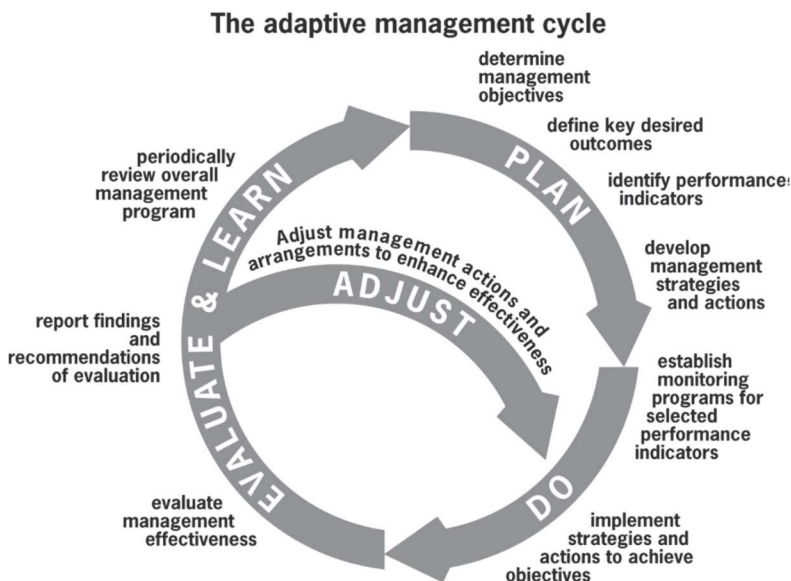


Figure 2: The adaptive management cycle for the Tasmanian Wilderness World Heritage Project [51] (Image credit: W. Hiebert).

To implement adaptive management (as opposed to *manage adaptively* in an unsystematic manner), follow-up plans should include [47, 49, 52]:

- *a comprehensive definition of adaptive management (including uncertainty and complexity);*
- *evidence that the program design and implementation is deliberate, including clear objectives, indicators and thresholds;*
- *clear indication that program design encourages, and incorporates learning, including consideration of potential alternative approaches;*
- *transparent decision-making and communication of results; and,*
- *clear financial and human resources for future modifications.*

Appendix B includes a detailed framework for considering adaptive management in impact statements following the plan-do-evaluate/check – act cycle. This framework has been applied and refined in four recent IAs [3, 45, 46, 53].

3.2 LEARNING TO SUPPORT & RESPECT INDIGENOUS LEGAL ORDERS

Although international best practice principles recognize the community should be involved in follow-up, this is insufficient direction in the Canadian context. Participants of a 2018 workshop focusing on post-project activities in the Mackenzie Valley [54] noted:

One of the major challenges faced when trying to implement measures is the lack of recognition of the Rights and TK [Traditional Knowledge] of Indigenous people, and the role they play within the regime.... Throughout these processes and relationships, Indigenous organizations should not be considered only stakeholders, but also partners.

Engaging Indigenous people in follow-up and monitoring is good practice, as communities have generations of intimate understanding of their environments [55] and their own governance systems. Working with Indigenous Nations has been shown to enhance follow-up and monitoring design and practices [56, 57].

Indigenous people have inherent rights, including the right to self-determination. This understanding needs to inform both the IA decision, and the design, implementation and evaluation of follow-up and monitoring. The “promotion of Indigenous [engagement] as an explicit and central component” [55] is an important step. This should lead both to

active involvement in programs, and a role in the decisions surrounding the design and implementation of programs.

Perhaps the most difficult barrier that Aboriginal people must overcome is the scientific epistemology that underpins [IA] [58].

As Indigenous Nations reclaim their inherent rights and increasingly apply their own legal traditions, it will be important for practitioners, public servants and legislators to recognize that IA is founded on scientific and social-scientific principles, codified through western civil law processes. As Indigenous Nations reinvigorate and codify laws, there will soon be a time to recognize the sovereignty and inherent rights of the Indigenous Peoples in environmental decision-making processes [59-64]. This recognition will involve the extension of what western legal traditions refer to as legislative and regulatory powers [55]. Ultimately, IA and IA follow-up will look very different than what we see today.

Best practice in Canada must necessarily recognize Indigenous worldviews in the design and implementation of follow-up programs; and, build partnerships with Indigenous Nations and communities. But guidance documentation and direction must leave room for cooperative arrangements (including harmonization, substitution, or delegation) as Indigenous Legal Orders are fully recognized, and decision-making is shared.

3.3 REVISED BEST FRAMEWORK

The Principles (section 3.0) and probative questions (appendix 1 & 2) survey and integrate important lessons from more than 20 years of international experience with post-assessment IA (or lack thereof). Read in combination, these tools provide a detailed system of evaluation designed for the evaluation of specific follow-up and monitoring programs. But the such a comprehensive approach can be quite unwieldy to implement.

This section narrows the focus to seven aspects of best practice which should inform the direction employed by regulators. It draws from an approach employed by Smith [86, as cited in Mitchell 87] to evaluate stakeholder partnerships. Specifically, it considers (i) the context, including reference to past events and experiences; (ii) the process through which it unfolds, including the goals, objectives and arrangements in place; and (iii) the results, including the outputs, outcomes and impacts.

1. Clarifying the purpose of follow-up and monitoring

The place to start is with a clear understanding of what follow-up and monitoring can and should do. A clear, robust purpose sets the tone; it should establish why follow-up and monitoring is important (Principle 1), identify what it is meant to accomplish (the four dimensions identified in section 1.3), and speak to the importance of using results as a learning opportunity, including integrating findings into subsequent projects, programs, and regional assessments (Principle 11). A robust purpose is integral to setting out what the responsibility is, why it is important, and how we will frame accountability.

CONTEXT

2. Building Relationships with Indigenous Governments and Communities

As discussed in section 3.2, follow-up and monitoring programs, like IA, benefit from the knowledge, experience and expertise of Indigenous participation. As such, it is critical to – at a minimum – involve communities [Principle 9]. However, much more is necessary to start to build relationships with Indigenous people. Follow-up and monitoring programs should, as noted by O'Faircheallaigh [70] explicitly acknowledge and promote Indigenous engagement. Recognizing the importance of self-determination, the design and implementation should involve clear role for Indigenous Nations in decision making.

PROCESS

3. Advancing the application of adaptive management (not managing adaptively)

A robust follow-up and monitoring program is based on good planning. Best practice follow-up and monitoring should require, at the planning stage:

- *clear objectives, including a systematic evaluation of aspects of uncertainty, risks and thresholds;*
- *a detailed description of the management objectives;*
- *identification of the indicators used to evaluate impact; and*
- *a clear plan for incorporating results.*

Where passive management is appropriate, the plan should identify alternative interventions which could be employed to achieve the objective. Where active management is appropriate, the plan should include more detailed description of the

experimental design and identify when and how the “most appropriate” measure will be determined.

It is important, then that there is an opportunity for the regulator(s) to amend the licenses through which conditions are implemented [21].

4. Ensuring sufficient capacity (human and financial) to implement programs

While the design of follow-up and monitoring requires resources, so too does the implementation process (including the evaluation and adjustment phases). This includes both financial and human and human resources [principle 17]. Follow-up and monitoring plans should identify how post-assessment commitments will be resourced and include a commensurate contingency fund to be employed to integrate lessons learned during implementation.

5. Including penalties for non-compliance

Follow-up and monitoring should be enforceable [21]. Enforcement can include different elements, such as regular reporting, verification by external people, such as inspectors or independent oversight bodies, and annual reporting. While these elements promote “good behavior”, it is also important to identify the consequences for non-compliance. Thus best practice should contemplate potential sanctions and penalties for non-compliance [57].

6. Promoting transparency

Transparency is a core component of best practice follow-up [Principle 2]. Results must be publicly available. But these results need to be made available in an accessible and timely manner [21].

OUTCOMES

7. Integrating results into subsequent processes

To maximize learning, it is important to ensure that the results of any follow-up and monitoring program are available for integration into subsequent sustainability assessments, cumulative assessments, regional assessments, or subsequent Project specific EAs [Principles 5, 11].

RESULTS

4.0 DIRECTION FROM PRACTICE

4.1 LEGAL FRAMEWORK

4.1.1 The law matters to follow-up and monitoring

There is general agreement in the EIA literature that a legal framework “is an essential precursor to effective practices” [32]. While legislative guidance is not by itself enough to secure best practice, it should set out the legislators' objectives and clarify legal duties and processes. It should signal the importance of follow-up and monitoring to proponents, public servants and the public. It should create transparent and enforceable accountability. A comprehensive legal framework tells us both who is responsible for follow-up and monitoring and why it matters.

The legal framework for environmental assessment is created by the interplay between statutes enacted by legislative bodies and regulations created under that statutory authority. Statutes and regulations serve distinct purposes. Statutes set out government policy in “broad strokes” while regulations “spell out” the details enabling the policy to be applied [65, citing 66].

In the context of environmental decision making, the authority to make regulations is often delegated by the “parent statute” to the federal, provincial or territorial cabinet or to a specific minister within the cabinet. Creating a regulation does not require the lengthy formality needed for the passage of a statute by a legislature. Regulations can be created and amended relatively quickly in response to circumstances as they arise. Although not subject to the scrutiny of the legislature in the same way as a statute, the authority to make regulations flows from the statute making them ultimately subject to the will of legislatures [67]. Delegation of the regulatory authority to members of the cabinet also leaves elected officials directly accountable for the laws created by regulation [65].

Statutes and regulations comprise a “single scheme” [68] or legislative framework. They should be read together as part of a “continuous process of making law” [67]. Provisions relating to follow-up and monitoring cannot be understood in isolation from the legislative purpose or their role within the broader framework. As the Supreme Court of Canada has directed, statutory provisions must be read “in their entire context” and

“harmoniously with the scheme of the Act, the object of the Act” and the legislative intent [69, citing 70].

In terms of what constitutes the law, a distinction generally needs to be drawn by statutes and regulations as compared to interpretive guides or policy documents. Like regulations, interpretive guides and policy documents can be created much more quickly than statutes. They can be useful in describing narrow details that assist in guiding the implementation of the legislative framework. However, policy documents tend to “[lack] the quality of ‘law’” [71] in that they are not generally set out in statutes, issued pursuant to a statutory power or enacted by the Cabinet as an order in council.

Policy documents are not considered part of the law unless expressly incorporated by reference within the legislation or regulation (e.g., Mackenzie Valley s.117(1) and s.120). They may “offer guidance in dealing with a legislative scheme” but generally, “they are not legally binding.” [68] Absent specific incorporation into the legal framework, they lack the accountability and constraints inherent in regulations provided under statutory authority.

In evaluating legal frameworks, it is important to ask to what degree, if any, did the legislature and cabinet articulate, mandate and integrate follow-up and monitoring? In other words, have lawmakers directed attention to follow-up and monitoring by making it part of the law? Or have they abdicated that important duty to public servants?

Meaningfully incorporating follow-up and monitoring within a legislative framework enshrines legal accountability, enhances consistency and limits discretion to ignore or underplay its importance. While direction via legal frameworks is necessary and highly preferred, guidance documents outside the formal legal framework “may fill gaps in government regulation for follow-up” [32].

4.1.2 Uneven legal guidance for follow-up and monitoring

Any examination of the legal framework must consider the purpose of follow-up and monitoring, how it relates to the overall objective of legislators and how it fits within the legislative scheme [69]. There are a wide range of approaches within federal, provincial and territorial legal frameworks to articulating the purpose of follow-up and monitoring and integrating it within the legal scheme. Table 3 identifies the IA statutes reviewed and identifies the short forms used in this report.

Table 3: IA-specific statutes consulted as part of this review. “Short reference” identifies how the relevant statute is referenced in the text. Please note the regulations, guidance material and federal-territorial agreements considered in this review are not included, except for the IFA.

Legislation	Source	Short Reference
<i>Environmental Protection and Enhancement Act</i> , RSA 2000, c E-12	https://www.canlii.org/en/ab/laws/stat/rsa-2000-c-e-12/latest/rsa-2000-c-e-12.html?autocompleteStr=environment&autocompletePos=1	Alberta
<i>Environment Assessment Act</i> SBC 2018, c 51	https://www.canlii.org/en/bc/laws/stat/sbc-2018-c-51/latest/sbc-2018-c-51.html	BC
<i>Environment Assessment Act</i> SBC 2002, c 43	http://www.bclaws.ca/civix/document/id/complete/statreg/02043_01	BC – old
<i>Canadian Environmental Assessment Act</i> , S.C. 1992, c. 37	https://laws-lois.justice.gc.ca/eng/acts/c-15.2/20100712/PITT3x3.html	CEAA
<i>Canadian Environmental Assessment Act</i> , 2012, SC 2012, c 19, s 52	https://www.canlii.org/en/ca/laws/stat/sc-2012-c-19-s-52/latest/sc-2012-c-19-s-52.html#document	CEAA 2012
<i>Impact Assessment Act</i> S.C. 2019, c. 28	https://laws-lois.justice.gc.ca/eng/acts/I-2.75/FullText.html	IAA
<i>Western Arctic (Inuvialuit) Claims Settlement Act</i> S.C. 1984, c. 24	https://laws-lois.justice.gc.ca/eng/acts/W-6.7/FullText.html	WACS
Inuvialuit Final Agreement	https://www.irc.inuvialuit.com/sites/default/files/Inuvialuit%20Final%20Agreement%202005.pdf	IFA
<i>Mackenzie Valley Resource Management Act</i> , SC 1998, c 25	https://www.canlii.org/en/ca/laws/stat/sc-1998-c-25/latest/sc-1998-c-25.html?autocompleteStr=Mackenzie%20Valley%20Resource%20Management%20Act&autocompletePos=1	Mackenzie Valley
<i>The Environment Act</i> CCSM c E125	https://web2.gov.mb.ca/laws/statutes/ccsm/e125_e.php	Manitoba
<i>Clean Environment Act</i> , RSNB 1973, c C-6	https://www.canlii.org/en/nb/laws/stat/rsnb-1973-c-c-6/latest/rsnb-1973-c-c-6.html	New Brunswick
<i>Environmental Protection Act</i> , SNL 2002, c E-14.2	https://www.canlii.org/en/nl/laws/stat/snl-2002-c-e-14.2/latest/snl-2002-c-e-14.2.html?autocompleteStr=environment&autocompletePos=1	NFL
<i>Environment Act</i> , SNS 1994-95, c 1	https://www.canlii.org/en/ns/laws/stat/sns-1994-95-c-1/latest/sns-1994-95-c-1.html?autocompleteStr=environment&autocompletePos=1	Nova Scotia
<i>Nunavut Planning and Project Assessment Act</i> , SC 2013, c 14	https://www.canlii.org/en/ca/laws/stat/sc-2013-c-14-s-2/latest/sc-2013-c-14-s-2.html	Nunavut
<i>Environmental Assessment Act</i> , RSO 1990, c E.18	https://www.canlii.org/en/on/laws/stat/rso-1990-c-e18/latest/rso-1990-c-e18.html?autocompleteStr=environment&autocompletePos=2	Ontario
<i>Environmental Protection Act</i> , RSPEI 1988, c E-9	https://www.canlii.org/en/pe/laws/stat/rspei-1988-c-e-9/latest/rspei-1988-c-e-9.html?autocompleteStr=environment&autocompletePos=1	PEI
<i>Environment Quality Act</i> , CQLR c Q-2	https://www.canlii.org/en/qc/laws/stat/cqlr-c-q-2/latest/cqlr-c-q-2.html?autocompleteStr=environment&autocompletePos=1	Quebec
<i>The Environmental Assessment Act</i> SS 1979-80, c E-10.1	https://www.canlii.org/en/sk/laws/stat/ss-1979-80-c-e-10.1/latest/ss-1979-80-c-e-10.1.html	Saskatchewan
<i>Yukon Environmental and Socio-economic Assessment Act</i> , S.C. 2003, c. 7	https://laws-lois.justice.gc.ca/eng/acts/Y-2.2/FullText.html	Yukon

There is no legislative consensus on the purpose of follow-up.

If follow-up and monitoring is to be done consistently well, an essential starting point is understanding what it means and why we are doing it. Entrenching this understanding in the law signals its importance. It guides proponents, public servants and the public towards consistent achievement of the legislative goals.

Insight into legislators' understanding of the purpose of follow-up and monitoring can sometimes be found in provisions setting out its statutory definition, describing its purpose or setting out how it will be used. While there may be general consensus within the academic literature regarding the purpose and definition of follow up and monitoring (see Sections 1.2 and 3.0) there is no such consensus evident among legislative frameworks at the federal, provincial and territorial levels. Some jurisdictions including Manitoba, Saskatchewan and Prince Edward Island do not expressly define the concept and do not describe its purpose. Others such as New Brunswick (s.1) define it quite narrowly: “‘monitoring’ means auditing of or obtaining and analyzing samples.”

By contrast, Nunavut explicitly sets out the purpose of monitoring and links it to: i) licensing enforcement, ii) understanding regional environmental health, and iii) improving future assessments. Its statute confirms the purposes of a monitoring program is to:

- *measure the impact of the project on the ecosystemic and socio-economic environments of the designated area;*
- *determine whether the project is carried out in accordance with the terms and conditions imposed;*
- *provide the information necessary for regulatory authorities to enforce the terms and conditions of licences; and,*
- *assess the accuracy of the predictions contained in the project impact statement (Nunavut s. 135(3)).*

The connection between monitoring and understanding regional environmental health is also emphasized elsewhere in the Nunavut statute. Canada and Nunavut are directed to develop plans for the monitoring of the “long-term state and health of the ecosystemic and socio-economic environment of the designated area” (Nunavut s. 227(1)).

While the IAA does not expressly link monitoring to regional environmental health, its approach to articulating the purpose of follow-up is unique in the links it draws both to

the legislative purpose and to adaptive management. It defines “follow-up” as a program for verifying the accuracy of the impact assessment and determining the effectiveness of any mitigation measures. It then expressly ties follow-up to one of the underlying statutory purposes which is to “encourage improvements to impact assessments through the use of follow-up programs.” In addition, it is one of the only legal frameworks to expressly draw a connection between the implementation of a follow-up program and “an adaptive management plan” (IAA s. 2 and 6(1)(n), 64(4)(b)).

Among the other legislative frameworks, Newfoundland & Labrador is notable for the breadth of its conception of “monitoring” and the connections it draws to rehabilitation and environmental restoration. In certain circumstances, the statute grants the Minister the discretion to:

require the proponent to carry out environmental monitoring and rehabilitation studies and programs in order to determine the effectiveness of mitigation measures, compliance with terms and conditions applicable to the release and to restore the affected environment to ecologically and socially acceptable levels. (NFLD s. 69)

Few, if any, express links are made in the federal, provincial and territorial legal frameworks to the importance of follow-up and monitoring in responding to uncertainty. This is surprising given the centrality of uncertainty to our understanding of successful impact assessment [24, 29, 30].

The breadth of perspectives on the purpose of follow-up and monitoring suggests that it is essential that legislative frameworks provide clear explanation of its purpose to guide the efforts of proponents, public servants and the public. Such guidance should acknowledge uncertainty and include direction in terms of the role of follow-up and monitoring in: i) assessing specific projects ii) informing future assessments, and iii) providing insight into overall regional health.

Legislators differ markedly in how follow-up is mandated and integrated into the legislative frameworks

Canadian legal frameworks differ widely in how they mandate and integrate follow-up and monitoring into law. Legislators can approach it as an integral element of the impact assessment scheme or as a mere after-thought.

Legislators can signal that follow-up and monitoring must be done and done well by:

- *providing legislative direction that follow-up is required as a licensing condition;*
- *highlighting its importance by linking follow-up and monitoring to the legislative purpose;*
- *providing guidance on how it can be improved by advancing healthy relationships with Indigenous people and respecting Indigenous legal traditions;*
- *enhancing its legitimacy by enabling more robust public participation through participant funding and better information;*
- *holding proponents accountable by requiring them to report on the effectiveness of mitigation measures; and,*
- *promoting regional environmental health by mandating periodic reports of cumulative trends.*

In the extreme alternative, legislators can invite inconsistency over time and between similar projects by giving limited legal direction. By doing so, they relinquish direct legislative oversight and leave guidance regarding monitoring largely to the discretion of proponents, public servants and the will of individual ministers.

A review of the Canadian legislative framework demonstrates significant variance in approaches. A number of jurisdictions expressly require follow-up and monitoring in certain circumstances. For example, certain proponents or approval holders in Nova Scotia are required to carry out monitoring studies (s. 41). Similarly, BC directs that certificate holders “must” report on the effectiveness of mitigation measures (s. 30). It also empowers the chief assessment officer to undertake an “independent audit” of a “reviewable project” which “may include terms of reference respecting the use of new mitigation measures.” (s. 74(1)-(2)).

By contrast, in jurisdictions such as Saskatchewan, Manitoba and Prince Edward Island, the legislation is palpably silent with regard to follow-up and monitoring. It is not expressly mandated in the provincial legal frameworks. These provinces also offer little or no legal guidance into how follow-up and monitoring relates to the legislative objectives or within the broader legislative scheme.

This legislative vacuum leaves critical elements of follow-up and monitoring policy in the hands of proponents, public servants and individual ministers. While this flexibility may be exercised positively in certain cases, it raises fundamental concerns regarding

legislative accountability as well as follow-up and monitoring sustainability and consistency over time.

Among the many provinces and territories that offer some legislative direction regarding follow-up and monitoring, there are relatively few attempts to holistically incorporate it into the broader legislative frameworks. One recent and interesting effort is the *IAA*. In terms of follow-up and monitoring, it is notable for what it addresses, what it only minimally responds to and what it does not address at all [41].

As set out in Table 4, the *IAA* articulates the purpose of follow-up and links it to the broader legislative purpose. It makes follow-up a mandatory factor for consideration in impact assessments. For designated projects approved by the Minister or Cabinet, the *IAA* requires the implementation of a follow-up project. It contemplates public engagement for follow-up by enabling participant funding and by requiring public notice of the results. The statutory provisions also allow for flexibility in developing legal guidance by empowering the Minister to develop regulations.

Although the *IAA* references the interests and concerns of Indigenous persons with respect to advisory bodies, no Canadian legislative framework expressly articulates the role of Indigenous world views or legal traditions in designing follow-up. Similarly, no Canadian laws reviewed expressly reference the role of Indigenous people in conducting follow-up or adaptive management. While this role might be inferred from the overall legislative scheme of the *IAA* (s. 6(1)(f)-(g), 22(1)(l)), Yukon (s. 5(2)(f)-(g)), Mackenzie Valley (s. 114(c), 115(c)), Nunavut (preamble), the IFA (s.1(a)) and British Columbia (s. 7 and 73(2)), a more express approach might be preferred. Setting out the role of Indigenous world views and Indigenous people in the design of and conduct of follow up and monitoring could signal an important commitment to reconciliation and to best practice [49, 72].

In terms of public engagement, the *IAA* is notable among Canadian jurisdictions in that it expressly contemplates participant funding related to the implementation and design of follow up programs. Such an innovation reduces financial barriers to public involvement. There do not appear to be any other Canadian jurisdictions that similarly facilitate public participation in follow-up by offering participant funding.

Table 4: Important provisions of the IAA with relevance to follow-up and monitoring.

Integration in statute	Citation
Purpose Defined	2 - <i>follow-up program</i> means a program for verifying the accuracy of the impact assessment of a designated project and determining the effectiveness of any mitigation measures.
Integrated with Statutory Purpose and the Agency's Objectives	6(1) The purposes of this Act are: (m) to encourage the assessment of the cumulative effects of physical activities in a region and the assessment of federal policies, plans or programs and the consideration of those assessments in impact assessments; and (n) to encourage improvements to impact assessments through the use of follow-up programs; 155 The Agency's objects are: (g) to promote and monitor the quality of impact assessments conducted under this Act;
Mandatory consideration in impact assessment	22 (1) The impact assessment . . . must take into account the following factors: (k) the requirements of the follow-up program in respect of the designated project;
Follow-up is mandatory element of ministerial or cabinet conditions – adaptive management is discretionary	64 The conditions referred to in subsections (1) and (2) must include: (4)(b) the implementation of a follow-up program and, if the Minister considers it appropriate, an adaptive management plan.
Public involvement in follow-up design supported through mandatory participant funding in certain cases	75(1)(a)(b) 75 (1) The Agency must establish a participant funding program to facilitate the participation of the public in (a) the Agency's preparations for a possible impact assessment of — or the impact assessment of and the design or implementation of follow-up programs in relation to — designated projects that include physical activities that are designated by regulations made under paragraph 112(1)(e) or that are part of a class of activities designated by those regulations; (b) the impact assessment of, and the design or implementation of follow-up programs in relation to, designated projects that are referred to a review panel and that do not include physical activities that are designated by regulations made under paragraph 112(1)(e) or that are not part of a class of activities designated by those regulations; and (c) regional assessments and strategic assessments.
Public Notice of Certain Results	105(2)(e)(3)(e), 106(3)(d)
Ministerial discretion to employ more flexible regulatory power.	112 (1) The Minister may make regulations: (b) respecting the procedures, requirements and time periods relating to impact assessments, including the manner of designing a follow-up program;
Offence clause includes contemplates contravention of Ministerial or Cabinet condition relates to follow-up	144 (1) Every person or entity commits an offence that (b) contravenes a condition established under subsection 64(2) or added or amended under section 68 with which the person or entity must comply;
Agency discretion to establish advisory bodies – matters may relate to interests and concerns of Indigenous people	156 (2) In carrying out its objects, the Agency may: (e) establish research and advisory bodies for matters related to impact assessment and monitoring committees for matters related to the implementation of follow-up programs and adaptive management plans, including with respect to the interests and concerns of Indigenous peoples of Canada, and appoint as a member of any such bodies one or more persons.

While the *IAA* mandates public disclosure of follow up and monitoring reports not all Canadian jurisdictions do. Among the jurisdictions expressly mandating public disclosure, Alberta (s 35(1)(b), 36(i)) is notable for also requiring “the processing information that is necessary to interpret that data”. This is a helpful step in enabling informed participation.

In terms of linking monitoring and follow-up to subsequent assessments, the *IAA* does enable the Minister to initiate regional and strategic impact assessments on matters within their legislative jurisdiction (s. 92 and 95). However, territorial legal frameworks for the Mackenzie Valley and Nunavut more clearly identify monitoring as tool to understand regional cumulative effects. (Mackenzie Valley, s. 146 and 148, Nunavut, s. 227). In particular, the Mackenzie Valley requires:

- *the responsible authority to analyze its own data as well as scientific data, traditional knowledge and other pertinent information to monitor the cumulative impact of “concurrent and sequential uses of land and water and deposits of waste in the Mackenzie Valley” (s. 146); and,*
- *the federal Minister to undertake an independent environmental audit at least once every five years to examine significant trends in environmental quality as well as the effectiveness of the regulation on the “protection of the key components of the environment from significant adverse impact” (s. 148).*

A review of federal, provincial and territorial legislative frameworks suggests widely divergent approaches to integrating “follow-up” and monitoring within the broader scheme. There are significant shortcomings in all jurisdictions.

While recent legislative efforts such as the *IAA* demonstrate a more concerted effort to underscore the importance of follow-up by linking it more closely to the legislative scheme, material gaps continue to exist. In the case of the *IAA* legislative framework, opportunities still exist to close these gaps through the Agency's discretion to create an advisory body and guidelines as well as the Minister's discretion to enact regulations regarding follow-up.

As noted at the onset of the legislative framework section, comprehensive legislative guidance is an “essential precursor” to best practice [32]. However, the role played in the “real world” by proponents, public servants and the public is equally important. The examination of case studies which follows provides additional insight into ongoing gaps between the aspirations for best practice and on the ground realities.

4.2 CASE STUDIES

Case studies were selected as a means of demonstrating good practice in IA follow-up and monitoring (see Section 2.1.3). Research, primarily conducted by graduate students, relied on a desktop analysis of publicly available information. As such, it serves as important background on the mechanisms of follow-up and monitoring, but does not comment on a variety of elements, including public perception of the development plan, stakeholder assessment of the strengths and weaknesses of follow-up and monitoring results, or lessons learned from the process (unless documented in the literature).

4.2.1 Whale Tail Pit and Haul Road, Nunavut

Babtunde Alabi

The importance of monitoring is emphasized in the Nunavut legislative framework which articulates the purpose of monitoring, sets out certain requirements and links it to broader regional health (s. 135(3)(4), 227).

The Whale Tail Pit Project is a satellite open pit gold mine located in Kivalliq region developed by Agnico Eagle Mine Limited. The principal regulator of this project is the Nunavut Impact Review Board (NIRB) while other regulators such as Nunavut Water Board, Kivalliq Inuit Association, Government of Nunavut, Environment and Climate Change Canada, Fisheries and Oceans Canada, Indigenous and Northern Affairs Canada, Natural Resources Canada and Transport Canada provide regulatory oversight.

Following a public review [May 2016- September 2017], the development was issued a project certificate [73]. The license (s. 4.1) outlines general responsibilities for the Nunavut Impact Review Board (NIRB) and the proponent. NIRB commits to:

- *appointing monitoring officers to: provide direction to the proponent; evaluate the programs and submit reports as to the adequacy of follow-up and monitoring; and, where appropriate, recommend changes to the project terms and conditions;*
- *providing information, annually, in English, Inuinnaqtun, and Inuktitut regarding the results of the monitoring program;*
- *offer updates for affected communities; and,*
- *undertake site inspections.*

In addition to complying with 64 specific conditions addressing aspects of follow-up and monitoring (license s. 6) Anglo Eagle Mine Limited is required (license s. 4.1) to:

- *adhere to all licensing conditions; in cases of non-compliance, report and take appropriate remedial action;*
- *include specific details in monitoring information, including the names of who collected and analyzed data; methods employed in data analysis; and a discussion of the findings;*
- *translate significant findings into English, Inuinnaqtun, and Inuktitut; and,*
- *develop and maintain a publicly available website.*

NIRB has released two annual reports [74, 75], with a third report anticipated in March 2020. These summaries include operations at both the Whale Tail Pit, and the company's parent operation in the area, Meadowbank Project. The 2017-2018 report reviews areas of non-compliance and makes recommendations for addressing issues [74]. The subsequent report identifies company responses to the recommendations, reviews new areas of non-compliance, and makes recommendations to address the latter. In addition, the 2018-2019 report included recommendations about changes to the effects monitoring program, based on the findings of the parent operation [75].

As per the legislation, the Nunavut Impact Review Board takes an important role in follow-up, undertaking site visits and preparing annual reports. In addition, the project is notable for its very clear licensing format; scope of require reporting; publicly accessible information; and demonstration of learning (between years, and across the projects).

4.2.2 Woodfibre LNG Project, British Columbia

Heather Fast

This project involves the construction and operation of a liquified natural gas (LNG) facility seven kilometres southwest of Squamish, British Columbia, on the northwestern shoreline of Howe Sound [76]. The project triggered IA processes at the provincial (BC old) and federal levels (CEAA 2012). On February 19, 2014 the Minister of the Environment granted the substitution of the provincial IA process for the federal process. The Project also required to undergo the S̓kw̓ x̓wú7mesh Nation Environmental Process Swiyat, which occurred in parallel with the BC IA [77].

The Project initially received approval by all three regulators between 2015 and 2016 [76, 78, 79]. Federal conditions 2.10 and 2.11 required the company to consult with

Indigenous Groups about follow-up and monitoring, notifying the Agency in event of changes to the plan. The Sᓕw ᓄwú7mesh Nation imposed conditions requiring community approval for cooling technology [77]. Once an appropriate technology was identified, the proponent submitted requests to the federal and provincial department to amend its approval certificates [e.g.,80].

This project serves as a model for recognizing the role of Indigenous Governments as regulators. The Sᓕw ᓄwú7mesh Nation Environmental Process Swiyat will likely guide subsequent processes. Based on the available material, success was driven by the relationship between the Sᓕw wú7mesh Nation and the proponent. There were missed opportunities to collaborate on the assessment process from the start. Fortunately, the process through which the certificates and approvals were re-issued by the provincial and federal governments suggests increased collaborative decision-making.

This project also serves as a model for support for follow-up and monitoring as the Impact Assessment Agency recently offered participant funding for post-decision activities [81].

4.2.3 Manitoba Minnesota Transmission Project, Manitoba

Patricia Fitzpatrick

Manitoba-Minnesota Transmission Project (MMTP) is a 213 km 500 kV line proposed by Manitoba Hydro. The line will run from Dorsey converter substation, near Winnipeg, to Piney, Manitoba. It was subject to an IA under the CEAA 2012, as administered by the National Energy Board, and the Manitoba Act [82].

The MMTP was approved in 2019 [83, 84]. It is subject to several conditions, including:

- *a federal requirement for Manitoba Hydro to file a monthly commitment tracking table, and post it on its website (condition 15);*
- *a federal requirement to develop a Landowner Committee (condition 17);*
- *a federal requirement for a post-construction monitoring report (condition 23);*
- *a federal requirement for a table tracking complaints, available on request by the National Energy Board (condition 21);*
- *a provincial requirement for an Indigenous Monitoring Advisory Group (condition 55). More information is needed about the roles, responsibilities and influence of the group before it is possible to provide substantive commentary;*

- *a provincial requirement for annual reports, to be submitted to the Environmental Approvals branch, summarizing the monitoring results, including input from the Indigenous Monitoring Group (condition 56); and,*
- *a provincial requirement for information to be updated on project website regarding the Indigenous Monitoring Group (condition 60).*

The licensing conditions issued by the province appear to step back from the clear direction in previous licenses [83, 85] about publicly available reports. Conditions for the Bipole III and Keeyask Generating Station set a high bar for transparency and accountability [3], ones which went well beyond the requirements of the IA process in Manitoba. Specifically, for each project, Manitoba Hydro was directed to post all information generating from the monitoring programs on project websites, maintained by the proponent, through construction and operation. Data available on the two project sites is extensive, canvassing annual specific monitoring program results year after year.

The suite of public disclosure conditions described above marks a return to an incomplete system, which limits open public access to the federal commitments tracking table, and information about the Indigenous Monitoring Group. The annual monitoring summary, submitted to the province, are typically short on information, and often subject to significant delay before reaching the provincial registry.

A second disappointment is the change in the requirement for a series of post-hoc analysis. The provincial licenses for the Bipole III is required to undertake a third party environmental audit [85]. This condition was not included in the provincial MMTP license. Fortunately, the federal certificate for the MMTP added a similar condition for post-construction evaluation, in the event it was not addressed by the provincial license. It is important to note that federal condition does not rely on a third-party evaluation, and so it could be prepared by the proponent.

The MMTP demonstrates some of the challenges which emerge with significant discretion over follow-up and monitoring. Although the project license and certificate include several important provisions, including an Indigenous Monitoring Advisory Committee, and a Landowner Advisory committee, requirements for transparent reporting, and independent evaluation included in previous projects, are lacking. In the absence of clear direction to release information, the public will be subject to the benevolence of the proponent to access data in a comprehensive, timely manner.

SO WHAT?

5.0 IMPLICATIONS FOR THE IAA

“Once embraced, EIA follow-up starts to define the very approach adopted towards EIA, stakeholder communication and mitigation” [86].

As discussed in section 4.1, the IAA has several important features which enable follow-up and monitoring. The extension of participant funding for the design or implementation of follow-up programs (s. 75(1)(a)) is a material innovation, and, if it continues to be applied, would not only contribute to ensuring adequate capacity for implementation (Best Practice 4), but may also improve transparency (Best Practice 6), by enabling communities to become involved in the process.

The IAA is also notable for its effort to weave this essential aspect of effective IA into different aspects of the statute, including the purpose (s. 6(1)(n)) as well as factors to be considered in the IA (s.22(1)(k)) and the IA decision (s. 64). Critically, it includes opportunities to build upon the systematic approach, through Regulation (s. 112(1)) and Advisory Committees (s. 156(2)(e)).

This section identifies how to leverage opportunities afforded in the IAA to move the federal process closer to Best Practice.

5.1 ADVISORY BODIES

An advisory body, with responsibility for providing advice, guidance and direction with respect to follow-up and monitoring, could be an invaluable resource. It could:

- *provide direction on the scope of the follow-up and monitoring regulation (discussed in Section 5.2); and,*
- *help develop standard protocols for monitoring key species, initiated (and evaluated) over time (for example as advocated for by Roach and Walker [14], and building a more consistent approach to follow-up and monitoring, including adaptive management (Best Practice 3).*

The Monitoring Committee could follow a similar process as the Committee on the Status of Endangered Wildlife in Canada, which created a process to evaluate species at risk, and make recommendations for protection under federal legislation. Over time, the

Monitoring Committee could develop a standard repertoire of follow-up and monitoring protocols, and serially evaluate the efficacy of these protocols.

In developing the terms of reference, it is important to solicit information from Indigenous Governments about potential roles on this advisory board. There may be an opportunity to create two bodies – one focused on western worldviews (which could include Indigenous representation), and one founded in Indigenous worldviews in (in support of Best Practice 2).

5.2 REGULATION

There is an unrealized opportunity to capitalize on the seed of systemic monitoring planted in the IAA through the development of regulation (ideally in the 2021/2022 regulatory calendar). The regulation should establish clearer systems for the collection and utilization of project-specific follow-up and monitoring. In doing so it should contemplate:

- *better linking follow-up for the purpose of improving impact assessments (s. 6(1)(n)) to the statutory purpose of encouraging the assessment of cumulative physical activities in a region and the assessment of federal policies, plans or programs (6(1)(m) (Best Practice 1).*
- *adding additional detail about how follow-up and monitoring should be framed in the Impact Statement (building on s. 22 1(k) to ensure that follow-up and monitoring programs are designed in a way that it makes it possible to evaluate success, and thus learn from each project (Best Practice 3). This should include direction requiring clear consideration of uncertainty, risk and thresholds. And, it should require proponents to estimate the funds required to conduct the proposed program, including a contingency fund (Best Practice 4)*
- *developing clear reporting frameworks, with specific roles and responsibilities and sufficient time to learning from findings. In doing so, it needs to ensure an efficient and effective process for modifying project approvals [41].*
- *establishing “the basic conditions that must be stipulated with respect to monitoring: who will conduct monitoring, monitoring timelines, and reporting requirements.” [49]*

- *coordinating with the Indigenous Cooperation Regulations currently under development, to better enshrine a cooperative relationship with Indigenous Governments and communities in post-assessment activities; and,*
- *building on the Manitoba-Minnesota Transmission Lines case, the Regulation should include a requirement for a post-hoc assessment [3].*

5.3 PRACTITIONER’S GUIDE & OTHER MATERIAL

There are important opportunities to develop more robust guidance related to follow-up and monitoring through existing Agency tools. For example, follow-up and monitoring:

- *should be the subject of a Fact sheet, similar to those prepared for gender-based analysis plus (G3+), public participation, and regional assessments; and,*
- *needs to be further developed in the practitioner’s guide templates for Impact Statements. While awaiting specific regulations, the Agency could proactively inform proponents how best to address uncertainty, risk, thresholds, funding estimates and good practice to demonstrate learning.*

In reviewing the practitioner’s guide, it becomes apparent there is a missed opportunity to weave best practice for follow-up and monitoring through each component. Every chapter, including those related to G3+ and sustainability should include consideration of the follow-up and monitoring requires necessary to evaluate the components.

In fact, follow-up and monitoring should be central to all aspects of implementation. Experts should be appointed to all Agency advisory boards, including those which may be developed for regional and strategic assessment. It should be prominently discussed in Co-operation plans (including the template provided by the Agency). Follow-up and monitoring are essential to ensuring that IA is effective; thus, it is essential to weave it into every component of IA.

MOVING FORWARD

6.0 DISCUSSION & CONCLUSION

Research demonstrates that follow-up and monitoring programs are inconsistent in design, poor in implementation and generally lacking public scrutiny. This need not be the case; there are real-world cases which demonstrate best practice in action. These models demonstrate that seemingly “innovative” practices are within reach. The practices of the Whale Tail Pit and Haul Road project are tied to the spirit, intent and mechanisms enshrined in the legal framework. But not all innovations are linked to law, as demonstrated by the Woodfibre LNG Project and the MMTP. These projects illustrate that good practice can arise despite, rather than because of systematic legal guidance. The MMTP also serves as a cautionary tale— it is challenging to sustain good practice in the absence of clear legal guidance.

The question becomes why follow-up and monitoring continues to be an overlooked and undervalued component of IA in practice. Because without a robust program, IA is incomplete, and can never reach its full potential or espoused objectives.

6.1 KNOWLEDGE MOBILIZATION STRATEGY

The objectives of our knowledge mobilization strategy are three-fold.

1. *Disseminate plain-language summaries and key findings for use in on-going & future processes.*

Background research will be used as a resource to teach students to design infographics about specific aspects of follow-up and monitoring. Information will also be fashioned for use policy intervention in future public participation opportunities, including those related the development of regulation under the IAA. Our plan to prepare short videos is delayed until equipment and resources at the University of Winnipeg becomes available.

2. *Leverage this research to learn from the experience and expertise of stakeholders and practitioners actively engaged in follow-up and monitoring programs.*

We planned to host a face-to-face public workshop for members of the Manitoba Policy Community in the summer of 2020 to evaluate the first independent, post-hoc evaluation of an IA in Manitoba (the Bipole III Project). We are now moving the event to December.

- 3. Share the results of this work with the wider community of assessment scholars and policymakers.*

Our presentation to the International Association of Impact Assessment Conference is re-scheduled for May 2021. If we are no longer able to participate, we will rely on the more traditional approach of preparing manuscripts for publication in peer-reviewed journals.

Given the global health situation, we have had to adjust our initial timeline. Ultimately, we may need to identify and implement alternative strategies for achieve our goals.

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ANCILLARY INFORMATION

APPENDIX 1:

Principles	Questions
Compliance, Monitoring, Auditing, Ex-post Evaluation	
<p>5. Follow-up should consider cumulative effects and sustainability (what)</p> <p>6. Follow-up should be timely, adaptive and action-oriented (what)</p> <p>14. Follow-up should be ‘fit-for-purpose’ (how)</p> <p>15. Follow-up should include the setting of clear performance criteria (how)</p>	<ul style="list-style-type: none"> • <i>Is monitoring conducted using appropriate and well-defined methods?</i> • <i>Are all impacts considered to be significant being monitored?</i> • <i>Is there a supplementary process to ensure that significant impacts that were not predicted are identified and subsequently addressed?</i> • <i>Are the interrelationships between individual impacts and related monitoring activities explained?</i> • <i>Subject to significance, are sustainability impacts being monitored?</i> • <i>Subject to significance, are cumulative effects being monitored through an appropriate mechanism?</i> • <i>Is evaluation undertaken in accordance with appropriate and well-defined methods?</i> • <i>Are clear, pre-defined and well-justified performance criteria provided for guiding evaluation outcomes?</i>
Management	
<p>1. Follow-up is essential to determine outcomes (why)</p> <p>6. Follow-up should be timely, adaptive and action-oriented (what)</p> <p>13 Follow-up should be objective-led and goal-oriented (how)</p> <p>16. Follow-up should be sustained over the entire life of the activity (how)</p> <p>17. Adequate resources should be provided (how)</p>	<ul style="list-style-type: none"> • <i>Are the interrelationships between individual mitigation and management activities explained?</i> • <i>Are management actions implemented in a timely fashion?</i> • <i>Are responsibilities allocated for undertaking and signing off on management actions?</i> • <i>Are adaptive management measures (i.e. changes or alterations to former mitigation measures) explained?</i> • <i>Is there evidence that management actions seek to minimize the negative consequences and maximise the positive?</i>

Communication	
<p>2. Transparency and openness in follow-up is important (Why)</p> <p>9. The community should be involved in follow-up (who)</p> <p>11. Follow-up should promote continuous learning from experience to improve future practice, at all levels of assessment (Who)</p>	<ul style="list-style-type: none"> • <i>Is the EIA follow-up program perceived to be legitimate by stakeholders?</i> • <i>Are interested and affected parties kept informed of EIA follow-up activities?</i> • <i>Are interested and affected parties appropriately engaged in EIA follow-up activities?</i> • <i>Is evidence provided of learning relevant to ongoing project management?</i> • <i>Is evidence provided of learning relevant to other future EIAs?</i>
Governance	
<p>1. Follow-up is essential to determine outcomes (why)</p> <p>3. EIA should include a commitment to follow-up (why)</p> <p>4. Follow-up should be appropriate for the culture and societal context (what)</p> <p>7. The proponent of change must accept accountability for implementing follow-up (who)</p> <p>8. Regulation should ensure that there is followed up (who)</p> <p>10. All parties should seek to cooperate openly and without prejudice in EIA follow-up.</p> <p>12. Follow-up should have a clear division of roles and responsibilities (how)</p> <p>14. Follow-up should be ‘fit-for-purpose’ (how)</p> <p>16. Follow-up should be sustained over the entire life of the activity (how)</p> <p>17. Adequate resources should be provided (how)</p>	<ul style="list-style-type: none"> • <i>Are there plans in place to ensure that follow-up is maintained throughout the life of the development and tailored accordingly?</i> • <i>Does the proponent accept responsibility for the follow-up process and accountability for the environmental impacts of the development?</i> • <i>Does the regulator actively ensure that appropriate follow-up is taking place?</i> • <i>Are roles and responsibilities for follow-up clearly and appropriately defined?</i> • <i>Are there mechanisms to promote collaboration between stakeholders in follow-up?</i> • <i>Is the follow-up process pragmatic, fit-for-purpose and cost effective?</i>

APPENDIX 2: ADAPTIVE MANAGEMENT

This framework identifies specific questions, drawing from the literature at different stages of follow-up and monitoring, that can be used to ensure that the proponents “fully harness the power of adaptive management for responding to the complexity, uncertainty and conflict inherent in the corporation’s upcoming development proposals.” [46]

PLAN (AND HYPOTHESIZE)

A-1 To what degree does the proponent’s management strategy recognize and accept uncertainty and thereby create safe and rewarding conditions to experiment carefully (and to make occasional errors as long as the errors result in learning that leads to an improved project or better management)?

A-2 To what extent does the management strategy take a long-term, multi-scale, and integrative view of the environment?

A-3 Are the right people involved for developing a deep and nuanced understanding of ecological, social, economic, and cultural contexts?

A-4 Are opportunities being taken for active experimentation using questions and hypotheses that are testable, quantifiable and replicable? And are the experiments focused on the uncertainties most likely to influence management decisions?

A-5 Is the design of the undertaking and its implementation as well as the adaptive management strategy sufficiently flexible to make adjustments in response to lessons learned?

A-6 Is planning transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate? And does the strategy explicitly address the multiple goals of stakeholders?

A-7 To what degree does the strategy cover adaptive capacity to pursue emerging opportunities for new or enhanced positive effects as well as unexpected risks or damages?

DO (AND MONITOR)

B-1 Are the right people involved for regular monitoring of ecological, social, economic, and cultural effects and for effective sharing and application of associated learning?

B-2 Are the timelines to obtain verified results compatible with management decision-making requirements?

B-3 Will monitoring differentiate among different hypothesized outcomes from a particular strategy, and thus contribute to learning about how the managed system works?

B-4 To what degree is implementation and monitoring transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?

B-5 How is the monitoring designed to track and identify indirect and cumulative as well as direct and project-specific effects?

EVALUATE (AND LEARN)

C-1 Are suitable organizational structures and financial resources in place for evaluation of monitoring results, and for promoting learning and innovation?

C-2 Are the right people involved for careful evaluation, and for promoting learning and innovation?

C-3 Are suitable approaches being used for evaluation purposes?

C-4 To what degree are evaluation and learning processes transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?

ADJUST (AS NEEDED OR DESIRED)

D-1 Are suitable organizational structures, skills and financial resources in place for adjusting the strategy and the project in response to lessons learned?

D-2 Does the proponent address how adjustments will be made?

D-3 Are the right people involved to ensure effective implementation?

D-4 Is the process of making adjustments transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?