From Impact Assessment to Implementation Reality:

Bridging the Implementation Gap Through Commitment Design and Usability

Tara Oak | Stantec | tara.oak@stantec.com

Abstract

Impact assessment (IA) is widely treated as a planning and approval process, yet its effectiveness is ultimately determined during project implementation. Across sectors, environmental and social commitments are typically well documented at the assessment stage but are often diluted, inconsistently applied, or ineffective during construction and operations (Arts et al., 2001; Morrison-Saunders & Arts, 2004).

This paper examines the persistent gap between IA commitments and their realization in practice through a practice-based perspective informed by experience across consulting, government, and industry. It argues that the central issue is not the absence of commitments, but their usability within real-world decision-making contexts.

While existing literature highlights limitations in IA effectiveness and follow-up, less attention has been given to how commitments function within the operational systems that govern project delivery. This paper reframes the implementation gap as a problem of translation between assessment and implementation – specifically, a disconnect between how commitments are written and how decisions are made within construction and operations environments.

It highlights the need for IA practitioners to engage more directly with the language, constraints, and decision frameworks of project delivery, and argues that improving the usability and integration of commitments is critical to strengthening IA outcomes over the project lifecycle.

Introduction

At an active construction site, work was underway when uncertainty emerged regarding whether a key environmental requirement had been met. The commitment existed – documented, reviewed, and approved – but under schedule pressure, its interpretation differed across teams. Work paused, schedules were at risk, and in that moment, the value of the IA depended not on what had been written, but on whether the commitment could guide action in real time.

Impact assessment is often treated as a discrete planning milestone: a regulatory threshold to be met before project execution can proceed. In practice, however, the effectiveness of IA is not determined at approval but during implementation – when commitments must shape decisions under time constraints, uncertainty, and competing priorities.

This reflects longstanding concerns regarding IA effectiveness, particularly the gap between procedural completion and substantive outcomes (Cashmore et al., 2004; Retief, 2010). While these challenges are well documented, this paper contributes a practice-based perspective that focuses specifically on how

commitments function (or fail to function) within the operational environments where they must ultimately be applied, complementing existing empirical research by providing insight into how implementation challenges manifest in applied project contexts. In particular, the paper highlights a persistent underlying issue: IA practitioners are often designing commitments for environments whose decision-making systems, constraints, and priorities they do not fully understand in practice. This gap in perspective limits the usability and durability of IA commitments once projects move into construction and operations.

A Cross-Sector Perspective on Implementation

This analysis draws on the author's professional experience across consulting, regulatory review, and project implementation in sectors including mining, offshore oil and gas, and marine infrastructure. While early career experience focused on developing mitigation measures and commitments within assessment processes, subsequent roles involved reviewing those commitments from a regulatory perspective, followed by work within operational environments responsible for implementing them.

In implementation settings, environmental challenges rarely stem from missing commitments. Instead, they arise from unclear ownership, disconnected systems, and fragmented accountability across teams. Equipment and management systems may be in place, and obligations documented, but their integration into day-to-day decision-making is often limited.

These observations align with broader findings in IA literature, which identify follow-up and implementation as comparatively underdeveloped components of IA systems (Arts et al., 2001; Morrison-Saunders & Arts, 2004). Writing commitments that meet assessment requirements is not typically the most difficult task; ensuring that those commitments remain visible, understood, and actionable throughout construction and operations is considerably more challenging.

A key factor underlying this challenge is the disconnect between the way IA practitioners understand projects and the way projects are actually delivered. Impact assessment is typically developed using the language of effects, mitigation, and regulatory compliance. However, implementation is driven by different frameworks: project schedules, construction sequencing, contractor scopes, decision gates, cost constraints, integration between environmental and engineering teams, and operational performance requirements. Where these perspectives are not well aligned, commitments may be technically sound but poorly integrated into the systems that govern real-world decision-making.

Assessment Versus Implementation

A key driver of the implementation gap is the difference between the environments in which commitments are developed and those in which they are applied.

Impact assessment is typically deliberate, iterative, and based on high-level project descriptions, with a focus on prediction and evaluation. Construction and operations, by contrast, involve compressed timelines, evolving site conditions, distributed responsibilities across proponents, contractors and teams, and rapid decision-making under uncertainty. They are also structured around a different set of

organizing principles: project phases, procurement strategies, contractor responsibilities, decision gates, and financial considerations. These systems shape what decisions can be made, when, and by whom.

Without explicit mechanisms to bridge these contexts, commitments developed during assessment may not translate effectively into implementation. Impact assessment must communicate across multiple audiences, including regulators, stakeholders, and technical teams, and this can create tension between clarity, accessibility, and operational specificity.

For IA practitioners, bridging this gap requires more than improved tracking or oversight. It requires a working understanding of how projects are actually delivered, including the language and decision frameworks used by proponents, engineers, construction teams, and operators.

The Implementation Gap

Commitments do not remain solely within assessment documents. They are translated into downstream documents such as environmental management plans, contract specifications, construction procedures, and ultimately into real-time operational decisions.

At each stage, interpretation occurs. Language is adapted, condensed, or reformulated to suit different users and contexts. As a result, the clarity and intent of commitments may shift or weaken over time.

This reinforces a key limitation identified in follow-up literature: commitments may persist within documentation while losing clarity, consistency, or influence as they are translated into practice (Arts et al., 2001; Noble, 2020). The issue is therefore not the existence of commitments, but their usability across multiple layers of implementation.

Designing for Operational Realities

Impact assessments often define commitments for future phases that are not yet fully understood, even by project proponents. This is partly by design, reflecting the nature of the IA process itself, which is to evaluate project effects before irrevocable decisions are made. However, these commitments, which are made at a stage where design elements are still evolving and not yet fully defined, must ultimately function within operational environments shaped by schedule pressures, contractor dynamics, changing conditions, and competing priorities.

When practitioners are removed from this context, commitments may be technically robust – scientifically sound, defensible, and compliant with regulatory expectations – yet operationally fragile. This reflects broader critiques of IA effectiveness, where procedural compliance does not consistently result in meaningful environmental outcomes (Cashmore et al., 2004; Bond et al., 2013). For example, a commitment to avoid in-water work in a high-quality fish-bearing watercourse by trenchless crossing methods may seem valuable at the assessment stage but may prove impractical if the underlying geology encountered during construction does not support a free span or horizontal directional drilling.

In practice, this often reflects a deeper misalignment between how commitments are written and how work is executed. Construction and operations teams make decisions within defined systems: work

packages, contractor scopes, shift planning, budget constraints, and approval gates. If commitments are not framed in a way that connects to these systems, they are less likely to influence outcomes.

Designing commitments for implementation therefore requires explicit consideration of how they will be interpreted and applied in real-world conditions, including the decision-making structures that govern project delivery.

Usability and Transferability of Commitments

For commitments to function effectively, they must be usable in practice and transferable across project systems. This includes:

- clarity of responsibilities, actions, and timing
- structure that allows extraction into downstream documents
- functionality in real-time decision-making contexts

A practical test of usability is whether a commitment can be understood and applied by field personnel without reinterpretation.

A complementary test is whether a commitment aligns with the way decisions are actually made within a project. If it cannot be easily linked to a contract requirement, a construction activity, a decision gate, or an operational control, its influence may be limited regardless of its technical quality.

Commitments developed during assessment are routinely translated into environmental protection plans, contract clauses, and operational procedures. Their structure is therefore as important as their content. Clearly organized commitments are more likely to be accurately transferred across project phases, while poorly structured commitments increase the risk of inconsistency and loss of intent. In practice, this may include striving to structure commitments as clear, discrete, and assignable actions that can be directly incorporated into management plans, contract requirements, and operational procedures.

This challenge reflects a broader limitation in IA systems, where weak integration with environmental management systems constrains implementation (Sánchez & Hacking, 2002).

Bridging the Gap in Practice

Impact assessment has traditionally emphasized technical rigor and regulatory defensibility. While these factors are essential, they are not sufficient to achieve effective outcomes.

The value of IA is realized over time – during construction, operations, and periods of uncertainty – when commitments must guide real-world decision-making. Follow-up and monitoring are intended to support this process by linking commitments to ongoing management and decision-making. In many cases, this linkage is operationalized through environmental management plans, contract specifications, and associated procedures, which act as the primary interface between IA commitments and implementation.

In practice, however, these mechanisms often fall short. Follow-up and monitoring are often treated as secondary to approval stages and may lack clear linkage to decision-making, resulting in ineffective responses to environmental issues and, in some cases, regulatory non-compliance (Noble, 2020). While enforcement mechanisms can identify non-compliance, they are less able to address the underlying issue of whether commitments are designed to function effectively within operational decision-making systems.

As a result, monitoring programs may generate data but not consistently inform operational decisions or trigger timely responses. Without clearly defined thresholds, responsibilities, and decision pathways, monitoring risks becoming a reporting exercise rather than a management tool. Strengthening the connection between follow-up, adaptive management, and decision-making has been widely identified as critical to improving IA outcomes (Morrison-Saunders et al., 2014).

Addressing the implementation gap requires a more integrated approach to IA practice.

This includes:

- incorporating implementation perspectives early in commitment development
- prioritizing usability alongside technical adequacy
- designing commitments with their full lifecycle in mind
- considering how commitments will function under real-world conditions
- engaging early with engineering and project delivery teams to better understand project design, constraints, and decision-making processes

It requires a shift in how IA practitioners engage with project development processes and the teams responsible for project delivery. Developing implementable commitments depends on understanding not only environmental effects, but also how projects are planned, financed, contracted, and delivered, including familiarity with decision gates, cost and schedule drivers, contractor roles, and operational constraints. This may include more structured collaboration between IA practitioners and engineering teams during and following the assessment process to support iteration of design, mitigation, and follow-up measures as the project progresses.

Without this understanding, commitments risk being developed in isolation from the systems that ultimately determine whether they are implemented. The need to strengthen connections between planning and implementation phases is well recognized but remains inconsistently addressed in practice (Retief, 2010; Gibson, 2006). In practice, this requires moving beyond linear handoffs between assessment and implementation toward more integrated and iterative approaches across project phases.

Limitations

This paper is based on the author's practice-based experience across multiple sectors rather than systematic empirical analysis. While the observations presented are consistent with established IA literature on effectiveness and follow-up, they are not derived from structured comparative research.

The findings should therefore be interpreted as reflecting recurring patterns observed in professional practice rather than sector-specific conclusions. Further research could build on these insights through empirical analysis of implementation processes across project types.

Conclusion

Across sectors, a consistent pattern emerges: commitments are present, but their effectiveness diminishes as they move from assessment to implementation.

The central challenge is not compliance with IA processes, but whether commitments remain usable and effective as they are translated into design, construction, and operations.

Bridging this gap between commitments as defined during assessment and their effectiveness in implementation requires a shift in focus. This includes moving from commitments that are technically complete and regulatorily defensible to those that are also usable in implementation and capable of guiding decisions under pressure, across transitions, and over time.

For practitioners, this implies a practical shift in approach: commitments should be evaluated not only for technical adequacy and regulatory defensibility, but for whether they can be clearly understood, transferred across project systems, and applied in real-time decision-making contexts.

It also requires that IA practitioners engage more directly with the realities of project delivery: learning the language, constraints, and decision frameworks that shape how projects are built and operated.

If impact assessment is to deliver meaningful environmental and social outcomes, its commitments must function not only in reports, but within the systems that govern how projects are actually built and operated.

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