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:	**1.1.3 Financial attractiveness**
Project Type	**Improved forest management – Production to conservation**
Date of final assessment:	**21 February 2024**
Score:	**Projects in the US (with conservation easement that requires the project activity): 2** **Projects in the US (without conservation easement that requires the project activity): 4** **Projects in other countries: 4**

Assessment

Application of the scoring methodology in the context of this project type

The CCQI methodology assesses the financial attractiveness of an individual project or a project type to estimate the likelihood that economic actors would normally not pursue the respective mitigation activity without carbon market revenues.

The CCQI methodology considers three factors in its assessment: the financial attractiveness without carbon credit revenues, the change in financial attractiveness due to carbon credit revenues, and the financial attractiveness with carbon credit revenues. To implement this approach, the methodology uses three indicators: the internal rate of return (IRR) without carbon credit revenues (indicator 1.1.3.1.), the change in the IRR due to carbon credit revenues (indicator 1.1.3.2.), and the IRR with carbon credit revenues (indicator 1.1.3.3.).

However, this type of analysis is not suitable for the project type 'avoided deforestation' and some subtypes of the project type improved forest management (IFM), as they typically do not involve a major investment at the start of the project. In contrast, they entail that an activity is not pursued (e.g., a forest is not deforested or degraded) or that an ongoing practice is changed (e.g. a change in forest management practice). In these cases, the most relevant consideration for financial attractiveness is what economic activity would be conducted in the absence of the project (baseline scenario), and how revenues and costs compare between the project and the baseline scenario.

We therefore deviate from the CCQI methodology to reflect the specific circumstances of these project types. As a first step, we implement a cost comparison analysis to assess the financial attractiveness, which substitutes for the analysis for indicator 1.1.3.1 of the CCQI methodology. This type of assessment takes into account the costs and revenues of the project scenario as well as of the baseline scenario.

As a second step, we further discuss the influence of carbon credit revenues on the financial attractiveness of the project (sub-)type. This analysis substitutes the assessment of indicators 1.1.3.2 and 1.1.3.3 in the CCQI methodology. If the carbon credit revenues have a strong influence on changing the financial attractiveness of an activity, it is more likely that they are critical in making the activity financially viable.

Cost comparison analysis

As a first step, we assess the difference in the financial attractiveness between the project scenario (without carbon credits) and the baseline scenario. We assume that the greater the difference between the two scenarios, the more likely it is that the baseline scenario would have occurred in the absence of carbon revenues. Consequently, a project is more likely to be additional. Our analysis is based on relevant scientific literature.

Since the decision to proceed with a project is made by the project developer, we focus on their costs and revenues. However, in some instances, such as projects reducing deforestation, the costs and revenues of relevant stakeholders (such as landowners and local communities) may be taken into account, since they may influence the decision to proceed with a project.

Project scenario- Costs and revenues while implementing the project

We consider the costs and revenues associated with implementing relevant activities. Implementation costs include investment costs (CAPEX) and operational expenditures (OPEX) associated with implementing the project activities. These may include expenses for planning, job training, infrastructure or machinery. Since the analysis compares scenarios without the impact of carbon credits, all transaction costs related to generating carbon credits are not considered.

Revenues include income from timber harvest, sale of other forest products or other economic activities, such as tourism. Other revenues may include subsidies or other financial incentives from policies.

Baseline scenario - Profits that would accrue in the absence of the project (opportunity costs)

The baseline is an 'alternative universe' in which the project activity does not take place. Thus, to evaluate the baseline scenario, we consider the profits that were foregone by employing the project activity, i.e., the foregone revenues minus the forgone costs. Scientific literature refers to these foregone profits as 'opportunity costs'. We adopt this term for this analysis.

The opportunity costs of forest-related projects depend on the land use in the absence of the project. Depending on the type of project, these could include foregone revenues from land conversion, such as agriculture and livestock, as well as revenues generated by harvesting the forest, such as the sale of timber or other forest products. We do not consider foregone employment in the region or changes in livelihood for local communities.

Impact of carbon credits

In a second step, we analyse the impact of carbon credits on the financial attractiveness of the project type. To do this, we consider what the typical total costs of the project type are, and how high the average carbon credit price for that project type is in comparison. If it is likely that the revenues from carbon credits are high enough to turn a project of the project type from financially unattractive to attractive, it increases the likelihood that the project type is additional.

Information sources considered

1 Congressional research service (2022). The Tax Deduction for Conservation Easement Contributions.

2 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.

3 American Carbon Registry. The American Carbon Registry Standard, Version 7.0.

4 Climate Action Reserve. Forest Project Protocol, Version 4.0.

5 American Carbon Registry (2023). Registry. Available at: https://acrcarbon.org/registry/

6 Climate Action Reserve (2023). Public registry. Available at: https://thereserve2.apx.com/mymodule/mypage.asp

7 Verified Carbon Standard. VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest, Version 1.3.

8 Verified Carbon Standard. VM00012 Improved Forest Management in Temperate and Boreal Forests (LtPF), Version 1.2.

9 Climate Action Reserve, Climate Action Reserve Forest Project Protocol, Version 4.0.

10 Climate Action Reserve, Climate Action Reserve Mexico Forest Protocol, Version 3.0.

11 American Carbon Registry, Improved Forest Management in Non-Federal U.S. Forestlands, Version 2.0.

12 Yang, H., & Li, X. (2018). Potential variation in opportunity cost estimates for REDD+ and its causes. Forest Policy and Economics, 95, 138-146.

13 Cubbage, F., Rubilar, R., Mac Donagh, P., Kanieski Da Silva, B., Bussoni, A., Morales, V., Balmelli, G., Hoeflich, V., Lord, R., Hernández, C., Zhang, P., Ha Tran Thi Thu, Yao, R., Hall, P., Korhonen, J., Luis Díaz-Balteiro, Roque Rodríguez-Soalleiro, Davis, R., Chudy, R., De La Torre, R., Lopera , G. Somvang Phimmavong, Garzón, S., & Cubas-Baez, A. (2022). Comparative global timber investment costs, returns, and applications, 2020. Journal of Forest Business Research, 1(1), 90-121.

14 Pukkala, T. (2020). At what carbon price forest cutting should stop. Journal of forestry research, 31, 713-727.

15 van Kooten, G. C., & Johnston, C. M. (2016). The economics of forest carbon offsets. Annual Review of Resource Economics, 8, 227-246.

16 Ecosystem Marketplace (2021). A Green Growth Spurt – State of Forest Carbon Finance 2021.

Assessment outcome

The scoring for this project type can be taken from the following table:

Table 1 Scoring for IFM – production to conservation projects

		Score
Projects in the US	With conservation easement that requires the project activity	2
	Without conservation easement that requires the project activity	4
Projects in other countries		4

Justification of assessment

Project type

The assessment refers to the following project type:

Improved Forest Management

“Implementing forest management practices that aim to increase and/or avoid the loss of carbon stocks.”

Project subtype - Production to conservation (PC)

"Shifting from forest management for timber production to management for conservation. Harvesting of trees for conservation purposes may continue."

Cost comparison analysis

Project scenario – Cost and revenues

a) Revenues in the project scenario

There are likely to be little to no revenues from the sale of timber or other forest products, as harvesting under this project type is, per our definition above, only to be done for conservation purposes. There may be some revenues from economic activities such as local tourism.

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 1, Source 2).

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 3, Source 4). 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.

b) Cost of implementing project activities

Since there are no specific activities prescribed under any of the major methodologies used for this project type[1], projects may implement a range of different activities. They may include harvesting for

[1] VM00010, VM0012, CAR U.S. Forest, CAR Mexico Forest and ACR IFM on non-federal U.S. Forest Land (Source 7, Source 8, Source 9, Source 10, Source 11).

conservation purposes, fire prevention, measures for biodiversity conservation or providing recreational activities (own analysis of IFM, ACR and CAR projects based on Source 5, Source 6). This makes it difficult to estimate costs for implementing these activities. Thus, the cost of implementing production to conservation projects may vary substantially.

Baseline scenario - Profits that would accrue in the absence of the project (opportunity costs)

In the baseline scenario, timber production would have continued. Therefore, the landowner is foregoing profits from the sale of timber. While literature suggests that foregone profits from timber is lower than from converting the land to use it for other purposes (Source 12), exact estimates vary substantially. This is because revenues from timber harvesting depend on a variety of factors, such as species, geographic circumstances, the specific characteristics of each project as well as methodological differences in deriving estimates in the underlying calculations. The analysis of Cubbage et al. (2022) underlines this: They determined profitability of different timber plantations in 16 countries for 47 species and found substantial variety. In the countries where IFM projects are mostly implemented, i.e., the US, China and Mexico, the internal rate of return in 2017 ranged for the US between 0 and 10% (based on nine data points), for Mexico between 11.3-20.1% (based on four data points) and for China between 7.9 – 31.5% (based on two data points) (Source 13).

However, while empirical research on opportunity costs leads to varying results, it strongly indicated that the opportunity costs of a cessation of harvesting are higher than a mere reduction of harvesting intensity (Source 14).

Impact of carbon credits on the projects' financial attractiveness

To assess the impact of carbon credits, we would need to compare the total project cost per ton of CO_2 to the carbon price. However, since there is no dataset that contains information specifically on the total cost of production to conservation projects and the corresponding carbon price, we use scientific literature and aggregated price data for IFM projects.

Modelling suggests that the carbon price required a complete cessation of harvesting is comparatively high. For example, Pukkala estimated the CO_2 price for a complete cessation of harvesting operations in Finland to be at EUR 40.90 (Source 14). Similarly, a study by van Kooten and Johnston (2016) found that to stop all harvesting in interior and boreal forest, a carbon price of more than USD 50 was needed to cease all logging (Source 15).

According to a report by Ecosystems Marketplace, the price in the voluntary carbon market for carbon credits from IFM projects in 2019 ranged between USD 6.54 and USD 18.84 (Source 16) [2]. This would imply that carbon prices are less than half of what would be needed to cover the costs of a complete cessation of harvesting. This suggests that while the carbon price may be sufficient to incentivise a reduction in harvesting, it is unlikely that the carbon price would lead to a complete stop of harvesting operations, as would be required for this project activity.

Conclusion

Table 2 gives an overview of the cost comparison analysis:

[2] These are the most recent estimates; there is no time series data available.

Table 2 Summary table – Cost comparison analysis production to conservation

Revenues in the project scenario	Costs of project implementation	Opportunity costs (foregone profits that would be accrued in the baseline scenario)
No revenues from the sale of timber, maybe revenues from activities such as tourism	Possibly cost of conservation activities	Foregone revenues, which vary depending on a variety of factors. However, since the project activity requires a complete cessation of harvesting, opportunity costs are likely high

The results can be summarized as follows: In the project scenario, implementation costs are uncertain, and there are little to no revenues. In the baseline scenario, the foregone profits vary considerably, depending, inter alia, on the species and geographic location. However, since the project activity requires the complete cessation of harvesting, opportunity costs are likely to be high.

Thus, the cost comparison analysis suggests that there is likely to be a difference in costs between the project scenario and baseline scenario, which strongly depends on the extent of the opportunity costs. This would indicate a high likelihood of additionality. However, carbon credit revenues are unlikely to be high enough to lead to a complete cessation of harvesting. Thus, we apply an expert judgement and score this activity with 4.

Furthermore, we 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.

Therefore, we differentiate our scoring in the following way:

Table 3 Scoring for IFM – production to conservation projects

		Score
Projects in the US	With conservation easement that requires the project activity	2
	Without conservation easement that requires the project activity	4
Projects in other countries		4