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Trust as Infrastructure

Five patterns from the mining sector about why critical minerals projects get stuck

A Synthesis Drawn From Conversations With Sector Leaders

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Trust as Infrastructure: Five Patterns from the Mining Sector About Why Critical Minerals Projects Get Stuck

Demand for critical minerals over the next two decades is projected to exceed any historical precedent, yet projects continue to get stuck, and the recurring cause is not geology or engineering. They often stall over the relationships and the trust around them, which the sector still treats as peripheral when, in practice, they are more like infrastructure, i.e. something that can be designed for, invested in, maintained, and rebuilt where it has been damaged.

Drawing on six months of confidential conversations with senior practitioners across mining, finance, and advisory roles, Yiannis Chrysostomidis, Tim Vickery and Jeremy Weate, Phd. set out five (5) recurring patterns through which trust gets eroded, mispriced, or lost, and consider what it would take to act on what the sector already knows.

About This Synthesis

This synthesis is written primarily for senior leaders in mining, the investors and development finance institutions that capitalise the sector, and the policymakers.

It draws on six months of confidential conversations with senior practitioners and advisors working in responsible sourcing, communities and social performance, ESG, sustainability strategy, and stakeholder engagement. Participants held director-level and equivalent roles at major global mining houses, an international energy company, independent advisory firms with deep sector experience, and a development finance institution active in the mining sector. Most had between twenty and thirty years of professional experience, with operational exposure across Africa, Latin America, Asia-Pacific, and Europe. The conversations were confidential and the quotes are anonymised.

Our intent with this work is to identify the structures and decision-making logic that produce these patterns, rather than to assign fault to any company or individual. The people we spoke with are experienced, capable, and in many cases frustrated by the same dynamics they described to us. We have applied a systemic lens to what they told us, drawing on our experience of collaboration in contested settings, with the aim of making visible structures that are difficult to see from inside any single organisation. The picture is far from complete and we offer it as a contribution to a conversation, not as a conclusion.

Scope and focus

We chose to speak with leaders inside companies and institutions, the peers of the audience this synthesis is written for, because we wanted to understand how the people working within these structures see them, and how they are held by them. The communities most affected by the projects we describe are not represented directly in these conversations. That was a deliberate choice for this publication, which argues that companies tend to underinvest in really listening to communities, and this conversation cannot go far without them. A second iteration of this work would centre community perspectives directly, we hope, with the support of the sector.

Context

Demand for critical minerals over the next two decades is projected to exceed any historical precedent. The IEA in their Global Critical Minerals Outlook estimates a two- to four-fold increase by 2040, with copper alone facing a 30% supply shortfall by 2035. More mining will need to happen, often in more contested places and under more scrutiny than the sector has previously experienced.

And yet projects continue to get stuck. The recurring cause is rarely geology or engineering. Projects tend to stall because of how companies engage with the communities, governments, and political dynamics around them. The sector is aware of this. The available frameworks, standards, and guidance have evolved significantly over the past two decades. What is less clear is why so much of what the sector knows is not translating into practice.

The conversations behind this synthesis consistently surfaced an underlying pattern. The relationships that determine whether a project proceeds, fails, or eventually becomes workable are largely treated as “soft”. This framing appears to be mistaken. In practice, relationships, and the trust that underpins them, tend to function more like grid infrastructure. Like a water, energy, or transport grid, the quality of relationships around a project determines whether everything else can run. When trust holds, projects have a stronger foundation to move forward. When it breaks down, even technically sound projects can stall. Like other infrastructure, it can be designed for, invested in, maintained, and rebuilt where it has been damaged. Unlike a power line or a bridge, however, it is not material, and once damaged it cannot be repaired quickly or by funding alone. It can be rebuilt, but slowly, and rebuilding is harder than earning it in the first place. And like other infrastructure, it has a cost when it is missing that tends to exceed, by a significant margin, the cost of putting it in place at the outset.

When a project stalls for these reasons, the losses are distributed across the system. The company and its financiers write down what they have spent. The host government forgoes the revenue the project would eventually have generated, along with a measure of credibility. The communities around the site see the benefits they were promised fail to materialise, while carrying the burden of disruption already caused and, often, a loss of trust in the company, the wider industry, and government. The minerals stay in the ground while demand for them grows. Nobody designs this outcome, and almost nobody wants it.

Peru has seen over $53 billion in stalled mining projects, according to industry estimates reported in 2022. Barrick Gold wrote down $5.1 billion on Pascua Lama in 2013, suspending the project the same year. First Quantum Minerals' Cobre Panamá, a $10 billion investment and one of the world's largest copper mines, has been suspended since late 2023, with $20 billion now being sought in arbitration. Development finance institutions have absorbed significant losses on projects that failed for social and political reasons rather than technical ones.

There is substantive empirical literature available on what builds and what erodes community acceptance of mining. Kieren Moffat and Airong Zhang's 2014 model, drawing on

longitudinal surveys in mining regions, identifies procedural fairness and contact quality as the strongest predictors of community trust, with trust in turn predicting acceptance of an operation. The literature is clear about what works. What our conversations illuminate is something a measurement framework cannot show, which is why companies often struggle to act on what the evidence establishes. The patterns described in this synthesis are an attempt to make the structural reasons for that gap visible.

In what follows, we set out the five (5) patterns that our conversations surfaced repeatedly. Before doing so, we present a composite story drawn from those conversations. We refer back to the story as the patterns unfold. None of the patterns will be new to anyone working in this space. Each describes a different way in which trust, treated as a soft skill rather than as infrastructure, gets eroded, mispriced, or lost altogether. We do not present this as a finished diagnosis, and we offer no claim to have a complete prescription, but we are clear that better frameworks delivered the same way are unlikely to be sufficient on their own.

THE STORY OF SITE X

Consider a hypothetical copper project. We will call it Site X. An exploration company holds the licence in the early 2010s, drilling the deposit, proving its grade, and making a series of local commitments along the way, including a contribution to a school and a road improvement. Some of these commitments are kept. Some are not. The exploration team rotates through and in 2018 the asset is sold to a mid-tier operator.

The geological data transfers to the new operator in full. The relational data does not, beyond what a few people remember, and most of those people have left by the time the asset changes hands.

The new operator commissions a comprehensive ESIA in 2019. The process is rigorous and well documented but it works from a relational baseline that does not really exist. The communities around the site have a five-year history with the previous holder. The new team does not have access to that history in any structured or well-documented form.

In 2021 the social performance team raises concerns about a deterioration in community relations. They do not have authority over project scheduling, and the commercial timelines do not change in response. In 2023 a serious dispute opens. The budget for response is significant. The budget for prevention had been cut two years earlier. The team handling the response is largely the same team that had not registered the early signs.

In 2025 the project is suspended. In 2026 a different operator opens discussions about acquiring it. What is lost between the early 2010s and 2026 is the trust that would have allowed the deposit to be mined. The political and community dynamics around the site have been damaged, and re-establishing them is now a significant undertaking that a different operator will need to begin again.

This is a composite based on the patterns we encountered repeatedly. No single project we discussed produced all of these dynamics in exactly this combination, yet some produced several. The five (5) patterns described in the rest of this perspective each appear, in some form, in the story above.

Pattern One: Relational records are lost when mining operators change

Mining companies maintain detailed and transferable records of geology. Drill logs, assays, metallurgy, hydrogeological data, and structural models. The technical history of a deposit moves from one operator to the next, regardless of how many times the concession changes hands. This is treated, correctly, as essential information.

The relational history of the same site is treated very differently. What was promised during exploration, what was agreed and what was forgotten, which families gave consent and which did not, the personalities, the alliances, and the political fault lines that often determine whether a project will be permitted to proceed, all of this tends to live in informal channels. Almost none of it is systematically captured, and almost none of it transfers when the asset does.

> *"By the time you even start operating the mine, there's like fifteen different companies that have come in and out. There's us and there's some other contractor, and they don't know what has happened. Everyone thinks they're the first person to go in."*
>
> ***— Responsible Sourcing Director, Major Mining House***

The structural reason for this is the business model. Many exploration companies operate on a find-and-flip business model, with limited commercial incentive to invest in trust-building since they do not intend to be present when the relationships mature. They hold the licence, drill the ground, prove the deposit, and sell. The operator who buys the asset inherits the geology in full detail. The same operator inherits whatever trust was built or broken during exploration with no comparable record, and in many cases with no awareness that a record might exist. What each operator experiences as a fresh start, the communities tend to experience as the latest chapter in a longer history. They keep track of what was promised and by whom, even when the companies do not. By the time the new operator's formal engagement processes begin, often through an ESIA or its equivalent, the relational dynamics around the site may already be substantially set. What the formal process was designed to assess and manage may, in part, have already happened. We heard several variations of this observation across the conversations.

This is the dynamic that produced the relational gap at Site X. The geological record was transferred in full from the exploration company to the new operator. The relational history, such as it was, did not transfer in any comparable form.

Kathleen Hanley and, our Reos colleague, Brenna Atnikov have made a closely related argument in *The Intelligent Miner:* that critical minerals strategy and critical relationships strategy are not separable, and that companies treating them as separate conversations are mispricing the underlying asset.

The practical implication is that a relational engagement record should sit alongside the geological record in the form of something structured, transferable, tied to the site rather than to whichever company holds the concession.

> *"It's a process that's not built on relationships. And relationships need constancy and history and memory, and all those things are missing from how companies operate."*
>
> ***— Responsible Sourcing Director, Major Mining House***

Pattern Two: Crisis response crowds out preventive investment

Many of the practitioners we spoke with said that preventive investment in relationships and capability is important. Leadership teams approve the concept, and people at every level of the organisations we engaged acknowledge the need. There is no internal dispute about the principle. The dispute, when it happens, is about the budget, and preventive investments in relational capability tends to lose out to immediate operational priorities. This pattern was reported as a consistent one, across most of the companies our interviewees described.

> *"We've been really trying to get the company to build capability in that space. And we really haven't got a lot of traction. We've found that they wait for an emergency to happen or something to go really wrong. And then there's like, oh yeah, no, we need to do all of this stuff."*
>
> ***— Manager, Communities and Social Performance, Major Mining Company***

The structural reason is visibility. Prevention does not produce a visible outcome, since the crisis that does not happen leaves no trace, generates no urgent budget conversation, and tends to champion no careers. A crisis response, by contrast, is dramatic, attributable, and often career-defining. Budget processes tend to reward the second category of work and to starve the first. The pattern is primarily about systems that are oriented towards reaction rather than towards prevention.

In Site X, the prevention budget had been cut two years before the dispute opened in 2023. The response budget that followed was, predictably, larger than what would have been needed for prevention.

Reos colleagues working on systems change in other sectors have described these as the 'invisible outcomes'. Shifts in narrative. Capacity for joint problem-solving. Trust forming across previously divided groups. These outcomes tend to be easy to overlook precisely because they cannot be photographed or counted in conventional terms. And they often determine whether systemic change is possible. Mpinane Mmahlatji has set out this argument in Reos's recent work on partnerships. The mining sector's measurement culture, like the measurement culture in many sectors, is well-suited to the visible outcomes. It tends to struggle with everything else.

There is a related distinction that the sector, in our experience, frequently misses. Capability building, in the sense of training individuals in skills, is one thing. Capacity building is another. Capacity, as Mille Bojer set out for Reos in 2011, refers to the systemic ability of an organisation, a network, or a sector to hold what individuals know and to act on it. It exists at multiple levels and is built through action and reflection woven into the work itself, not through training delivered in parallel to the work. Fifteen years on, the mining sector has invested significantly in the first – capability – but the second, capacity has tended to follow at a much slower pace.

Pattern Three: Mining teams trained the same way miss what communities are saying

Mining companies employ deep technical expertise. The people doing this work do not, in general, lack good intentions but technical expertise and relational competency are different skill sets, and one does not become the other by being held by the same person.

The more substantive observation, however, tends to sit one level deeper. Several conversations pointed to a connection between the homogeneity of thought inside companies and the inability to read signals well outside them.

> *"If you go to a random office, basically everyone looks the same. There is a lot of cultural diversity, people from all over the world, but they are all trained in the same way. They all got the same education. They went through the same training programmes internally. If you look at colour, yes, there is some diversity. If you look at ways of thinking, very, very little. Everything stays within a narrow bandwidth."*
>
> ***— Senior Adviser, International Energy Company***

Working effectively across differences, whether with communities, governments, regulators, or civil society, requires the ability to understand perspectives unlike one's own. When an organisation's thinking is largely homogeneous, this capacity is harder to develop and harder to deploy. The cultural conformity inside the organisation tends to produce a corresponding blindness outside it. Codes of conduct and corporate frameworks, valuable as they are in establishing norms, can themselves become instruments that reinforce this conformity rather than relieve it.

This connects to a finding in Moffat and Zhang's empirical work on social licence. They found that the quality of contact with communities, not the quantity, predicts trust. A team that cannot read perspectives outside its own bandwidth may have many community meetings while still failing to build the trust those meetings are meant to produce.

The absence of feedback loops compounds the problem. After a consultation process, most organisations cannot reliably say whether they built trust or damaged it. Assessment tends to focus on whether the process was followed rather than on what the process produced in the receiving community. A company can therefore be performing well on paper, ticking every compliance box, while quietly eroding the social licence it requires to operate. The gap between perceived performance and actual impact tends to widen in the absence of feedback. The communities living next to the operations notice but companies often do not, until the issue has escalated beyond the point where it can be resolved internally.

> ***In our Site X composite, the social performance team had been raising concerns for around 18 months before the dispute became visible to the rest of the organisation. Those concerns did not appear in the formal compliance reporting because it was not set up to capture them.***

Pattern Four: Sustainability teams often see crises coming without the authority to intervene effectively

ESG and social performance teams in most of the organisations we encountered can usually see emerging challenges before they become crises, but do not always have the authority to do anything about them. This much is widely acknowledged inside the sector.

The deeper observation is structural, and it concerns how the same organisation can hold two contradictory valuations of the same function at the same time. On the trading side of a major mining house, sustainability tends to be valued as a market enabler. It unlocks premium markets. It de-risks financing. The commercial logic is generally not contested. On the operational side of the same company, the same function is often experienced as a compliance requirement, a cost centre, or a delay to the project schedule. The value proposition, the budget treatment, and the decision-making rights are very different depending on which part of the business you ask.

> *"It's the trading side that thought, we need this role, it's unlocking markets for us. Usually when you have these sustainability roles, you're on this continuous like justification, because your value is not as tangible. It's the first time I see a real sense of clarity of, we need this to unlock the market."*
>
> ***— Responsible Sourcing Director, Major Mining House***

In practice, how a project develops tends to depend significantly on who is leading it. Frameworks and policies establish a range. The range tends to be wide enough to produce materially different outcomes across projects within the same company. What a company says it does and what it actually does are not necessarily the same, and the gap between them tends to widen when commercial pressure increases.

> ***This is consistent with what happened in Site X. The social performance team could see the deterioration, but did not have the authority to slow the project schedule in response.***

In Mpinane Mmahlatji's framing of partnerships, the deepest forms of collaboration involve shared ownership of decisions, risks, and outcomes. By that standard, the relationship between social performance and the rest of the business in most companies we encountered is shallow. Social performance teams are consulted, occasionally listened to, but rarely a co-owner of project decisions. The depth of the partnership inside the company tends to match the depth of partnership the company is able to build with communities outside it.

Pattern Five: Compliance with engagement frameworks doesn't necessarily produce social license

The sector has invested significantly in frameworks and standards for stakeholder engagement over the past two decades, including the IFC Performance Standards, the Equator Principles, ICMM guidance, and the protocols around free, prior, and informed consent (FPIC). These are substantive instruments and, in our view, well designed. They have raised the floor of industry practice meaningfully.

And yet projects continue to get stuck. Several of our conversations described a typical scenario where a project followed established process, conducted comprehensive impact assessments, and engaged through what would be considered proper channels. The opposition came anyway, and the project encountered a serious delay or was suspended outright. In these cases, rigorous compliance with the engagement frameworks did not translate into the social licence the project needed.

> *"The ESIA process is broken. I wish some of the people we're financing would do this work, but we don't have any way of helping that they do it."*
>
> ***— Senior Adviser, Development Finance Institution***

That observation above, from a development finance institution lending into the sector at scale, captures the pattern that has produced something the sector now has to account for as a category in its own right. There is a meaningful population of geologically sound projects that are frozen for non-technical reasons. The category appears large enough that one group has developed a viable business model around restarting them. One senior industry expert described to us what this work consists of in practice, which is identifying such projects, acquiring them or partnering on them, and rebuilding the relationships from a different starting point. That this is commercially viable as a business model is, in itself, a finding worth sitting with.

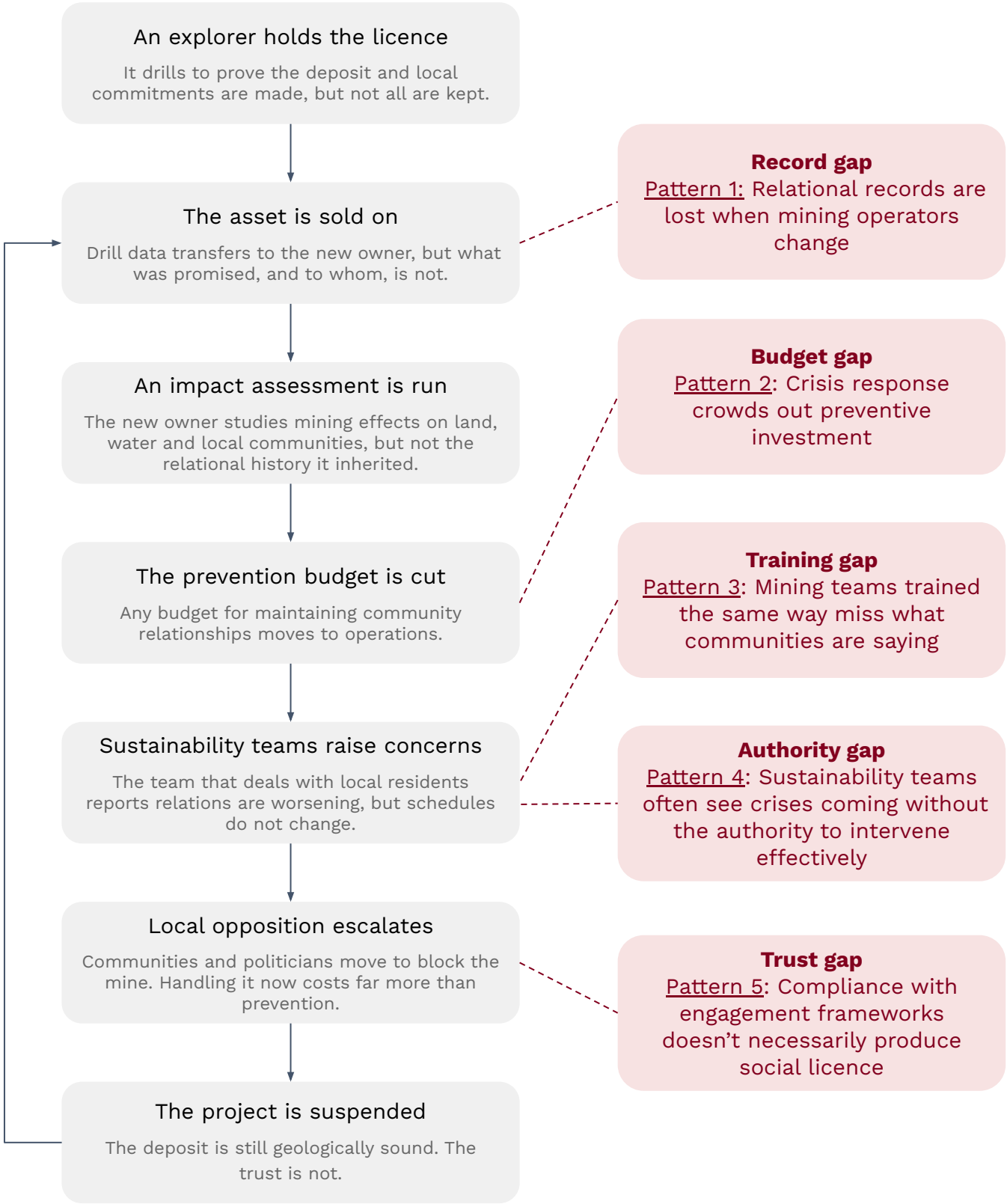
> ***In the Site X composite, the project is suspended in 2025 and a different operator opens discussions about acquiring it in 2026. The asset itself remains geologically sound, and what it has lost is the trust that would have made it operable. That trust is what the new operator will need to rebuild before the geology becomes useful again.***

Connecting the Patterns

If the challenges were primarily about communication, the appropriate response would be better communication tools. If they are about systems, the response needs to be systemic as well, and the five (5) patterns taken together seem to point towards that second framing. They are not independent of one another. When trust is damaged early in a project, it tends to create capability needs that budget processes are not set up to meet. When budgets favour reaction over prevention, the gaps in authority widen. When cognitive homogeneity persists, the early signals become harder to register. And when stranded assets accumulate, the financial pain that follows tends to reinforce crisis-response thinking rather than redirect attention to prevention.

The figure on the next page maps these reinforcing dynamics. Each arrow shows how one pattern tends to deepen another. Addressing any single pattern in isolation is likely to produce limited results, because the others tend to continue feeding it.

One project's path, and the five patterns



What Leaders Can Do

If the problem is structural, the response has to be structural too. A useful starting point is honest acknowledgement that better frameworks delivered the same way are unlikely to be sufficient on their own.

We do not have a finished prescription but we have a set of directional choices that the synthesis above suggests. None is easy but each is likely to cost a fraction of what stranded assets currently cost.

LEADERSHIP GUIDANCE - INSTEAD OF / DO

Instead of treating trust as a soft skill, treat it as infrastructure.

Instead of waiting for the ESIA to begin engagement, start when exploration starts.

Instead of sending technical experts to do relational work, build people who can hold relationships over time.

Instead of letting commercial timelines override social insight, allow insight to slow things down.

Instead of measuring whether the process was followed, measure whether trust grew or eroded.

Instead of more frameworks delivered the same way, develop different leadership.

None of this is a rejection of existing frameworks which are necessary, but not sufficient on their own. But what is also needed is complementary investment in the capabilities to build and maintain trust over time, navigate complexity, hold tension, and lead through uncertainty.

One important thing to note

What is most important to us as practitioners in the field of systemic collaboration is the integrity of the process by which a decision is reached, not whether a project ends up proceeding. When a project does not go ahead, that can also be a legitimate outcome rather than a failure, and we are not arguing that every project in this position should have proceeded. Some are declined by the communities affected through a sound process, which is at times the right result. The losses described earlier come from a different situation, where a project stalls after trust has broken down, commitments have gone unmet, and decisions have been made badly. So to reiterate, for us in Reos Partners, our concern is the quality of the process behind a decision, whether that decision is to proceed, to pause, or not to proceed at all.

Closing

The patterns described here will not be new to people working in the sector, but the real question is whether it can organise itself to act on what it knows. We have heard versions of this conversation for two decades, and the structural answers have not arrived at scale. What is different now is the urgency, the scale of demand, and the price tags attached to getting it wrong. The economics of doing nothing are less defensible than they were even five years ago and investment decisions are starting to reflect that.

These patterns are not fixed but are produced by structures, and the good news is that structures can be changed. The change will need to be systemic and collaborative, because no single actor can resolve dynamics that all of them are part of. That is demanding yet possible work, and the conditions for it are better now than they have been for some time. We would value the conversation.

About the Authors

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About Reos Partners

Founded in 2007, Reos Partners works with leaders and organisations to address complex, systemic challenges.

Our proven approach enables transformative collaboration in even the most highly complex, uncertain, and polarised situations, creating practical pathways for developing, implementing, and institutionalising equitable and durable solutions.

Having worked in over 80 countries, we are committed to advancing effective and inclusive collaboration on the most critical global challenges.

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