This is a new section of the Public-Private Partnership Resource Center website and is currently in draft form. Your feedback is welcome: If you would like to comment on the content of this section of the website or if you have suggestions for links or materials that could be included please contact us at ppp@worldbank.org.

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Environmental picture

ERC Activity Risk

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On this page: *Operational and reputational risks of ERC are relatively manageable mainly through good activity design and development. Read more below, or visit Strategic Guidance for Country System Assessments, Guidance for Countries in Assessing ERC Projects, or Mobilizing ERC Finance.*

The ability of an ERC activity to produce ERCs and bring them to market underpins all ERC financing, but operational and reputational risks are relatively manageable mainly through good ERC activity design and development. Operational risk is defined as the risk that an ERC transaction may result in a financial loss for the investor due to factors at the ERC activity level. This is also referred to as supply-side or project delivery risk, or the risk that an ERC activity fails to deliver (or underdelivers) ERCs due to a combination of technical, environmental, financial, and social challenges, and commercial environment challenges such as construction permitting that are not specific to ERC markets and activities. Additionally, investors may hesitate to invest in an ERC activity due to reputational risk of being associated with a poor project, particularly of being associated with projects with poor stakeholder engagement or benefit sharing.

A few challenges are particularly salient for ERC activities and potential financiers, including:

- Stakeholder engagement is critical for ERC activities to operate since most—notably including community-based activities, nature-based solutions, or most activities in EMDEs—depend on land or other resources owned or used by local stakeholders. Best practice stakeholder engagement can also improve the quality of ERCs generated and help minimize market risk.
- There is a high degree of technical complexity to the methodologies employed by an ERC activity and implementing ongoing management and MRV of an ERC activity to the high standards of quality and integrity required by the market.
- Physical risks such as floods, wildfires, earthquakes, and other acute events can damage necessary infrastructure or natural assets required to generate ERCs.

1. Local stakeholder engagement and benefit sharing

Activity-level operational and reputational risks can be mitigated by engaging early with key stakeholders, including Indigenous Peoples and local communities (IPLCs), to strengthen project design and implementation. Early engagement is a crucial strategy in mitigating risk through ensuring that the right voices are represented and considered throughout the ERC activity lifecycle. This can make ERC activities and outcomes more meaningful and worthwhile for the affected stakeholders, thereby mitigating risks around activity non-permanence, leakage, and integrity. Further, engagement with IPLCs can promote greater transparency, accountability, appropriate use of local knowledge, and consensus building.[1] Early engagement may take the form of comprehensive free, prior, and informed consent (FPIC) processes, activity co-design

and implementation to ensure community preferences and expectations are incorporated, and participatory design of benefit sharing mechanisms to maximize activity stakeholder value.

Implementing best practice benefit sharing mechanisms can enhance activity value for a wider range of stakeholders, including IPLCs, which can in turn mitigate potential reputational risk and can attract higher ERC prices **(**Box 3**).** In seeking to design strong benefit sharing mechanisms, project proponents can engage with IPLCs and relevant government actors to co-design and distribute benefits in line with best practice.[2] At the activity level, benefit sharing can make activities more meaningful for a wide range of stakeholders beyond transaction parties, which can in turn mitigate activity delivery risks, such as non-permanence and leakage, as well as reputational risks posed by perceptions of inequitable outcomes. Separately to government-led benefit sharing, see Credit Risk in ERC Finance Transactions, benefit sharing can be driven by the increasing demand for high-integrity ERCs especially as investors and buyers look to keep pace with growing scrutiny and requirements for high integrity. This is particularly relevant in the VCM, where activities with strong co-benefits including benefits sharing are likely to attract higher ERC prices. For example, the WithOneSeed community forestry project in Timor-Leste states that its incentive payments can double the annual incomes of subsistence-farming families and it sold out on the Gold Standard Marketplace with a final price of \$45 / tCO_2e,[3] while the average OTC ERC unit price was \$6.83 / tCO_2e in 2022.[4] Benefit sharing mechanisms can include but are not limited to (1) monetary benefits arising from the sale of ERCs shared with IPLCs; (2) employment opportunities for IPLCs leading to greater income stability and skills development; and (3) financing of community initiatives with a variety of social and environmental impacts, designed in consultation with community leaders and other stakeholders.

Box 3

Case of The International Small Group & Tree Planting Program (TIST).[5]

TIST is a community-based reforestation program active in Kenya, Tanzania, Uganda, and India that provides smallholder farmers with resources, training, and financial incentives to plant and manage trees on their own land, maintaining ownership of the trees. Participating farmers sign a contract to maintain the trees they plant for 30 years and have the freedom to choose when, where, and which species of tree to plant according to their needs. Since 1999, TIST has benefited over 170,000 farmers who have collectively planted more than 25 million trees and sequestered over 9 million tCO_2e.

Upon joining the TIST program, farmers are organized into small groups with a rotating leadership model that promotes gender equality and capacity development. Female empowerment is core to the program's objectives, with women representing nearly half of participating farmers. Training sessions are open to all participants, and women are actively encouraged to pursue leadership roles as part of the program. The training program covers topics beyond tree planting and maintenance, such as seed nurseries, fuel-efficient cookstoves, health education, and conservation farming practices to enhance yields and improve food security. In addition, TIST employs local staff to quantify and monitor tree planting and maintenance efforts in their community. Collected data is later verified by a third party and made publicly available.

The strength of TIST's benefit sharing approach has directly benefited the program financially – as of June 2023, the program was selling ERCs at a premium price of \$35/ton.[6] Farmers receive an annual carbon pre-payment for each tree that is planted and maintained each year, in addition to 70% of the net profit from the sale of ERCs generated by those trees (in the form of direct cash payments). Each tree planted also brings a variety of non-carbon benefits to farmers in the form of fruits, fodder, fuel, shelter, shade, and other benefits, equivalent to more than \$8 per tree.

2. Project preparation support

Project preparation support can reduce activity-level risks by strengthening ERC activity design and implementation. This type of early-stage support can help nascent ERC activities with a range of design and preparation activities, such as technical feasibility and design activities such as baselining; navigating and meeting complex domestic and international legal and regulatory requirements; and enhancing activity co-benefits, including benefit sharing arrangements. Project preparation support also has spill over capacity building benefits that can help reduce activity-level risks for future ERC activities designed and implemented by the same project proponents. Several types of entities provide this kind of support, including governments, DFIs, non-governmental organisations (**NGOs**), and investors. Many entities that provide technical assistance do so in part to gain access to high-quality investment opportunities and may provide follow-on investment.

3. Operational insurance

Insurance products that cover ERC activities and ERC delivery are currently limited, but insurance companies are starting to enter the market. A key challenge is simply that insurers are still trying to understand how to engage with ERC markets, including defining what hazards or liabilities they are covering, and the level of risk and potential losses being covered. In general, the pricing of insurance products also remains high compared to the market price for ERCs. Nonetheless new insurance products designed for or particularly relevant for ERC activities include:

- Parametric insurance uses specific, pre-determined thresholds such as rainfall, wind, or temperature levels to trigger payouts that cover damages due to natural disasters or other physical risks. This type of insurance could cover losses for both ERC activities and ERC investors. For example, Descartes developed a parametric insurance product that offers protection against wildfire risk using a combination of satellite imagery, long-term climate patterns, and weather data.[7] This was used by a timber investment management organization in New South Wales, Australia, where increasing wildfire risk threatens to negatively impact the significant ERC inventory generated by the company's forest plantation. With Descartes' parametric insurance, in the event that a wildfire burns 10,000 acres out of the insured 50,000-acre area, the company would receive AUD 10 million in compensation.[8]
- ERC invalidation insurance provides coverage of financial losses in the event that ERCs are invalidated by a relevant authority. Howden, Respira International, and Nephila Capital collaborated to launch the world's first carbon credit invalidation insurance product in September 2022, which seeks to increase confidence in the voluntary carbon market by covering the risk of third-party negligence and fraud.[9] Parhelion and Volante offer similar insurance products to fund the purchase of replacement ERCs.[10,11]
- ERC delivery insurance is used to cover the risk that an ERC seller does not deliver the agreed-upon number of ERCs to a buyer and can be inclusive of ERC invalidation coverage. While this type of insurance is currently nascent in the market, some companies have emerged over the past year to fill the gap. Oka—an ERC insurance company that launched in early 2023—offers insurance for both ERC buyers and sellers in the event of ERC invalidation or reversal caused by catastrophic events, human-induced events, non-additionality, or fraudulent issuing.[12] Similarly, Kita—a managing general agent within Lloyds, backed by Chaucer, MunichRe, and RenaissanceRe—offers ERC purchase protection cover for buyers of forward-purchased ERCs against ERC delivery risk.[13]
- Technical insurance may be applicable for ERC activities that generate ERCs through technical solutions where the technology has been piloted and tested in the market (e.g., renewable energy solutions, LED street lighting, building energy efficiency, etc.). For example, Allianz provides renewable power insurance for the construction and operation of renewable energy installations, including wind turbines, solar farms, hydropower plants, and short-term operational reserve equipment.[14] Technology-based ERC activities that utilize such insurance products could recover losses in the event that their technological assets are damaged or stolen, individuals or their property are harmed during construction or operation, or other events that negatively affect operations.

Footnote 1: Climate Investment Funds, *Enhancing climate action through stakeholder engagement at the country level*, 2020.

Footnote 2: See, for example, WWF, *Comparative Analysis of Benefit-Sharing Mechanisms in REDD+ Programs*, 2021; IUCN, Guidance for using the Global NBS Standard, 2020; World Bank, Benefit Sharing at Scale, 2012; WRI, *Putting the Pieces Together for Good Governance of REDD+*, 2013.

Footnote 3: Gold Standard, *"WithOneSeed Community Forest Programme"*, 2023.

Footnote 4: World Bank, *State and Trends of Carbon Pricing 2023*, 2023.

Footnote 5: TIST Program, 2023.

Footnote 6: This is in comparison to the average over-the-counter (OTC) price of $6.83/ton identified in the World Bank's *State and Trends of Carbon Pricing 2023* report.

Footnote 7: Descartes, *"Parametric Insurance & Carbon Risk*", 2021.

Footnote 8: Descartes, *"Protecting carbon credits through data-driven insurance solutions*", 2023.

Footnote 9 Howden, *"Howden launches 'World-First' voluntary carbon credit insurances products to help scale the market"*, 2022.

Footnote 10: Parhelion, *California ARB Offset Invalidation Insurance*, 2023.

Footnote 11: Volante Global, *Carbon Offset Credit Insurance*, 2023.

Footnote 12: Oka, 2023.

Footnote 13: Kita, 2023

Footnote 14: Allianz, "Renewable Power Insurance", 2023.

Additional Resources

- UNCITRAL Legislative Guide on Public-Private Partnerships
- World Bank Guidance on PPP Legal Frameworks
- Climate-Smart PPP Legal and Regulatory Framework