



CCQI
Carbon Credit
Quality Initiative

Application of the CCQI methodology for assessing the quality of carbon credits

This document presents results from the application of version 3.0 of a methodology, developed by Oeko-Institut, World Wildlife Fund (WWF-US) and Environmental Defense Fund (EDF), for assessing the quality of carbon credits. The methodology is applied by Oeko-Institut with support by Carbon Limits, Greenhouse Gas Management Institute (GHGMI), INFRAS, Stockholm Environment Institute, and individual carbon market experts. This document evaluates one specific criterion or sub-criterion with respect to a specific carbon crediting program, project type, quantification methodology and/or host country, as specified in the below table. Please note that the CCQI website [Site terms and Privacy Policy](#) apply with respect to any use of the information provided in this document. Further information on the project and the methodology can be found here: www.carboncreditquality.org

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Sub-criterion:	1.1.4 Barriers
Project Type	Improved forest management - Increasing productivity
Date of final assessment:	21 February 2024
Score:	1

Assessment

Relevant scoring methodology provisions

Some mitigation activities are financially viable but still face other obstacles such as information deficits or capacity constraints that hinder their implementation. In some instances, the institutional set-up of carbon crediting projects and the issuance of carbon credits can help to overcome these barriers. The methodology therefore employs an expert judgment on the likelihood that barriers prevent the implementation of a project type and that these barriers indeed can be overcome through the incentives of carbon credits. In arriving at this judgment, the aspects in the following should be evaluated:

Question

Does the project type face considerable non-financial barriers that can be identified in an objective and verifiable manner?

Is it possible to produce objective and verifiable evidence that the identified barriers are unique to the project type and do not apply to alternatives?

Is the market uptake of the technology underpinning the project type low although it is financially viable/competitive?

Can the barriers for this project type not be mitigated by additional financial means (and hence be assessed through the investment analysis)?

Is it possible to produce objective and verifiable evidence that carbon credits are indeed decisive for overcoming the barrier and does the incentive of carbon credits matches the strength of the barrier? (Note that this criterion can be assessed by analyzing the Δ IRR in the analysis of financial viability. The higher the Delta IRR is in relation, the more likely it may be that the revenues from the carbon credits are help overcoming the barriers.)

The scores are applied as follows:

	Score
It is very likely that barriers prevent the implementation of this project type and that the incentives through carbon credits will overcome these barriers.	5
It is very likely that barriers prevent the implementation of this project type and it is likely that the incentives through carbon credits will overcome these barriers. OR It is likely that barriers prevent the implementation of this project type and it is very likely that the incentives through carbon credits will overcome these barriers.	4
It is likely that barriers prevent the implementation of this project type and that the incentives through carbon credits overcome these barriers.	3
It is likely that barriers prevent the implementation of this project type, but it is uncertain that the incentives through carbon credits will overcome these barriers.	2
It is likely that barriers do not prevent the implementation of this project type and that the incentives through carbon credits do not help the project to overcome these.	1

Note that the application of this sub-criterion is optional. This sub-criterion should be used in combination with the sub-criterion on *financial attractiveness*. It may function as an additional criterion for activities where the assessment of the financial attractiveness has shown a high financial attractiveness even without carbon credits.

Information sources considered

- 1 Cerullo, G. R., & Edwards, D. P. (2019). Actively restoring resilience in selectively logged tropical forests. *Journal of Applied Ecology*, 56(1), 107-118.
- 2 Peña-Claros, M., Fredericksen, T. S., Alarcón, A., Blate, G. M., Choque, U., Leño, C., ... & Putz, F. E. (2008). Beyond reduced-impact logging: silvicultural treatments to increase growth rates of tropical trees. *Forest Ecology and Management*, 256(7), 1458-1467.
- 3 Ruslandi, R., Romero, C., & Putz, F. E. (2017). Financial viability and carbon payment potential of large-scale silvicultural intensification in logged dipterocarp forests in Indonesia. *Forest policy and economics*, 85, 95-102.
- 4 Putro, R. N., Yusro, F., Ruslandi, Hardiansyah, G., & Putz, F. E. (2015). Constraints on the harvest of line-planted timber trees in logged and enriched dipterocarp forest in Kalimantan, Indonesia. *Journal of Tropical Forest Science*, 433-438.
- 5 Keefe, K., Alavalapati, J. A. A., & Pinheiro, C. (2012). Is enrichment planting worth its costs? A financial cost-benefit analysis. *Forest policy and economics*, 23, 10-16.
- 6 Schwartz, G., Bais, A. L. S., Peña-Claros, M., Hoogstra-Klein, M. A., Mohren, G. M. J., & Arts, B. J. M. (2016). Profitability of silvicultural treatments in logging gaps in the Brazilian Amazon. *Journal of Tropical Forest Science*, 68-78.
- 7 Congressional research service (2022). *The Tax Deduction for Conservation Easement Contributions*.
- 8 Brown, S. A., Rotman, R. M., Powell, M. A., & Wilhelm Stanis, S. A. (2023). Conservation easements: a tool for preserving wildlife habitat on private lands. *Wildlife Society Bulletin*, e1415.
- 9 American Carbon Registry. *The American Carbon Registry Standard, Version 7.0*.
- 10 Climate Action Reserve. *Forest Project Protocol, Version 4.0*.

Assessment outcome

The project type is assigned a score of 1.

Justification of assessment

Project type

The assessment refers to the following project type:

Improved Forest Management

“Changes in forest management that increase forest carbon stocks, and/or avoid the loss of forest carbon stocks.”

Project Subtype

Increasing productivity (IP)

“Implementing silvicultural techniques that result in increased forest growth, e.g., by cutting climbers and vines, performing liberation thinning, or implementing enrichment planting.”

Issues considered in this assessment

For this project type, both financial considerations as well as non-financial barriers play a substantial role when deciding whether to implement these activities. Therefore, we lay out considerations regarding the financial attractiveness and consider the market uptake before conducting the analysis of non-financial barriers, thereby providing a comprehensive picture of factors that might influence the likelihood of additionality. All three aspects are factored into the overall conclusion on the overall likelihood of additionality.

Please note that our analysis only covers activities that aim to support timber production. We do not consider cases in which activities target forest restoration, i.e., when they have no economic purpose.

Financial attractiveness considerations

The project type involves implementing certain silvicultural techniques to increase forest productivity. Commonly, these techniques are implemented when conventional logging or even reduced-impact logging fail to maintain economically attractive cutting cycles. In these cases, the forest does not regenerate quickly enough to be economically viable. The silvicultural techniques aim to speed up regeneration after a forest has been logged down to increase profitability in the long term (Source 1).

An example of such a technique is liberation thinning. It involves cutting or poisoning vines or non-commercial trees, which can increase the average tree growth. Sometimes, this term also encompasses cutting climbers and vines (Source 1). Pena-Carlos and colleagues (2008) found that these and similar practices can accelerate tree growth by 9%-27%, therefore increasing revenue (Source 2).

Similarly, enrichment planting, i.e. planting seedlings within logging gaps, also aims at increasing the timber volume and therefore the revenue (Source 1). Ruslandi and colleagues (2017) found that in an Indonesian twice-logged forest, enrichment planting increases the net present values substantially compared to natural regeneration. They considered a variety of scenarios and found that for all scenarios but one, the net present value was double or triple as high for scenarios with enrichment

planting than for scenarios natural forest regeneration (Source 3). This is because after enrichment planting, the timber quality is higher and harvesting costs are lower, as the logged area is more specially concentrated (Source 4). However, some studies found that the profitability of enrichment planting is very dependent on the exact modalities of the technique (such as the species) (Source 5).

Existence of non-financial barriers

- *High upfront cost of enrichment planting/ Time lag:* Generally, enrichment planting has high upfront costs (Source 3). Costs accrue since workers need to mark harvest maps with potential planting sites, build a planting nursery, acquire seedlings, tend the nursery seedling, transport of seedlings to planting sites, prepare the planting site (Source 5). The exact costs vary, as they depend on the exact implementation (such as the kind of species). In comparison, the upfront costs for liberation thinning are likely considerably lower (Source 6). Furthermore, there is a considerable time lag until these practices become profitable: Ruslandi and colleagues (2017) found it to be profitable only after the third round of harvesting and beyond (Source 3).
- *Lack of information:* Landowners might be unfamiliar with the practice or have no access to reliable information about the long-term benefits. Furthermore, staff needs to be trained to implement these activities.
- *Practical considerations:* Other barriers that might deter landowners from implementing the activities, such as uncertainty regarding land tenure or an increased risk of fire damage to the trees in some cases (Source 5).

Market uptake of the project type

Silvicultural techniques to increase forest productivity substantially enhance the financial attractiveness of forests in the long-term and are therefore frequently implemented. Keefe and colleagues (2012) point out that enrichment planting has been applied “cross-culturally and from small-to large-scale” (Source 5, p.10). While there is no data on the dissemination of practices to increase forest productivity, they are likely to be widespread.

Overcoming of barriers through carbon credits

The following table assesses the likelihood of carbon finance to contribute to overcoming each of the barriers identified above on a barrier-by-barrier basis:

Barrier	Assessment outcome	Justification
High upfront costs of enrichment planting and time lag	Uncertain	Carbon credits will provide an additional revenue stream that could help overcome this barrier. As research indicates that silvicultural practices to increase forest productivity becomes more profitable in the long term, carbon credits might provide an additional incentive at an earlier point in time. They could furthermore help mobilize investment, as there is a guarantee for some revenue in the future. However, since the revenues from carbon credits are not available before the project start, it is uncertain that if they help overcome this barrier.
Lack of information	Uncertain	Carbon credit revenues could provide the resources to develop materials which could increase the understanding of the benefits of silvicultural practices that increase forest productivity. However, this logic would only apply in cases where the project developer is not at the same time the project owner. Thus, it is uncertain to what degree carbon credits are decisive for overcoming this barrier.
Practical considerations	Unlikely	Carbon credit revenues cannot address uncertainty regarding land tenure nor the additional risk of fire. Thus, this barrier cannot be overcome through carbon credit revenues.

Special circumstances – Conservation easements in the US

‘Conservation easements’ are incentive mechanisms for ecological objectives in the US, which can increase a project’s economic attractiveness substantially. We therefore include them in our analysis of additionality for IFM projects in the US.

A conservation easement is a legal agreement under which private landowners voluntarily transfer certain land use rights to a conservation easement holder, such as a trustee or the government. A conservation easement is concluded with the aim of fulfilling certain conservation objectives, such as protecting trees or geological resources. Each conservation easement has its own specific terms. They can prescribe a variety of activities, from limiting the frequency of harvesting, to requiring certain management practices. In return, private landowners receive a remuneration in the form of substantial income tax reductions of up to 50% (or 100% for ranchers and farmers). These may be spread out over several years and may vary depending on the federal state or jurisdiction (Source 7, Source 8).

Due to the substantial financial benefits of conservation easements, they can make a project financially attractive without carbon credits. They therefore decrease the likelihood that a project activity is additional, if this activity is required by the conservation easement.

It is important to note that the two major carbon crediting programs that offer carbon credits from IFM projects in the United States, American Carbon Registry (ACR) and Climate Action Reserve (CAR), both restrict projects with long-standing conservation easements, as they consider them to be a legal requirement. Projects are not considered additional if the easement was recorded more than one year prior to the project’s start date (Source 9, Source 10). However, they still permit newly concluded conservation easements. Thus, conservation easements are still a relevant consideration when assessing the additionality of IFM projects registered under ACR and CAR.

The Verified Carbon Standard (VCS), which also offers carbon credits from production to conservation projects in the US, has no provisions regarding conservation easements.

Conclusion

Increasing productivity management practices are widespread and are likely to greatly improve the financial viability of logging operations in the long term. Thus, it is very likely that while there are some barriers, they do not prevent the implementation of this project type. Therefore, we score this activity with 1.

Furthermore, we generally lower the scoring by two points if there is a conservation easement in place. A conservation easement constitutes a *de facto* subsidy for landowners and is therefore a substantial income in the project scenario, which reduces the likelihood of additionality. As there is no score lower than 1, we score the likelihood of additionality for this activity in this case also with 1.