

The REDD Framework was presented, and these answers provided, as at 16 May 2023. The answers do not necessarily reflect the current positions taken by the REDD Framework, which may have been updated following further internal review. Please reach out to your usual Sylvera contact, or to frameworks@sylvera.io, if you would like to discuss further.

Attendance at a Framework Review Committee meeting does not constitute an endorsement of Sylvera nor any Framework.

Framework Review Committee: REDD Consultation

Attendees: Carbongrowth, Climate Impact Exchange, Zurich Insurance Group, EY, Futurecarbon, ClimatePartner GmbH, Respira, Woodside Energy, Shell, NatWest Markets, GCF Task Force, Climate Impact Partners, Biofilica Investimentos Ambientais, Carbon Streaming Corp., Patch Technologies Inc., Prime Minister's Office Singapore, Everland, APA Group, UBS, GO2MARKETS, Cultivo, BP, Carbonext, South Pole, AgVenture Lab, Environmental Defense Fund, JPMorgan Chase & Co, Carboncreditsconsulting, Permian Global, goodcarbon, carbonfinancialservices.com, Carbon Tanzania, Rubicon Carbon, Pelindungalam, UBS, Oneshot.earth, Salesforce, Anewclimate, Chevron, Capital Group, Volkswagen-Climatepartner, Aider.

Question

A common criticism of Verra's non-permanence risk calculator is that it's heuristic and not particularly data driven. Does your permanence score overcome this? How are the factors normalized to create the overall rating?

Answer

Sylvera's permanence risk score is derived from a comprehensive analysis that considers a wide range of natural and anthropogenic risks. Our approach prioritises data, which accounts for approximately 80% of our analysis, ensuring a strong foundation for our assessments. We rely on the latest scientific literature and widely accepted risk metrics to maintain accuracy and reliability.

To produce our risk scores, we utilise a combination of Geographic Information Systems (GIS) data and climate projections data. This integration enables us to capture relevant spatial information and incorporate future climate scenarios into our evaluations. By adopting this comprehensive approach, our permanence risk score provides a robust assessment of the non-permanence risks associated with carbon offset projects.

To ensure comparability and consistency, we assess the likelihood and severity of each risk within a risk pillar on a common scale ranging from 0 to x. The risk score for

each risk pillar is determined by multiplying the likelihood and severity scores. The total score is calculated by either summing up the risk scores of each risk pillar or selecting the maximum risk score among all the risk pillars. The Additive Risk Score assumes independence among risks and reflects the cumulative risk in the total score. The Maximum Risk Score considers the highest individual risk as the determining factor for the overall score.

Question

How do you plan to ground truth the LIDAR?

Answer

During the field campaigns of the Sylvera multi-scale LiDAR team, we harvest a sample of representative trees and weigh them on-site. This data is used to verify and validate the LiDAR measurements.

Question

How will you be reporting uncertainty in your own results within the ratings? (particularly carbon score)

Answer

Currently Sylvera does not directly report uncertainty values as part of our commentaries. These uncertainties are considered in creating the final scores, via processes such as weightings, sensitivity measurements, and banding when combining values. Sylvera's Machine Learning team are currently researching methods to best capture uncertainties so that they can be more directly included and stated as part of the ratings. Where uncertainties are known, these are also surfaced in written form. Where there is incomplete data that introduces greater uncertainty into our assessment, we assess the project on a provisional (P+ / P / P-) scale to reflect the uncertainty inherent in the analysis.

Question

Will you visit projects to do destructive harvesting as part of the rating process? Or use available allometric equations?

Answer

We only collect MSL lidar data (and destructive harvesting) on selected biomes to train our models. We do not collect lidar and harvest data for every single project. We do not use allometric models to estimate biomass on our MSL approach. Our MSL approach to measure biomass has shown to be more accurate than traditional methods (based on allometric models) when compared to destructive tree harvesting (Burt et al, 2021). These highly-accurate MSL datasets are used to train our machine learning models to estimate biomass at project level.

References:

- Burt Andrew, Boni Vicari Matheus, da Costa Antonio C. L., Coughlin Ingrid, Meir Patrick, Rowland Lucy and Disney Mathias (2021). New insights into large tropical tree mass and structure from direct harvest and terrestrial lidar. R. Soc. open sci.8201458201458 <https://doi.org/10.1098/rsos.201458>

Question

Pure remote sensing approaches don't always capture true nature of reality on the ground. Something can show as forest when in reality it may be grasses that have grown tall on degraded land. Only ground truthing can find things like this. How are you dealing with this limitation which requires ground truthing?

Answer

There is no such a thing as "ground truth" which can capture the true nature of reality on the ground. Even ground measurements are prone to considerable errors.

We use a very strict QA process to identify potential errors in our products. For classification of land cover types and land cover dynamics, we use very high-resolution images interpreted by experts to validate our outputs. With human verification, this type of misclassification is usually mitigated. These results give us metrics to assess and verify the quality and uncertainty of our remote sensing products. We use our MSL data, which has proven to be more accurate than ground measurements when compared to destructive harvesting (Burt et al, 2021), as well as GEDI lidar forest canopy metrics to verify and validate forest parameters such as canopy height and biomass.

It is also worth pointing out that our QA and validation protocols follow the

recommendations from the Global Forest Observation Initiative (GFOI) Methods and Guidance, and the CEOS Aboveground Woody Biomass Product Validation Good Practices Protocol.

References:

- Burt Andrew, Boni Vicari Matheus, da Costa Antonio C. L., Coughlin Ingrid, Meir Patrick, Rowland Lucy and Disney Mathias (2021). New insights into large tropical tree mass and structure from direct harvest and terrestrial lidar. R. Soc. open sci.8201458201458 <https://doi.org/10.1098/rsos.201458>

Question

Within the baseline which outlines a harvest, how are long-term wood products assessed to be accurate?

Answer

Sylvera aims to not only assess a project's claims, but to do so fairly and to be cognizant of the limitations inherent in these processes. In the case of long-term wood products, there is no fair, independent and accurate measure that can be considered informative compared to the project's reported values. Therefore, in the case where these values are needed for calculation, Sylvera assumes that the project's reporting is correct. The Sylvera assessment is designed with assumptions like this in mind, and hence is focussed on the areas where true comparisons and assessments can be made. We are constantly seeking to reduce these assumptions in our frameworks, and welcome any further conversations with feedback or insights on how to iterate on our approach.

Question

Is the market and activity leakage assessed only at a national level or will this expand to international?

Answer

Activity Shifting Leakage is only looking in the 10km around the PA and at the

provided LA, so it is sub-national and on a local/regional scale, with the potential to spill up to 10km into a neighbouring country.

Market Leakage takes a project's reported figures for market leakage which relate to a national/regional market. Modelling transnational flows of goods is difficult even with the best econometric models and suffers from data-poverty of varying data availability per-country and through informal economy (black market) flows and is thus not included in the scope of this framework update. We are constantly seeking to improve our frameworks, and would welcome any feedback and insights on how to improve this assessment.

Question

Regarding policy and regulatory environment assessment under additionality, will the analysis consider protected area type and management effectiveness? Presence of PAs doesn't necessarily mean sufficient protective measures are in place.....paper parks.

Answer

Yes, we consider various factors, such as protected area type based on IUCN categories and a number of other risk flags. These risks include level of funding, scale of protective activities conducted before the project started, whether the protected area is located along a deforestation frontier, and additional context that may undermine effective management such as corrupt practices, lack of funding and weak rule or law.

Question

How do you consider illegal activities while assessing the drivers of deforestation from economic activities? These are usually not included in government reports or other databases. Also, how do you account for the time gap between deforestation and the results from economic activities? Usually results from cattle farming and agriculture are usually observed 1-2 years after the deforestation event takes place.

Answer

We use indicators for illegal logging and forest governance, such as the ILAT score, rule of law and corruption indexes. We also conduct a desk based assessment of relevant literature to flag when illegal activity or corruption within the forestry sector

may be prevalent.

In regards to economic pressure to the project area we look at a minimum 5 year time gap prior to the project implementation to assess the initial pressure from those economic drivers to evaluate the scale of the risk of deforestation to assess the project's additionality.

Question

Are there any plans to ground truth the machine learning with actual site visits? How can users know that the MSL approach is accurate and reflects ground reality and drivers?

Answer

Visiting every project is not feasible, due to limitations related to cost, time, and accessibility to project areas. Additionally, there is no significant gain in accuracy that would indicate the need for this. Ground measurements do not necessarily equal better measurements, as those are also subject to substantial errors.

For land cover and land cover dynamics, Interpretation of very high resolution imagery by experts has been proven to be a high quality and cost-effective approach to perform the accuracy assessment of activity data products, and is widely accepted by the research and expert community (GFOI guidelines). In terms of forest structural parameters such as biomass, our MSL lidar measurements are more accurate than traditional ground measurements, with a margin error potentially as low as 3% (Burt et al, 2021) when compared to destructive tree measurements. Traditional "ground based" approaches using allometric models show that estimates of biomass are usually biased (Demol et al. 2022), with differences of 15% (Burt et al, 2021) or even up to 30% (Calders et al, 2015, Gonzalez de Tanago et al, 2018) when compared to destructive harvesting.

Our machine learning models are also spatially cross-validated using GEDI forest canopy metrics to avoid over-optimistic accuracy metrics caused by the potential spatial correlation of our reference data

References:

- Burt Andrew, Boni Vicari Matheus, da Costa Antonio C. L., Coughlin Ingrid, Meir Patrick, Rowland Lucy and Disney Mathias (2021). New insights into large

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Question

What are your threshold percentages for changing ratings?

Answer

We have constructed framework-specific matrices, which take into account the known and/or likely uncertainties for all quantitative and qualitative subcomponents of our top level scoring (Rating, Carbon Score, Additionality Score, Permanence Score), and benchmarks the matrices' thresholds on those uncertainties. These matrices are weighted differently according to project types, ensuring that the ratings are comparable between project types. Layered on top of this, we include a consideration of absolute and relative values of quality which we have gathered through feedback from our clients and interactions with the market - and we keep these consistent across our frameworks.

Question

Carbon Score - Components - Are you specifically and only comparing 'clear cutting'? There is a lot more to logging than clear cutting, as I'm sure you know, not to mention degradation

Answer

Sylvera is committed to fairly assessing projects and delivering value that is

underpinned by facts. Unfortunately - due to current limitations in remote sensing and machine learning technology - for REDD projects, we cannot make an assessment on deforestation from events such as selective logging and degradation. Sylvera's Machine Learning team and Rating teams are continuing to apply state-of-the-art research, and Sylvera will include information related to these types of events once it can be detected within a confidence that we believe is informative to the market. Until then, the REDD+ ratings will only compare machine learning measurements of clear cutting (e.g., canopy cover disturbance) at a level detectable using satellite remote sensing. We will also surface any relevant information that the project may have provided around selective logging and/or degradation that they may have reported taking place.

Question

Carbon Score - Is the idea of transitioning the carbon score from net to 'gross + project and leakage' to provide greater granularity? Essentially these should be the same thing as they were already covered in the old carbon score...

Answer

The aim with this new approach is to better represent the data, and what this data means about the project's claims. There are a number of factors that Sylvera does not assess directly in the Carbon Score, such as the buffer percentage, and the net approach previously taken could be overshadowed if these values were large. In the majority of cases, they amount to a similar - if not identical - result.

Question

Credit Outlook - It's a tad confusing to have permanence and deforestation in the 'credit outlook' when permanence has its own section and deforestation is incorporated into others. Suggest clarifying their role in this section and how their role here relates to their treatments in other parts of the framework

Answer

Credit Outlook, similarly to co-benefits, is separate to the rest of the framework and therefore does not impact the overall rating of the project. Credit Outlook specifically

concerns the crediting of the project and how this may change in the future. As such, this assessment uses data from other pillars that may influence this future crediting. As Carbon Outlook sits separately to the overall rating of the project, the usage of data from other pillars does not lead to issues of double counting or any other problems that might be inherent in this type of cross pollination. This will be emphasized this in the commentary.

Question

Credit Outlook - Ex post vs ex ante crediting - is that meant to be ex ante projections vs actual issuances? Definitely worth including for risk assessment but it would be good to be very clear that ex ante projections are just projections. It may also be worth comparing both ex post issuance to ex post MR numbers, in addition to ex post issuance vs ex ante projections.

Answer

Yes, this is the ex-ante projections made prior to the project start vs the actual issuance of the project. It is correct that these are just projections, and this will be made clear in the rating commentary.

Often these values are very similar, but in cases where they are not, Sylvera will explicitly flag this. We will compare these values for a large sample of REDD+ projects to provide additional context to buyers.

Question

Credit Outlook - Isn't the MR assessment (accuracy of reporting within upcoming MRs) basically a pre-issuance assessment? How will you assess this consistently across projects?

Answer

The assessment of the MRs is similar to a late stage pre-issuance assessment, where Sylvera is able to measure forest loss using our Machine Learning approaches, and compare this to the project's reported values. The assumption is that the MR reported values will be similar (or identical) to those reported in the related VRs when the project issues these credits. This assumption will be applied across all REDD+ projects that have the Credit Outlook component. Sylvera's Machine Learning will be applied to these time periods in the same way as for issuing periods. This will ensure consistency in the Carbon Score.

Question

Credit Outlook - JREDD should only be included if the country is working towards JREDD, else n/a. Need to avoid having a project penalized just because its parent jurisdiction is not undertaking JREDD. Risks of overcrediting for such a project should be assessed through the baseline. I realize there is no implication that such a project would be penalized, just thought it was an important note.

Answer

Thank you for noting - we can confirm that Sylvera is not including this component in the Credit Outlook for these types of projects. The Credit Outlook has been specifically designed so that irrelevant components can be removed without biasing the score. We will make this clear in the ratings commentary for these projects.

Question

Additionality - Evaluation of policy and regulatory landscape - will experts in each location be doing this? Often these questions require a high degree of local / informal knowledge.

Answer

In our assessment we first focus on any relevant national and regional schemes in place. This captures the context surrounding the project and allows us to establish a benchmark that can be used to compare across different projects. Our assessment then looks at the local context of the project. This relies on Sylvera leveraging various partnerships and local connections. Although we do not have a partner in each location, we conduct thorough research, utilising data from our assessments of previous projects in the area, as well as data from our developer engagement process. This ensures we gain a deep understanding of the local context of each project.

Question

Additionality - Protection status and level of funding should more accurately be effectiveness of enforcement, to account for paper parks issue

Answer

The additionality assessment considers the presence and scale of deforestation risk

to forested land under different designations. A number of tests account for poorly enforced protected area status.

First, the Strength of Baseline assessment helps to differentiate between protected areas that exist on frontiers of deforestation that may be at genuine risk of encroachment, and those in areas with little deforestation risk.

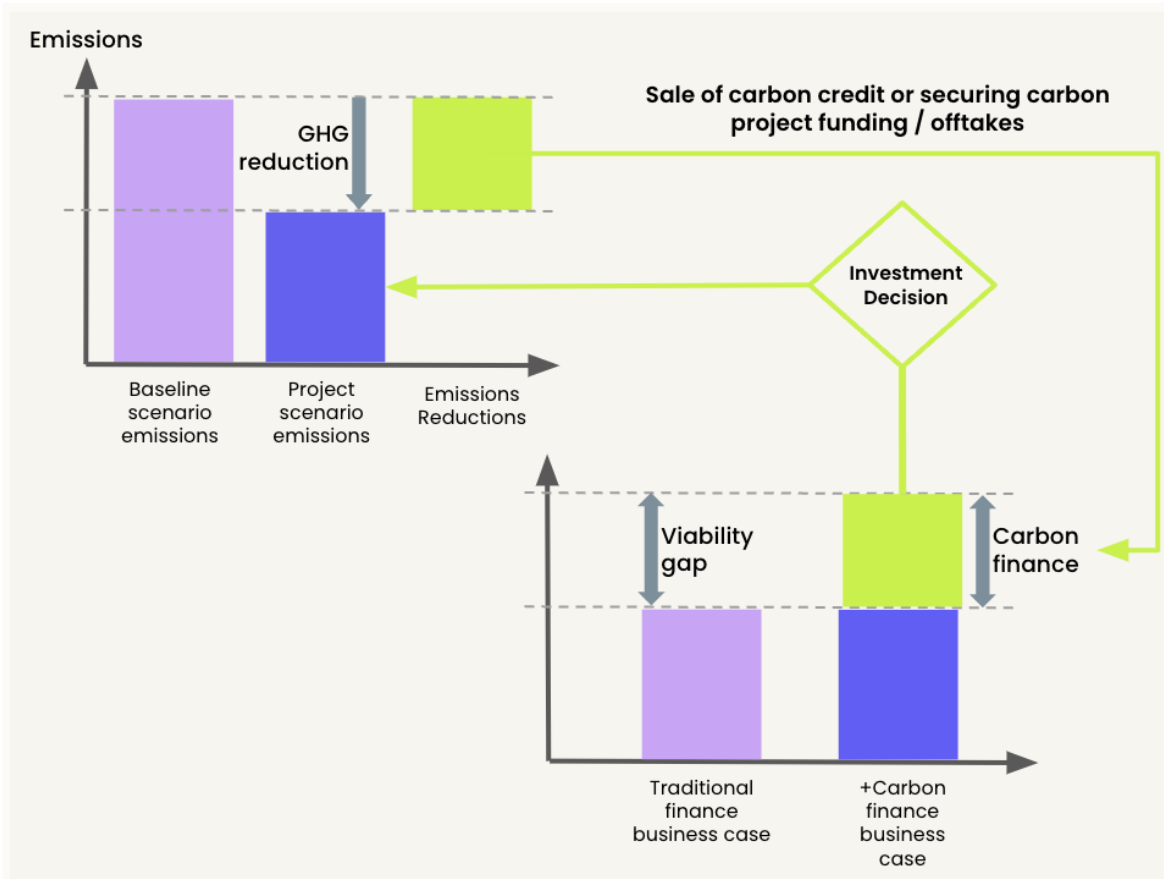
Second, the Policy and Regulatory section of additionality assesses whether an area is protected. It asks additional questions about the level of protection (e.g., IUCN category), financial resources for protected areas (where available), and red-flags for evidence of lack of resources or the political will for effective protection.

Finally, the Common Practice section assesses whether, with carbon finance, the project is able to increase protective activities compared to the business-as-usual scenario.

Question

Additionality - diagram on financial additionality slide is confusing

Answer



The diagram aims to reflect that a reduction in emissions from the baseline to the project scenario is a direct consequence of investment in the project (i.e., carbon finance).

A project is considered additional if the offset revenue bridges the economic viability gap, such that emission reductions or removals that are realised, via the project activities, would not have taken place otherwise.

Question

Strength of baseline - This is the most important part of this entire framework and it is critical to get it right

More explanation of how the new approach compares to the previous PA/RA match assessment would be helpful, and why it was changed.

It is still useful to understand how good of a match the RA is (even if this assessment becomes qualitative), plus the severity and likelihood of overestimations

Answer

The previous PA/RA match assessment relied on quantitative tests to measure the

strength of the baseline. We evaluated and scored the appropriateness of the project's Reference Area as a proxy for the Project Area by assessing whether they shared similar geospatial features and exposure to deforestation threats. We then compared deforestation rates in the Project Area baseline with those observed in the Reference Area to identify any potential overestimations and ensure that credits were not issued in excess of the project's likely impact. If the Reference Area was deemed unsuitable as a proxy, we assessed this on a risk-adjusted basis.

In the latest iteration of the framework, we wanted to go beyond assessing the likelihood of overcrediting by focusing only on the reported RA, especially when the RA was not a good match with the PA. We are exploring different methodologies to algorithmically match the PA with the best, potential controls in the area surrounding the project (within a 50km buffer from the project area). Currently, we are developing an approach from causal inference, but we believe in the synergy of using both predictive and causal inference methods.

To perform our matching we first apply a suitability area mask, with the aim of subsetting the surrounding area (50km buffer from the project area) where we will look for matching controls. We include various geospatial layers (e.g. protected areas, water bodies, canopy cover, types of biome, jurisdictional levels etc.), which helps to ensure that the search area is appropriate. We also exclude other projects (as well as all 10 km buffer areas around projects (Guizar-Coutiño et al, 2022, West et al, 2020)) as these areas are potentially affected by spillover effects. If we are unable to find sufficient areas within a 50km buffer surrounding the project area, we incrementally expand the search area up to 300 km from the project area. We then apply our matching methods using a set of variables that change based on the project's context and an assessment of the matching.

To ensure the reliability and uncertainty assessment of this new approach, we employ placebo projects. These placebo projects allow us to validate and assess the uncertainty associated with our baseline methodology. By comparing the results of the baseline with the deforestation observed in the project area, we can evaluate the severity of overestimations.

We are not currently planning to evaluate how well matched the RA is, as we are building an agnostic methodology. However, we are exploring how to compare the distributions of the spatial variables we consider for our matching methodology in order to assess how the RA performs with respect to the PA and our controls.

Question

Strength of baseline - When developing a project, the suitability criteria differs by methodology.

How will you account for these differences? It should be clear whether a project followed the methodology when selecting its RA and if it also cherry picked - or vice versa.

Projects should not be penalized for not being able to find a similar RA - for example, one project we worked with had to go far away to find a suitable RA because the nearby ones had different owners, land uses, slopes, or cover level.

Answer

In our methodology, we acknowledge that different projects may have varying suitability criteria based on their specific methodologies. Our methodology aims to be agnostic with respect to registry-specific methodologies, and we strive to include project characterization based on project documentation. We understand that the area surrounding a project may include regions that are not suitable for a good comparison, necessitating the selection of RAs located significantly far from the project area.

To address this concern, we apply a binary mask to the areas surrounding the project. This mask helps provide spatial context to the project by highlighting suitable comparison areas while excluding regions that may introduce bias due to their immediate proximity to the project. E.g. we exclude the immediate surrounding area, which we consider as potential leakage areas within a 10km distance from the project perimeter, as also commonly used in literature (Guizar-Coutiño et al, 2022, West et al, 2020). This exclusion ensures that areas immediately influenced by the project's presence are not selected, preventing the selection of areas biased by observed deforestation values.

We take into consideration multiple factors to evaluate the match between the project area and the selected RA. One of the variables we use for matching is the comparison of canopy cover distribution between the project area and the reference area. Furthermore, we can take into account slope or and elevation as some of the variables used for matching. We are aware that it is not always possible to find a reference area in the area surrounding the project (50 km buffer), so - if necessary - we incrementally expand the search area up to 300 km.

References:

- West, T. A. P., Börner, J., Sills, E. O., & Kontoleon, A. (2020). Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon. *Proceedings of the National Academy of Sciences*, 117(39), 24188– 24194. <https://doi.org/10.1073/PNAS.2004334117>
- Guizar-Coutiño, A., Jones, J. P. G., Balmford, A., Carmenta, R.; Coomes, D. A. (2022). A global evaluation of the effectiveness of voluntary REDD+ projects at reducing deforestation and degradation in the moist tropics. *Society for Conservation Biology*. <https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/cobi.13970>

Question

Strength of baseline - There are other determinants of deforestation risk beyond just distance! E.g. prevailing land uses in the area, size, type and level of forest cover, rate of encroaching deforestation, etc. I'd be concerned that the 'known determinants' listed would not account for all the variables that can influence deforestation.

Answer

The provided list are variables that are usually found in literature (Grinand et al. (2019), West et al, 2020, Jaffé et al. 2021, Guizar-Coutiño et al, 2022). However, we are working continuously to improve our methods, with the goal of incorporating determinants beyond those specified.

This includes multiple methods to assess the risk of over crediting, as well as new datasets and incorporating as much geospatial context of each project as possible. We use the level of forest cover, as well as checking for biomass distribution comparison between the control and the project area. We also take into account where deforestation has occurred in a temporal window close to the start of the projects. As some of the variables can be highly correlated, we want to check and reduce the collinearity (Graham (2003), Arbour et al, (2014)), selecting a subset of the initial inputs, although the methodology is known to be generally robust with respect to typical regression problems (Pingel, Warnerbaum (2014), Evans (2021)). Furthermore, we try to incorporate uncertainty to offer a range of plausible deforestation.

References:

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<https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/cobi.13970>

Question

Strength of baseline - How can we be sure that the SylveRAs are appropriately chosen? Every project has a different context, and a one size fits all approach may lead to unfair penalization of projects. I am not sure if the ML algorithm is sophisticated enough to differentiate between all the nuances.

Answer

We acknowledge the importance of considering project-specific contexts and avoiding a simplistic one-size-fits-all approach. We consider information from project characterisation, as well as testing the best set of variables. Our approach doesn't rely on ML exclusively and we don't predict deforestation. We find the potential best matches to the project area by leveraging a set of geospatial variables, observe the deforestation that occurred in those matches, assess the appropriateness of the Sylvera-determined RAs by a series of checks, and include the uncertainty in the final assessment.

Question

Strength of baseline - What will happen when the new consolidated methodologies are released? The RA approach is effectively 'going away' when that happens.

Answer

Two families of methods commonly used to assess the likelihood of the BAU are predictive inference and causal inference. These methods are independent of whether Verra or other registries change their methodologies. We believe that well-posed methodologies, utilizing counterfactuals (e.g. a Reference Area) and predictive models, can provide significant benefits in assessing the likelihood of baseline scenarios across various scales and contexts. While we consider all recent developments in registries' methodologies, Sylvera aims to maintain agnosticism between them.

Question

Strength of baseline - Why not mimic the JNR / consolidated methodology approach and allocate risk and a baseline based on jurisdictional trends? This would a) bring you in line with Verra's upcoming updates and b) allow us to see the difference in baselines before and after the consolidation. It also eliminates the risk of assessing something that ceases to exist. Of course projects will need a few years to transition, and during that time the SylveRA would be useful, but after the transition then any discrepancies between the SylveRAs and the allocated baselines will lead to questions - and they may not be easy to resolve since it's almost an apples to oranges comparison. If Sylvera did its own allocation, then at least the methods would be similar and any discrepancies could be discussed.

Answer

We are constantly reviewing our methodologies and will be testing how our new approach intersects with updated methods and results, specifically in the context of JNR. We will release relevant info about the implications and any resulting updates.

We are familiar with Verra's proposed JNR Risk Mapping and we believe that there is room for improvement. We are currently working on both sides of the spectrum of the types of methodologies used (predictive inference and causal inference). We believe that using different types of well-posed methodologies allows us to confidently assess the likelihood of baseline scenarios at different scales and contexts.

Question

Strength of baseline - Plausibility range could be subtitled 'actual baseline range' to explain that it is a comparison of what actually happened in the 'baseline case' and make it clear that it is no longer a counterfactual

Answer

The fundamental issue with causal inference is that we can never observe the same unit with and without treatment. As such, we prefer to refrain from using a wording that stresses certainty (e.g., actual) over plausibility in our assessment.

Question

Strength of baseline - RAs may have some different characteristics than the PA, e.g. an RA near a road could have been already deforested, so deforestation rates during the project period would be low. How would you account for this in the plausibility ranges? Projects should not be penalized for the reference areas being subject to different circumstances.

Answer

Our approach looks for the best potential matches in the area surrounding the project by using a set of variables that are associated with increased risk of deforestation, biophysical and socio-economical similarity between the areas. Distance from roads and settlements are part of this set of variables. Moreover, our assessment of how well matched the areas are include checking for similar trends in deforestation between the control areas and the project area.

Question

Leakage - There are other commodities beyond the 'volume of wood' - there is cattle, soy, etc...

Answer

Given we're talking about implementing REDD projects to prevent deforestation of mature (old growth) forest, giving an area protected status suddenly reduces the supply of wood to the market. The drop in supply is proportionate to the volume of wood (or approximately the size of the forest) and affects demand for wood (and risk of trees being cut down elsewhere) which is why it is included in Market Leakage. Although associated with deforestation pressure, other commodities like soy and cattle relate to activities after the area has been deforested, whereas we focus on pre-deforestation uses of land.

Other commodities like Soy and cattle relate to activity after the area has been deforested. Although associated with deforestation pressure, other commodities like soy and cattle relate to activities after the area has been deforested, whereas we focus on pre-deforestation uses of land.

Question

Leakage - What is the justification for a 10 km buffer?

Answer

It is an established (Guizar-Coutiño et al, 2022, West et al, 2020) arbitrary figure used in forest conservation literature examining the effect of deforestation in the vicinity of protected areas. Despite being arbitrary, its use is reasonable given the 10 km aims to capture a) deforestation by agents of AUD, and b) spillover effects tend to occur in the close surroundings of the projects.

References:

- West, T. A. P., Börner, J., Sills, E. O., & Kontoleon, A. (2020). Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon. *Proceedings of the National Academy of Sciences*, 117(39), 24188– 24194. <https://doi.org/10.1073/PNAS.2004334117>
- Guizar-Coutiño, A., Jones, J. P. G., Balmford, A., Carmenta, R.; Coomes, D. A. (2022). A global evaluation of the effectiveness of voluntary REDD+ projects at reducing deforestation and degradation in the moist tropics. *Society for Conservation Biology*. <https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/cobi.13970>

Question

Leakage - Difficult to see how the project LA and the Sylvera buffer fit together - more explanation needed

Answer

To balance the contribution of these two areas to the scoring, we first evaluate how well the LA is matched to the PA in terms of suitability of leakage tracker. We leverage the LA/PA matching score to balance the contribution of the 10km buffer around the project area (vs the LA) to the scoring, assessing spillover effects as well as if the project has been effective/additional in the first place (by logic, if the project hasn't been effective/additional, leakage could not occur as a consequence of the project's existence). For example, if the LA proves to be a bad match, it is not a valid area to drive the assessment, and the 10km buffer results will have a high weight and larger contribution, and vice versa.

Question

Emissions Factor - How accurate is Sylvera's data? We need to be able to see how it compares to the best in class data.

There is a risk of penalizing a project for not having access to proprietary data, or data of equal quality as Sylvera's

Answer

We use proprietary data from our Machine Learning and Multi-Scale-Lidar team and IPCC data. For land cover and land cover dynamics, Interpretation of very high resolution imagery by experts has been proven to be a high quality and cost-effective approach to perform the accuracy assessment of activity data products, and is widely accepted by the research and expert community (as per GFOI guidelines). In terms of forest structural parameters such as biomass, our MSL lidar measurements are more accurate than traditional ground measurements, with a margin error potentially as low as 3% (Burt et al, 2021) when compared to destructive tree measurements. Traditional "ground based" approaches using allometric models show that estimates of biomass are usually biased (Demol et al. 2022), with differences ranging from 15% to 30% (Burt et al, 2021, Calders et al, 2015, Gonzalez de Tanago et al, 2018) when compared to destructive harvesting. Our machine learning models are also spatially cross-validated using GEDI forest canopy metrics to avoid over-optimistic accuracy metrics caused by the potential spatial correlation of our reference data.

Sylvera is currently not distinguishing between the methodologies used for collecting forest biomass data from projects (e.g. MSL vs LiDAR & allometries vs ground measurements & allometries). As such, there is a risk of penalizing a project for not having access to proprietary data, or data of equal quality as Sylvera's. However, this penalization is only evident when there is a risk that the project has been over-crediting. Equally, we see instances of under-estimation and the potential for under-crediting.

Carbon stock estimates from all other carbon pools reported by the project are assumed to be true and are used as reported in our calculations of emission factors as Sylvera has no way to check their accuracy.

References:

- Burt Andrew, Boni Vicari Matheus, da Costa Antonio C. L., Coughlin Ingrid, Meir Patrick, Rowland Lucy and Disney Mathias (2021). New insights into large tropical tree mass and structure from direct harvest and terrestrial lidar. R. Soc. open sci. 8201458201458 <https://doi.org/10.1098/rsos.201458>
- Demol, M., Verbeeck, H., Gielen, B., Armston, J., Burt, A., Disney, M., Duncanson, L., Hackenberg, J., Kükenbrink, D., Lau, A., Ploton, P., Sewdien, A., Stovall, A., Takoudjou, S. M., Volkova, L., Weston, C., Wortel, V., & Calders, K. (2022). Estimating forest above-ground biomass with terrestrial laser scanning: Current status and future directions. *Methods in Ecology and Evolution*, 13, 1628– 1639. <https://doi.org/10.1111/2041-210X.13906>
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Question

Climate Risks - What are the 'cutting edge scientific standards' and how can we assess them?

Seems like a high likelihood for a lot of error in the data

Answer

Cutting-edge scientific standards for assessing climate risks involve the utilisation of methodologies grounded in the latest scientific literature, advanced statistical analysis techniques, and the incorporation of measures to quantify uncertainties. At Sylvera, we adhere to these standards by sourcing data from reputable climate research institutions and national meteorological agencies, ensuring the reliability of our non-permanence scores. To enhance the accuracy and robustness of our assessments, we integrate multiple lines of evidence, including climate risk modelling, remote sensing/GIS data, and project documentation. Moreover, we employ long-term climate risk projections (CMIP6 data) for monitoring purposes, enabling us to capture trends and changes over time.

Some of the datasets used in our assessment of non-permanence risks are listed below:

[Vegetation health index](#)

[Burned Area](#)

[Active Fires](#)

[Fire Weather Index](#)

[Fire Driven Forest loss](#)

[Standardised precipitation index](#)

[CMIP6 climate projections data](#)

[Flood exposure and trends](#)

[Storm risk](#)

While it is true that no dataset is flawless and errors can arise due to various factors such as measurement limitations, sampling biases, data processing issues, and model errors, Sylvera takes rigorous measures to mitigate these risks. We implement robust quality control procedures to maintain data integrity and minimise errors. Transparency is a core principle of our approach, and we are dedicated to clearly articulating and communicating uncertainties in our ratings commentary.

Question

Anthropogenic risks - Seems to be a large category with multiple topics compared to the 5 separate natural risks

Land tenure is sometimes clear and sometimes not, and sometimes influenced by vested interests. This requires careful, locally-aware assessments. Again an approach that is too general risks missing nuances and could unfairly penalise or reward a project

Answer

We employ a two-fold approach in assessing anthropogenic risks, including land tenure issues. This involves combining a broad national and regional perspective with a focused, locally-aware analysis. The initial assessment at the national and regional levels acts as a benchmark to identify common patterns, trends, and potential risks associated with land tenure across different projects.

To ensure a comprehensive assessment, we recognize the importance of examining the specific local context of each project. We establish partnerships and collaborate with local experts, stakeholders, and communities to gain deep insights into the unique aspects of land tenure in the project area, including potential influences from vested interests or other complexities. We also engage with project developers throughout the ratings process, and benchmark our findings against data from rating projects in similar areas.

While our approach aims to strike a balance between general benchmarks and localised understanding, we continually strive for improvement. We are committed to expanding our internal knowledge and expertise, with our development engineers actively contributing to this process. By closely collaborating with domain experts and integrating their insights, we refine our assessment methodologies to effectively capture the necessary nuances of land tenure and other anthropogenic risks.

We greatly appreciate your perspective and value your input in developing more robust and effective assessment methodologies. We invite you to share any specific recommendations or ideas you may have to further improve our approach.

Question

Co-benefits - Putting all the SDGs under community is an awkward fit.

Why not just assess all SDGs and tag with community biodiversity, etc. as

appropriate?

Answer

Highlighting particularly the SDGs related to communities within the Communities sub-pillar within the Co-benefits assessment has been driven primarily by client interests and preference. We greatly appreciate your feedback and will look to optimise the structure and highlight more clearly the SDGs that are related to biodiversity.

Question

Co-benefits - Number of people benefitting relative to project size may not be an appropriate benchmark.

What if a project is operating in a sparsely populated area? There would be minimal population to benefit, but that's not the project's fault.

Of course it would be good to know if a project in a densely populated area is not impacting many people either.

Suggest some sort of density scaling.

Answer

The number of people relative to the project size is one of the various ways of scaling a project's impact with a particular activity. In co-benefits, our aim is to evaluate the relative contribution. To achieve this, it's important to consider the project size for some activities. For instance, a larger project issuing a greater volume of credits will contribute to the community more (in absolute terms) compared to a smaller project.

Question

Co-benefits - Not sure if passive vs active benefit is relevant info

Answer

Passive vs active is one of our internal classifications to categorise the impact of an activity to the communities. An 'active' activity would be one that involves the community and hence benefits them by performing the activity. For example employing people or providing them training. An activity would be considered 'passive' when the community is not involved but can still benefit from it. An example of a passive activity would be the project supporting the community by improving the water infrastructure.

Question

Co-benefits - Similar comment for the 'country need benchmark' [not sure if its relevant] - useful info to see but you could have hotspots that need certain SDG contributions even if the country doesn't, say a remote area with no health services even though the country itself has good health access on average.

Answer

The country benchmark helps us to define the need for the SDG in the project area. We acknowledge the fact that there might be nuances within the country, but unfortunately there isn't granular data for all regions in all the countries we assess. The data we use for the country contribution is also a country average and accounts for the within-country variation.

Question

Co-benefits - I don't think the scoring system makes sense here, not to mention environmental SDGs shouldn't go under community score

Answer

The way we set up the community section now enables us to capture all possible activities that the REDD+ project is implementing, without pushing forward a particular SDG in a biased way. Each activity will be allocated to particular SDG(s) which are relevant to it. Depending on the activity's scale, evidence, type of activity, country contribution etc. the SDG will have a higher or lower weight.

Actions taken to promote or harm biodiversity will still be accounted for under the biodiversity section separately.

Question

Co-benefits - I think the level of impact score should be provided along with a confidence score (based on level and quality of evidence of implementation) rather than just a single score

Answer

We account for evidence of implementation for any activity which is being assessed. This will depend on where the information was disclosed/provided and the type of information. For example, if the information is thorough and verified by a 3rd party as well as being recent/up to date, then it will score higher for evidence of

implementation.

We appreciate your feedback and will be taking it into account to consider how best we can surface a confidence indicator from our assessment.

Question

Co-benefits - Extra biodiversity assessment is great, but should be incorporated into SDG 14/15.

Answer

Our assessment factors in project activities and efforts towards biodiversity, and are appropriately scaled and linked to SDG14 and SDG. We are considering how best to surface this information in our Co-benefits section as part of the general efforts in improving our ratings commentary.

Question

JREDD inclusion in the credit outlook could potentially be considered a distinct section as opposed to one of several Carbon Credit Outlook tests. This is a key area of interest and focus and seems somewhat separate from the other factors considered there.

Answer

We agree on the importance of the JREDD transition for a project's rating. We have chosen to incorporate the relevant factors and analysis of this transition in line with our current pillar-based ratings approach. Therefore, instead of having a single standalone discussion of JREDD, the factors of this transition will be discussed in their relevant pillars. This is done to keep consistency in our ratings commentary. Though not discussed explicitly at this time, the JREDD transition will be discussed in a number of locations throughout the methodology, and not just in Carbon Credit Outlook.

Question

Increased communication about the "strength of baseline" assessment (which is

great!) and how that will be maintained or changed with JREDD adoption and baseline recalculations will be welcome in this release and into the future.

Answer

We are constantly reviewing our methodologies, and will be testing how our new approach intersects with any updated JREDD methods and results. We will release any relevant information about the implications of the updates and any resulting updates. Sylvera endeavours to communicate any changes as promptly and transparently as possible.

Question

SylveRA tech and incorporation is a huge value add. We encourage you to provide users with a high degree of quantitative specificity around the 'plausibility ranges' and underlying statistical considerations and assumptions.

Answer

We will include the estimated uncertainty around our estimates and can provide the main underlying statistical assumptions behind the methods we adopted.

Question

Historical/Correlation is not a good indicator of the future. Particularly with climate change impacts natural risks like fire, drought, floods, etc will be higher. How are you accounting for this? They can be very location specific too.

Answer

At Sylvera, we understand that relying solely on historical data and correlation may not accurately predict future climate risks, particularly in the face of climate change impacts. To address this, we take a comprehensive approach that incorporates climate risk modelling and long-term projections derived from CMIP6 data. These projections are then downscaled to project scale and used to monitor trends, assess the potential impacts of climate change on natural risks, and account for their location-specific nature.

In addition, we integrate remote sensing and GIS data specific to project locations. This enables us to capture the complex nuances of climate change impacts and consider location-specific risks in our assessments. By combining these multiple sources of information, we strive to provide a comprehensive and accurate

evaluation of climate risks associated with carbon offset projects.

Question

Carbon - We find a significant issue with the lack of transparency on the uncertainties of your underlying data. We're aware that you use Hansen et al. data, which is known to be uncertain in many landscapes (e.g. +/- 65% in DRC) and not meant to be used at the project-level. Since this data is used in many areas of your rating framework, it needs to be addressed to ensure there isn't an overreliance on the certainty of your data and results

This can significantly impact the perception of a project.. For example: "Sylvera finds that Southern Cardamom has fallen slightly short of its emission reductions targets due to an underestimation of deforestation in the Project Area (PA) and undetected activity-shifting leakage." - however, if you consider the likely +/- 32% uncertainty for Hansen et al. data for Cambodia, this assessment is inconclusive.

Answer

The Carbon Score and Over-crediting Risk methodologies discussed at the FRC only use Sylvera's Machine Learning results or values reported by the project itself. Therefore, we do not have the issues with Hansen et al discussed above.

Uncertainties with the underlying Machine Learning data are incorporated into the methodologies.

Question

Carbon - Capping the score at 100% will also negatively impact the perception of project performance

Answer

The choice to cap at 100% is done for two reasons: (i) to bring the REDD+ Carbon Scores in line with Sylvera's other project ratings, allowing for a better comparison between project ratings of different types, and (ii) to take better account of the uncertainties inherent in the underlying measurements. Instead of directly measuring the VCUs of the project, Sylvera now measures our confidence in the project reporting, where 100% represents high confidence in the project reporting.

This new cap will result in an adjustment of our scoring matrices used to determine the projects' final grade, meaning that if a project had a Carbon Score of 150% in the old methodology and 100% in the new methodology, this will not directly cause that

project's assessment to change.

Question

Carbon - Additional uncertainties should be expressed for other processes (e.g. ML, shapefile drawing, etc.)

Answer

Sylvera's Carbon Score implicitly accounts for the uncertainties from these processes, through the relative weighting of components and by banding the Carbon Score when combining it with the other pillars to produce the final project grade.

Sylvera is also researching more precise and accurate uncertainty measurements, which will be included more explicitly in the ratings and commentaries.

We will also be surfacing the source of the shapefile in the commentary and highlighting assumed risks associated with the different sources.

Question

Additionality - Common Practice → Project Activities: this should go beyond presence/absence of activities prior to the project, ensuring that you assess the level of activities before/after the project. There are many cases where conservation organizations are active in the region and have started activities, but they are significantly upscaled (to alleviate deforestation drivers) as a direct result of the carbon revenue

Answer

Yes, precisely. The scale and extent of impact of the activities (and the relative change) is considered when we refer to activities in our assessment.

Question

OCR - Over-crediting risk → Strength of baseline: be careful with the "well matched" control areas here as they are not always realistic given the local context. For example, the use of a buffer around Southern Cardamom is not appropriate given the enforcement work the project is undertaking in the surrounding regions (a positive spillover effect). You can see this information on the recent monitoring report (e.g.

M3 pages 185-186).

Answer

To perform our matching, we first apply a suitability area mask, with the aim of subsetting the surrounding area (50km buffer from the project area) where we will look for matching controls. We try to include different geospatial layers (e.g. protected areas, water bodies, canopy cover, types of biome, jurisdictional levels just to mention a few), that should help to ensure that the search area is appropriate. We also exclude other projects, as well as all 10km buffer areas (Guizar-Coutiño et al, 2022, West et al, 2020) around projects, as potentially affected by spillover effects. In case we are not able to find sufficient areas within a 50km buffer surrounding the project area, we incrementally expand the search area up to 300km from the project area. We then apply our matching methods using a set of variables that can change based on the project's context and assessment of the matching.

References:

- West, T. A. P., Börner, J., Sills, E. O., & Kontoleon, A. (2020). Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon. *Proceedings of the National Academy of Sciences*, 117(39), 24188– 24194. <https://doi.org/10.1073/PNAS.2004334117>
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Question

OCR - Additionality → Leakage: be careful with the quality of data you use to assess the appropriateness of the leakage area - we've seen cases where the population data is not aligned with the reality on the ground (e.g. Southern Cardamom).

Answer

The selection of the leakage area is a known, arbitrary figure (Guizar-Coutiño et al, 2022, West et al, 2020) used in forest conversation literature examining the effect of deforestation in the vicinity of protected areas. Despite being arbitrary, its use is usually reasonable given a) the 10km is aiming to capture deforestation by agents of AUD, and b) spillover effects tend to occur in the close surroundings of the projects.

We take into account several geospatial data layers to protect the leakage area from the inclusion of potentially inappropriate areas w.r.t. the project area context. We try to use the highest quality datasets available for all of our analysis. However, we're aware of the limitations of the data and include, when possible, uncertainty in our assessments.

Question

OCR - Over-crediting risk → Market Leakage: assessing the volume of wood prevented from reaching the market and comparing this to project deductions for market leakage is only part of the story. In order to properly assess this, you must analyze the theory of change in the project (e.g. activities undertaken to reverse deforestation drivers) and check whether the project has been successful thus far in order to predict the likelihood of undeclared market leakage.

Answer

We agree that whether the project has been so far successful is important to determining if any market leakage was possible (as we operate under the logic that only additional and effective projects can have Market Leakage). Assessment of a project's success comes from comparison to synthetic control areas (similar areas without REDD status).

For Activity Shifting Leakage, we weight the leakage penalty applied proportionately to how additional and effective a project is. We also provide realistic caps on maximum leakage by a) looking into control areas to look at tree loss in similar areas, and b) look inside the project to assess remaining forest cover. By looking inside the project and outside in similar areas we assess how much leakage is likely to have happened.

Question

OCR - Over-crediting risk → Emissions Factors: we question how the geospatially derived data would be more certain than project data - which is based on in-situ biomass plots. We suggest you also add a series of academic literature values alongside the Sylvera prediction to provide a range of possible emissions factors values

Answer

In-situ biomass measurements do not necessarily equate to more quality. Hand-made ground measurements are susceptible to substantial errors from, e.g. sub-optimal sampling or allometric biases (Demol et al. 2022, Calders et al, 2015, Gonzalez de Tanago et al, 2018). Ground measurements are costly, time-consuming, and the estimations are often inconsistent (calculated in a spreadsheet), being prone to unintentional (or intentional) manipulation. On the other hand, geospatially-derived AGB estimation is a consistent and transparent way to evaluate AGB across the landscape, and its use to calculate EF has been demonstrated (Rozendaal et al, 2022).

In our analysis of the over-crediting risk, we do not perform an accuracy assessment of the EF derived from in-situ AGB estimations against our geospatial-derived AGB estimations. Instead, we compare the bounds of our confidence intervals to assess whether the project EFs are within a reasonable range from our estimates. To do that, we compare the upper bound of our geospatial-derived AGB confidence interval to the lower bound range of AGB reported by projects.

We also compare our geospatial-derived EF to the ones reported in the literature (e.g. IPCC) as a sanity check. Nevertheless, EF derived from geospatial data are a priori more representative of the AGB in the study area than EF from the literature estimated elsewhere.

It is also worth mentioning that our geospatial-derived AGB estimations are quality checked against several peer-reviewed geospatial-derived AGB products. However, we do not currently include these comparisons as part of the over-crediting risk analysis.

References:

- Burt Andrew, Boni Vicari Matheus, da Costa Antonio C. L., Coughlin Ingrid, Meir Patrick, Rowland Lucy and Disney Mathias (2021). New insights into large tropical tree mass and structure from direct harvest and terrestrial lidar. R. Soc. open sci.8201458201458 <https://doi.org/10.1098/rsos.201458>
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Current status and future directions. *Methods in Ecology and Evolution*, 13, 1628– 1639. <https://doi.org/10.1111/2041-210X.13906>

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- Rozendaal, Danaë MA, Daniela Requena Suarez, Veronique De Sy, Valerio Avitabile, Sarah Carter, C. Y. Adou Yao, Esteban Alvarez-Davila et al. "Aboveground forest biomass varies across continents, ecological zones and successional stages: refined IPCC default values for tropical and subtropical forests." *Environmental Research Letters* 17, no. 1 (2022): 014047

Question

Co-benefits - The biodiversity and community benefits of REDD+ projects are not "co-benefits", they are the core benefits required to ensure transformation on the ground (see Pauly & Tosteson, 2022). The carbon impact of a project is intrinsically linked to community and biodiversity benefits and thus we believe these should be part of the main score for REDD+ projects.

Answer

Certainly we agree with your statement, and that is embedded throughout our framework. Various elements that are factored into Co-benefits are also considered in Additionality and Permanence, precisely because we recognise that community-based projects in particular rely on those relationships for successful implementation.

The main driver for Co-benefits to be considered in a separate section to the main score is to not influence the carbon related aspect of the projects, so it's clearer for our clients to understand the carbon integrity.

Question

Co-benefits - The biodiversity assessment is very basic; this should include very detailed metrics on the level of enforcement depending on the local context

Answer

As in most assessments, there will always be some constraints regarding the ability

to measure certain aspects. However, the biodiversity assessment in this framework is mainly driven by global datasets, which are granular at the project level, to give us insight on the status of the natural ecosystem in the area. The enforcement of the sustainable practices and promotion/protection activities regarding biodiversity, which the project undertakes, are verified and/or weighted based on the confidence level of the source and type of information provided.

Question

It would be worthwhile to split your rating of the standard and methodology from the rating of the project. Often the projects are penalized by following the rules in place at the time.

Answer

We do not separately evaluate the standard and methodology that a project undertakes, as it is our belief that a comprehensive project level assessment using as many independent benchmarks as possible allows for a more consistent integrity measure. We do not explicitly penalize (or reward) projects if they have used one standard or another, and only seek to evaluate the outcome of the project design where we can.

Question

It's very important that you refrain from using gray literature reports for the basis of your ratings when they have not been peer-reviewed. Even peer-reviewed publications should be quality checked before integrated. For example, the Rainforest Foundation UK report used to assess Mai Ndombe is very problematic in terms of the methodology, assumptions and subjective conclusions - it should not be included in the ratings. Another example - the Counter Balance report used to assess Kasigau is very outdated (2015-2016 data) and should not be used as it is reflecting a period of time before carbon revenue was adequate for project activities! We believe that you should publish a list of events / information sources that impact the assessment of a project. Ideally you would also provide a score of the significance of the source based on the credibility.

Answer

Sylvera's ratings best practice now includes citations and hyperlinks for all of the

sources referenced. We will be bringing the REDD commentary in line with those standards, so that we consistently uphold that transparency. We do not explicitly assess the significance of a source to enable a surfacing of that score separately, but have internal standards set for what sources should and should not be used, and what level of corroboration it must have. All clients with the relevant subscription package will have access to these source links to conduct any further review.