D4S Insight Report B.1

Tropical peatlands and carbon emission reduction investments

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The enormous carbon emissions from millions of hectares of drained tropical peatland in SE Asia have attracted interest from investors for many years. However, existing peatland restoration projects aiming to reduce emissions are still limited in number, and their carbon emission reduction impact is sometimes questioned. So why are there no greater investments in large-scale and highly effective peatland restoration projects?

Some considerations based on our experience and insights:

What makes tropical peatland restoration attractive compared to other carbon projects?

Several characteristics differentiate peatland restoration from other nature-based solutions:

- Scale of emissions: over 250 Mt CO_2e/year from SE Asia alone—comparable to mid-sized national emissions.
- Biodiversity co-benefits: Tropical peat swamp forests harbour over 1,500 plant species and critical endangered fauna, supporting premium credit pricing (see Insight Report B.2).
- Lateral rewetting: water tables are raised up to 2 km beyond the intervention boundary, extending emission reductions beyond the project area (see Insight Report B.2).
- Measurability: Water table depth provides a direct, measurable proxy for emissions, enabling robust WTD-based MRV systems (see Insight Report A.2).
- Future opportunity: Millions of hectares are approaching the flooding threshold, making restoration an economically rational choice (see Insight Reports A.1, A.5).

What are the main obstacles to large scale investments in tropical peatland restoration?

Current investments into tropical peatland restoration are often considered to be below their potential. The main obstacles may be summarized as follows:

Opportunity cost: many drained peatlands produce crops, and others that do not are still considered by some to potentially become productive in future. This adds substantial cost to peatland restoration where this involves giving up (potential) production.

Failure risk: in the less controlled parts of SE Asia, there have been large scale peatland fires as well as unplanned drainage developments. Where this happens in a restoration project area, carbon emission reduction may be undone and no 'credit' can be claimed. However, overall these issues have decreased sharply in the last 10 years.

Monitoring complications: tropical peatlands, even when deforested, have dense vegetation cover which complicates satellite measurements of subsidence (as a measure of carbon loss) and water table depth (that drives carbon loss). This reduces the confidence in verification of emissions reductions. However, new hybrid ground + satellite approaches can overcome this (see Insight Reports A.2 and A.3).

Additionality: Government moratoriums on peatland drainage exist but exclude existing concessions and are inconsistently enforced. This creates complexity in additionality arguments, and carbon emission reduction credit claims by restoration projects.

Tenure: Overlapping land claims are common in recently opened peatland areas with no prior recorded ownership. Clear tenure needs to be ensured for any credible carbon project.

Leakage: Proving that restoration in one area does not cause degradation elsewhere is difficult, especially considering the large number of smaller unregulated plantations.

Reputation: Intense scrutiny of carbon offset quality, particularly for tropical forest projects, has made investors cautious. Suggestions of over-crediting by Verra and others have depressed market confidence.

Credit prices: Due to the above uncertainties, voluntary market prices for tropical peatland credits typically remain below $\$10/tCO_2e$, compared to above $\$20/tCO_2e$ for European peatland projects.

Who is currently investing in tropical peatland restoration?

Three investor groups are most active, each with different motivations and risk profiles:

- Companies sourcing palm oil, paper, and rubber from SE Asia invest to decarbonise their supply chains and move towards Net Zero commitments. Examples include Unilever, Nestlé, and Procter & Gamble. They tend to invest in Landscape Approaches—creating buffer zones around source plantations to prevent fires and reduce emissions across the supply landscape. Their investment scale tends to be modest but consistent.
- Companies in hard-to-decarbonise sectors seek large offset volumes to balance residual emissions. Examples include Shell, BP, and Eni. These companies often employ in-house science teams to verify emission reduction claims, giving them higher risk tolerance than other investors.
- Specialised funds allow institutional investors to access carbon credits through diversified portfolios. This spreads the project-specific risks (fire, tenure, additionality) across multiple investments, reducing exposure for individual investors.

What other investors could be a good match for tropical peatland restoration?

- A notably absent group is the Big Tech companies—Google, Amazon, Microsoft, Meta. Since the rapid expansion of energy-intensive AI and data centre operations, these companies face growing carbon emissions of tens to hundreds of megatonnes per year, yet they have announced ambitious Net Zero or carbon-negative targets for 2030–2040. Some have already invested in peatland restoration, but mostly in Europe and at small scale (<1,000 ha)—possibly testing the approach before considering larger commitments. Given the offset volumes required by this industry, tropical peatland restoration remains one of only a few nature-based solutions that could deliver at the scale needed.
- Multilateral development banks (ADB, World Bank/IFC) and bilateral climate funds (Norway NICFI, UK FCDO, Germany KfW) have existing peatland programmes in Indonesia. These offer concessional finance, technical assistance, and blended finance structures that can de-risk private investment. Projects with strong scientific foundations are better positioned to access these funding streams.