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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Criterion:	**1.2 Vulnerability**
Project type:	**Commercial afforestation**
Date of final assessment:	**21 February 2024**
Score:	**Assessment of market functioning: The CDM market for establishment of natural forests projects is deemed to be collapsed. For the ACR, CAR, GS and VCS it is deemed to be functioning.** **Vulnerability score for the CDM: 3**

Assessment

Relevant scoring methodology provisions

In market situations where the supply of carbon credits from already registered and implemented projects considerably exceeds the current and expected future demand for carbon credits, the purchase of carbon credits does not necessarily trigger further emission reductions. The methodology therefore evaluates for carbon credits in collapsed markets whether the projects would continue to reduce GHG emissions even without carbon credit revenues, or whether they are at risk of discontinuing GHG abatement without these revenues. In the latter case, they are classified as vulnerable projects. The methodology employs a stepwise approach for assessing the vulnerability of the respective project type or individual project:

Step 1: Evaluate whether the relevant market of the carbon credit can be characterized as collapsed (see methodology for further details). Note that currently, this situation only applies the CDM.

Step 2: Identify potential continuation and discontinuation scenarios. If applied on the project type level a representative sample of projects can be assessed.

Step 3: Evaluate how applicable legal requirements affect the feasibility of the scenarios identified in step 2. Apply this step to both continuation and discontinuation scenarios. Remove scenarios that could not be pursued due to applicable laws and regulations. This step may be applied at project or project type level in the context of a specific host country or at the level of the carbon crediting program (see methodology for further details).

Step 4: Assess financial benefits and costs and rank the remaining scenarios in order of their financial attractiveness by performing a cost-benefit analysis of each scenario. The financial attractiveness of a project depends on whether its income exceeds the operational expenditure in the absence of carbon credits. Only OPEX and benefits are therefore considered in the analysis. Exclude costs and benefits that occur under all scenarios in a uniform manner.

Step 5: Assess whether any of the scenarios faces non-financial barriers that exclude it from being the course of action. For conducting the barrier assessment, the same approach described in section 1.1.4 is applied using an expert judgement. Remove all scenarios that face non-financial barriers and are scored at 5 or 4 from further consideration.

Step 6: Determine the most likely project scenario. The highest ranked remaining scenario is the likely course of action. If this is a continuation scenario, the project is deemed to have a low vulnerability to discontinue GHG abatement (score of 1). If the scenario is a discontinuation scenario, and it is either the only remaining scenario or any other scenarios are financially significantly less attractive, then the vulnerability is deemed to be high (score of 5). In other instances, e.g. where a continuation and discontinuation scenario may be equally plausible, no clear conclusion can be drawn on vulnerability (score of 3).

Degree of Vulnerability	Score
High Vulnerability	5
Vulnerability not conclusive	3
Low Vulnerability	1

Information sources considered

1 Cames, M., Harthan, R. O., Fussler, J., Lazarus, M., Lee, C. M., Erickson, P. and Spalding-Fecher, R. (2016). *How Additional Is the Clean Development Mechanism? Analysis of the Application of Current Tools and Proposed Alternatives*. CLIMA.B.3/SERI2013/0026r. Prepared for DG Clima by Oeko-Institut, INFRAS, Stockholm Environment Institute (SEI), Berlin. https://ec.europa.eu/clima/sites/clima/files/ets/docs/clean_dev_mechanism_en.pdf

2 Warnecke et al. (2019) Robust eligibility criteria essential for new global scheme to offset aviation emissions – Supplementary information https://static-content.springer.com/esm/art%3A10.1038%2Fs41558-019-0415-y/MediaObjects/41558_2019_415_MOESM1_ESM.pdf

Assessment outcome

The project type is assigned a score of 3.

Justification of assessment

The assessment is applied at the level of the project type. The project type is defined as follows:

"Establishment of a planted forest on non-forest land areas that are ecologically appropriate for forests, excluding naturally non-forested biomes, semi-natural grasslands, as well as the boreal region due to albedo-effects. Since the forest may be used for commercial purposes such as timber harvesting, the tree species composition may differ from the natural forest type in the area. This project type neither includes the establishment of agroforestry and marine coastal ecosystems, such as mangroves, nor the management of the project area through community forestry. The project type removes greenhouse gases by increasing forest carbon stocks and possibly carbon stored in harvested wood products."

Analysis according to the methodology

Step 1: Per the guidance in the methodology the CDM market is collapsed. All other markets are considered functioning.

Step 2: The following continuation or discontinuation scenarios are identified:

- Scenario 1: Removal activity continues as originally designed and implemented at the same scale, as project owners will continue to tend to the forest, to be able to harvest wood products as scheduled at later years of the project.

- Scenario 2: Removal activity continues but at a smaller scale as project owners sell part of the land or use it for another revenue generating purpose, while continuing regular harvesting of wood products to generate revenues in the remaining forest.

- Scenario 3: Removal activity continues but project owners will expedite the first harvest on the property to generate revenues required for continuing maintenance activities on the project site. This leads to less carbon stocks than initially planned for during the project duration.

- Scenario 4: Removal activity discontinues as project owners harvest the full forest once to monetize the wood products but discontinue further afforestation activities and abandon or sell the land.

- Scenario 5: Removal activity discontinues as project owners will clear (harvest or slash and burn) the forest to use the land for different revenue generating purposes (e.g., agriculture or livestock farming).

Step 3: While it is unlikely that general legislation exists that directly mandates commercial afforestation activities, it is possible that in some cases afforestation or reforestation activities are conducted in response to legal mandates. This can occur for example if rezoning or repurposing of land areas mandate different land use activities, such as forestry.

For this reason, there is a possibility that new legal mandates are introduced or that existing legal mandates are enforced during the course of the crediting periods. In this case, the removal activity might continue. It is difficult to assess, however, how often such a situation could occur. As there is no conclusive outcome on this step, the following steps are applied.

Step 4: A ranking of scenarios is not possible without knowing the project context. Scenario 1, scenarios 2-3 and scenario 5 might establish a stream of stable revenues for project owners over the long-term while scenario 4 would provide income to project owners in the short-term. Scenario 5 might have a higher likelihood in locations where land is scarce and demand for agricultural land is high.

To complement this analysis, the relationship between revenues and operational expenditure (OPEX) was analysed for a sample of commercial afforestation projects. The sample was constructed as follows:

- The project database of the Clean Development Mechanism (CDM) was searched for the project type commercial afforestation, as only the CDM project search platform provides detailed information on the financial model of projects.

- In the CDM database, commercial afforestation projects are listed under the project types "afforestation" and "reforestation". As of 23 October 2023, the database contains 40 entries with active reference numbers for these two project types, 11 of those with financial data.

- The assessment requires the following data:

    o A time series of revenues other than from carbon credits over the operational period

    o A time series of operational expenditures over the operational period of the project

- A review of available documentation for each of the 11 projects showed that only 3 projects provided the financial information required.

OPEX and revenues were compared for each project in each period. The results of the assessment are shown in Table 1 below. Green shaded cells indicate that the revenues exceed OPEX in the relevant period, while red shaded cells indicate the opposite.

For each project, the information provided was reviewed in detail to identify the correct values for revenues and operational expenditure. Per the methodology's guidance, only those revenues and costs were considered that do not accrue uniformly through all scenarios identified in step 2 above.

Table 1   Difference between revenues other than CERs and OPEX for commercial afforestation projects

ID	Year	Country	Currency	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
10128	2008	LA	USD	10.000	-582	-24	-21	-23	-26	-29	-31	-34	159	145	341	337	333	329	324	320	315	311	306	300	296	292	288	283	278	273	268	262	256	249	0
7258	2007	BR	R$	100.000	-18	-18	-22	-25	-25	-28	-31	1206	1203	1212	1212	1212	1212	1212	2220	2223	2226	989	992	995	995	999	1002	1002	0	0	0	0	0	0	0
2700	2006	CN	USD	1.000	0	0	0	-5	-33	-33	-33	-33	-33	-33	437	-33	-33	-28	-6	1452	-6	-6	-6	-6	463	-6	-6	-6	-6	1550	-6	-6	-6	-6	4060

Source: own calculation based on information provided by CDM projects

Table 2   Assessment of vulnerability for data sample

Group	Project ID	Description	Likely course of action
1	10128, 7258	OPEX exceed revenues during the first seven to eight periods in the beginning of the project operation, afterwards revenues exceed OPEX. This means that the projects operation might be vulnerable to discontinuation in the first years of the project's operation.	Inconclusive
2	2700	Revenues exceed OPEX in only five periods during the project operation. Discontinuation of the project might therefore be a plausible scenario. However, where revenues exceed OPEX, revenues are significantly higher than cumulative OPEX of the previous years, also making continuation scenarios a plausible course of action.	Inconclusive

Source: own compilation

Results show that all projects accrue revenues from the sale of forestry products. For two projects (Project IDs 10128 and 7258), the revenues start exceeding OPEX after seven or eight years, which coincides with the start of thinning or harvesting activities for the respective forest patch. For these projects, revenues continue to exceed OPEX for the rest of the project lifetime. Whether or not these projects would discontinue afforestation activities during the first 7-8 years will likely depend on several factors such as the ability of the project owner to continue funding site preparation and maintenance activities for a sustained time without revenues. As for these projects first CER revenues would flow only one (Project ID 7258) or three (Project ID 10128) years before the first revenues from harvested wood products it may be more likely that these projects would continue as planned, also in the absence of CER revenues. However, factors such as high land pressure might also make scenario 2,3 and 5 plausible outcomes. We consider the likely course of action therefore as inconclusive.

For one project (Project ID 2700), revenues exceed OPEX only in 5 out of 31 periods (see Table 1). These coincide with the years where harvesting and thinning are scheduled for the project site. The first harvest is scheduled for year 11, while the first carbon revenue would flow much earlier, in year 5. Without these flows, the project would need to sustain an additional six years before first revenue flows will become available. This might put a strain on the project owner's ability to continue maintenance activities on the project site before the first harvest. Plausible scenarios in these cases could be an early harvest or thinning to generate revenues for continuing maintenance on the project site (scenario 3) or the owner being forced to sell part of the land or use it for another revenue generating purpose (scenario 2). Both might lead to less carbon stocks than initially planned for. Scenario 4 and 5 might be plausible outcomes in case the demand for for land in the project region is high and returns from other land use activities outperform those of commercial afforestation. It was not possible to assess the local project conditions within the scope of this assessment. We therefore consider the likely course of action for the project as inconclusive.

This analysis of the likely outcome of the three projects therefore does not support a ranking of the scenarios identified. The financial attractiveness of each scenario highly depends on the market condition at the forest location, including factors such as the timber price, as well as the stage the project is in when the market collapses. Another factor will be the timing of both, the first revenues from carbon credits and those of the first harvest. If carbon credits were scheduled to come in much earlier than the first harvest, market collapse might more likely lead to discontinuation of projects.

Step 5: It is assumed that non-financial barriers would be an immaterial factor affecting whether these kinds of projects will continue or discontinue in the event of a market collapse.

Step 6: As it is not possible to rank the scenarios under step 4 and they include continuation scenarios (scenarios 1-3) and discontinuation scenarios (scenarios 4 and 5) the vulnerability of the project type is inconclusive. The project type is therefore assigned a score of 3 under the CDM.