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Session – 541 - ESIA and Permitting Improvements for Efficiency and Effectiveness: Lessons Learned

Abstract:

Effective communication of regulatory impact assessment is increasingly recognized as a critical factor in building trust and credibility in the environmental approvals process.

Yet, as many developers move toward faster project approvals, there is a growing risk that science is perceived as a barrier rather than a foundation for informed decision-making.

Drawing on our practical experience navigating regulatory approvals for large-scale development projects, we highlight our experience in Red Sea Global (RSG) as a company that is protective of the environment. This, in conjunction with the Saudi Arabian environmental regulatory body, formed around the time of the RSG's start, we showcase how early stakeholder engagement that goes beyond minimum requirements can transform science communication from a compliance exercise into a driver of better approvals outcomes.

Our work demonstrates that early engagement between regulators and technical stakeholders during the impact assessment and approvals process reduces uncertainty, prevents late-stage objections, and leads to clearer and more defensible permitting decisions. Proactive early dialogue helps identify information gaps before assessments are finalized, allowing scientific studies to be tailored to real regulatory and stakeholder concerns rather than generic requirements. Although not legally required in Saudi Arabia, this adopted approach by RSG has consistently led to stronger environmental baselines, more relevant impact predictions, and mitigation plans that reflect both local context and scientific evidence.

Beyond Compliance: Driving Better Outcomes Through Early Engagement

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1. Introduction

Environmental impact assessment was created to improve decisions by integrating science, transparency, and participation into development planning. In many jurisdictions, EIA has become more technical and more tightly coupled to permitting; yet it remains vulnerable to an enduring perception problem. When assessment is conducted primarily as a compliance exercise, scientific work can be framed as “red tape,” and mitigation can be perceived as a negotiated concession rather than as an outcome-driven commitment. These dynamics are amplified in coastal and marine settings, where ecological sensitivity is high, uncertainty is unavoidable, and public scrutiny is intense.

At the same time, the broader information environment has changed. Misinformation and disinformation can spread quickly, trust in expertise is shaped not only by rigorous scientific evidence, but also by values, identity, and emotion. For EIA practitioners, this creates a dual challenge: assessments must be scientifically robust while also being socially credible. Increasingly, credibility depends on whether processes are perceived as transparent, responsive, and accountable and not simply whether statutory requirements have been met.

Against this backdrop, this paper aligns with the theme of building ~~rebuilding~~ trust through early engagement and effective communication. It examines, through a case study, how RSG’s early engagement strategy with the Saudi regulator responsible for vegetation and restoration, the National Center for Vegetation Cover Development and Combating Desertification (NCVC) transformed a potentially complex nature-based compensation measure for mangrove restoration into a jointly delivered outcome. The central argument is that early engagement can move EIA beyond the mitigation hierarchy by improving the relevance and quality of studies and mitigation, reducing permitting uncertainty and late-stage disputes, and enhancing public trust through visible collaboration and shared stewardship.

2. Early Engagement as a Practical Mechanism in EIA

“Early engagement” is often misunderstood as simply initiating consultation sooner. In outcome-focused practice, it is more accurately defined as structured, iterative dialogue that begins during scoping and continues through design, baseline studies, impact prediction, mitigation planning, and permitting. This approach reflects established best-practice principles: engagement should be timely, inclusive, adequately resourced, and designed to influence decisions rather than merely to inform stakeholders of decisions already made ⁽³⁾.

A recurrent cause of delay in EIA-linked approvals is misalignment. Baseline surveys may generate large volumes of data that are not decision-relevant; modeling and prediction may fail to address regulator concerns; and mitigation measures may be proposed without sufficient feasibility evidence. When engagement occurs late, these gaps are typically identified during review, triggering additional information requests, contested interpretations, potential delays in permitting, additional costs, and mistrust. Early engagement helps identify information needs sooner and supports adaptive scoping, allowing study design to evolve in response to emerging evidence and stakeholder concerns.

Early engagement also plays a critical role in building trust. Research on risk communication shows that trust is reinforced through competence, integrity, and benevolence, being technically capable, acting consistently, and demonstrating genuine concern for shared values. In EIA practice, these signals are conveyed not only through reports, but through process behaviors such as openness about uncertainty, responsiveness to feedback, and willingness to co-create solutions. Where misinformation threatens to distort public understanding, transparent engagement and accessible explanations of evidence reduce the space for speculation and polarized narratives.

3. Mangrove Restoration as Impact Compensation: Value and Complexity

Mangroves are widely recognized for supporting biodiversity, stabilizing shorelines, improving water quality, and storing carbon ⁽¹⁾. Owing to these benefits, mangrove planting is increasingly proposed as a mitigation or compensation measure in coastal development. However, ecological restoration in EIA is not a simple “planting exercise.” Successful restoration depends on appropriate site selection, hydrological and sediment conditions, species selection, propagule sourcing, and long-term monitoring and adaptive management. Where these factors are poorly understood or addressed, restoration initiatives can fail ⁽⁴⁾, undermining both ecological objectives and public confidence in environmental commitments.

Mangrove restoration is also institutionally complex. It typically requires permits and approvals prior or during EIA development and may involve multiple authorities with mandates related to habitat protection, land management, and biodiversity. When mangrove initiatives are introduced late in the EIA process, they can create a second wave of technical review and approvals, increasing uncertainty and risk to project schedules. Conversely, when restoration is integrated early, it can be designed as a coherent response to impacts, supported by baseline evidence and regulator input.

These characteristics make mangrove restoration particularly sensitive to the timing and quality of engagement.

4. Case Study Context and Approach

The current case study concerns a large-scale development context along the Saudi Red Sea coast, where environmental performance and governance are highly visible. RSG (the developer) sought to consider mangrove restoration as part of compensation, while recognizing that site selection and permitting could become high-risk if addressed late in the EIA process. Accordingly, the strategy emphasized early engagement with NCVC from the outset of the EIA process.

The case study is descriptive and practice-oriented. It synthesizes internal learning on how early engagement influenced EIA development, assessment quality, permitting efficiency, and stakeholder confidence. The objective is not to imply that the results always cause the same outcomes globally, but to identify mechanisms through which early engagement delivered tangible benefits. The analysis focuses on four questions:

1. How early engagement influenced feasibility and design?

2. How it affected permitting risk and efficiency?
3. How it supported trust and transparency in environmental governance? and
4. How early engagement went beyond minimum requirements.

5. Early Engagement in Action: Co-Developing the Mangrove Program

5.1 Establishing a Shared Problem Definition

Rather than presenting a complete plantation plan at the end of assessment, RSG engaged NCVC early to establish a shared understanding of the problem: how to compensate for impacts in a way that is ecologically feasible, regulator-aligned, and publicly credible? This early dialogue clarified constraints and opportunities, including site suitability, seed sourcing requirements, and the role of monitoring in demonstrating outcome.

This approach has since been adopted by Red Sea Global across multiple environmental and permitting initiatives beyond mangrove compensation. For example, early engagement principles informed the Reverse Osmosis (RO) plant permitting process, where proactive dialogue with regulators helped clarify environmental performance expectations, discuss location alternatives and positioning of the facility, brine management requirements, and monitoring frameworks prior to finalizing design decisions. Similarly, early engagement has been applied in RSG's Sooty Falcon conservation program, where coordination with competent authorities at an early stage supported the definition of habitat protection measures, monitoring approaches, and alignment with national biodiversity conservation priorities. In both cases, early engagement reduced permitting uncertainty, supported scientifically robust design decisions, and strengthened regulatory confidence in implementation outcomes.

A key benefit of a shared problem definition is the reframing of the proponent–regulator relationship. When regulators are engaged only at review stages, interactions can become adversarial and transactional. Early engagement positioned the regulator as a partner in achieving environmental outcomes, supporting constructive discussions focused on evidence needs and implementation realism.

5.2 Integrating Regulator Input into Site Selection

Site selection is often decisive for both ecological success and permitting acceptability. Early engagement enabled NCVC to contribute towards site selection for mangrove supply nurseries and plantation locations, reducing the risk that studies or designs would later be rejected on ecological or policy grounds.

Co-developing site selection criteria early also improved assessment efficiency. Instead of collecting broad datasets across numerous locations, the assessment could focus on candidate sites with plausible suitability, narrowing uncertainty and enabling clearer comparisons. Aligning early on what constituted “suitability” including access, hydrology, salinity, sediment conditions, and the presence of existing mangroves, reduced late-stage debates over long-term viability.

5.3 Seed Collection and Nursery Planning

Mangrove restoration depends on appropriate seed sourcing and nursery practices that support survival through transplantation. Early engagement allowed NCVC to contribute to sustainable seed collection planning and to advise on protocols consistent with conservation objectives. This input strengthened the defensibility of the program by demonstrating that nursery design and seed sourcing were not arbitrary, but co-developed with the competent authority.

Importantly, early engagement enabled nursery planning to be treated as an integral part of the mitigation system rather than as an operational detail deferred to later stages. This integration reinforced the credibility of compensation commitments by linking EIA and assessment outcomes directly to implementation pathways.

5.4 Delivering a Jointly Agreed Outcome

The collaborative process culminated in the planting of one million mangrove seedlings as part of a structured compensation and habitat enhancement program, designed to address verified impacts while also contributing to broader ecological resilience objectives in the Red Sea coastal environment.

~~The collaborative process culminated in the joint planting of one million mangrove seedlings at a location mutually agreed upon by the proponent and NCVC.~~ This outcome demonstrates that early engagement can move beyond procedural improvements to deliver measurable environmental action.

Joint implementation also carries governance value. Shared ownership reinforces accountability and reduces public skepticism, as regulator involvement signals oversight and alignment with national restoration priorities. In contexts where compensation measures are closely scrutinized, joint delivery provides a clear signal that commitments are real and regulated.

6. Outcomes: Permitting Efficiency, Scientific Quality, and Trust

6.1 Reduced Uncertainty and Fewer Late-Stage Disputes

One of the most consistent causes of permitting delay is late identification of information gaps. Early engagement reduced this risk by clarifying expectations during EIA development early stages and aligning study design with regulator concerns. While uncertainty cannot be eliminated in dynamic coastal systems, early engagement enables it to be managed proactively through targeted data collection and adaptive planning rather than through late-stage objections.

Importantly, the experience gained through this process has informed early engagement practices across RSG's wider project portfolio, allowing lessons learned to be systematically applied to subsequent developments and permitting processes.

Early engagement also reduced the likelihood of "scope creep" during review. When regulators understand the assessment logic and are involved in key decisions such as site selection and protocol development, they are less likely to request redesign late in the process. The result is a more predictable pathway to approvals and reduced risk of public dispute.

6.2 More Relevant Baselines and Improved Mitigation Design

EIA is only as effective as its baselines and the relevance of its predictions. Early engagement improved baselines by focusing studies on parameters that matter for decision-making and restoration feasibility. It also improved mitigation design by ensuring that mangrove compensation was not a generic commitment, but a tailored program matched to site-specific conditions and regulatory priorities.

This aligns with the broader literature on effective assessment, which emphasizes context-specific and adaptive approaches that incorporate iterative feedback to refine predictions and management measures ⁽²⁾. In practice, early engagement created a feedback loop between science and governance: scientific work informed feasible options, while regulatory input ensured alignment with policy and permitting realities.

6.3 Strengthening Transparency and Public Trust

Beyond technical and scheduling benefits, early engagement contributed directly to trust. The partnership approach increased transparency by involving the regulator from the outset, rather than presenting outcomes as closed decisions. Visible collaboration signals integrity and provides clear, verifiable narratives about how decisions were made and how outcomes are being delivered.

Trust is further strengthened when mitigation commitments are implemented rather than merely promised. The joint planting milestone provided a tangible symbol of accountability and reinforced the message that environmental assessment can deliver real environmental improvement when regulators and proponents jointly commit to outcomes.

7. Implications for Practitioners and Regulators

The case study highlights several implications applicable across jurisdictions and sectors. Early engagement should be planned as a defined workstream rather than treated as *ad hoc* communication. High-risk, high-visibility mitigation measures benefit most from early dialogue. Clear communication of uncertainty is essential to avoid overconfidence and maintain credibility. Visible collaboration must be supported by credible monitoring and transparent reporting. Finally, communication products such as workshops, site visits, Memorandum of Understanding, etc. should be treated as part of the assessment deliverable, helping diverse audiences understand site selection logic, trade-offs, and success criteria. In this case, regulator participation provided an additional credibility anchor that reduced the risk of misleading narratives.

8. Conclusion

EIA systems face a credibility challenge in an era where trust is fragile and complex scientific information competes with simplified narratives. Early engagement offers a practical pathway to address this challenge by transforming assessment into a collaborative, outcome-oriented process. The mangrove restoration case demonstrates how early engagement with NCV enabled a potentially complex compensation measure to be delivered in a way that reduced permitting uncertainty, improved scientific relevance, strengthened transparency, and increased trust between the developer and regulator.

The central lesson is clear: whilst not a regulatory requirement in the KSA context, early engagement is not a soft add-on to technical assessment. It is a governance strategy that improves efficiency and effectiveness while building public trust. For proponents, it reduces rework and supports deliverability. For regulators, it strengthens decision defensibility and public confidence. For communities and stakeholders, it provides clearer evidence that environmental assessment can deliver meaningful outcomes.

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