



Strategic Paris Agreement Alignment (PAA) for Major Infrastructure

Target: Multilateral Development Banks (MDBs), Project Team Leaders (PTLs), and National Transport Authorities.

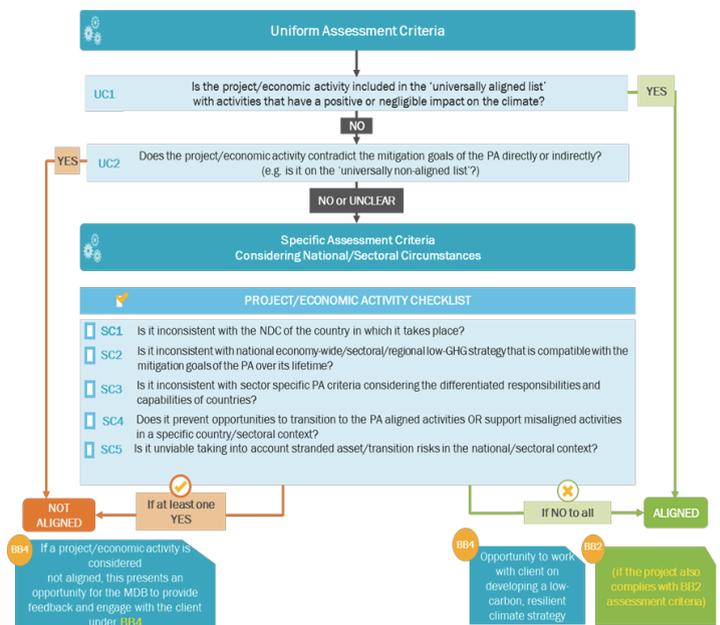
Executive Summary

MDBs are now mandated to ensure 100% of new operations are aligned with the Paris Agreement. However, standard consulting often fails to provide the granular, project-level data needed to prove consistency with low-carbon (Building Block 1 - Mitigation) and climate-resilient (Building Block 2 - Adaptation) pathways. Using the Siddhartha Highway in Nepal as a definitive Proof of Concept, ORIS demonstrates how a four-component digital framework transforms "high-risk" mountainous infrastructure into a "Pre-Aligned" model asset. By leveraging digital twins and automated climate downscaling, we provide a step-by-step roadmap for MDBs to qualify and quantify their climate finance impact.

The Challenges

Transport projects in complex terrains like Nepal face a fundamental "Paris Alignment" paradox and require moving beyond broad country averages:

- 👉 The Granularity Gap:** Traditional assessments often provide broad regional warnings. Engineering decisions require meter-by-meter data tailored to the project type and location.
- 👉 The Construction-Operation Trade-off:** High-carbon engineering (tunnels, viaducts) is often required for resilience but can appear non-aligned with mitigation goals if long-term operational fuel savings aren't precisely quantified against a "Business as Usual" baseline.
- 👉 Policy Misalignment:** Failure to link project specifications to the host country's Nationally Determined Contributions (NDCs) and Long-Term Strategies (LTS) can lead to project rejection during appraisal.





The ORIS Solution: A Four-Component Framework

<p>01. Precision Climate Screening & Downscaling</p> <p>Tailored hazard identification downscaled to 1 km², integrating local historical records with CMIP6 models to map risks precisely across the alignment, prioritising interventions exactly where needed.</p>	<p>02. Prevention of Maladaptation & Better Adaptation</p> <p>Leveraging the ORIS Global Adaptation Database (700+ measures) to prescribe structural and nature-based solutions tailored to the project, preventing maladaptation and enhancing long-term asset durability.</p>	<p>03. Optimised Mitigation Strategy & Scenario Modelling</p> <p>Digital LCA models Business-as-Usual against optimised scenarios over the full service life, quantifying how upfront construction carbon (tunnels, viaducts) is offset by long-term traffic-emission savings.</p>	<p>04. Paris Agreement Alignment Verdict</p> <p>A structured assessment following MDB methodologies (BB1 & BB2), proving strategic consistency with NDC and LTS goals and demonstrating a direct, quantified link between risks and funded measures.</p>
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Key Benefits & Quantifiable Impact

Geographic Specificity

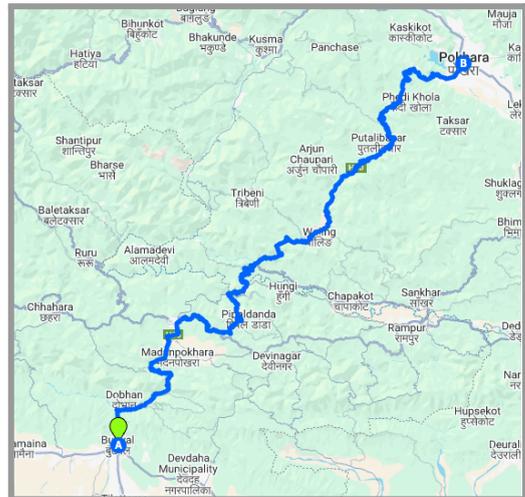
Solutions are not generic but tailored to local geography and the project's specific engineering needs.

Unlocked Climate Finance

Precisely quantifies the CAPEX attributable to alignment, enabling transparent tagging (e.g., the USD 398M mitigation finance identified in the Siddhartha project).

Accelerated Due Diligence

Digital scenario modelling reduces the time from concept to board approval.



Conclusion

The Siddhartha Highway project, a mountainous corridor involving significant tunnelling and viaducts, presented an apparent mitigation paradox: high upfront construction carbon versus long-term resilience gains. Applying the four-component framework in collaboration with the Asian Infrastructure Investment Bank (AIIB), ORIS resolved this trade-off with precision. Results are 2,381 kTCO₂eq in traffic-emission savings over 20 years, offsetting the full construction footprint of tunnels and viaducts, USD 398M in mitigation finance identified and tagged, and demonstrate Paris Agreement alignment with MDB standards (BB1 & BB2).

