Comments Provided on the CCAR Revised Forest Project Protocol DRAFT December 2008

Submitted by Terra Global Capital

January 19, 2009

General Comments

Thank you for the opportunity to participate in Forest Working Group meetings and comment on the Draft Forest Project Protocols (FPP) – December 2008. We recognize the enormous effort that has gone into this draft document and appreciate the hard work of the Forest Working Group. We trust that, while incorporation of a diverse set of public comments is challenging, CCAR will address our and others recommendations as a way to strengthen FPPs.

Judging from the extent of comments provided by Terra and most likely those that will be provided by others, it is recommended that CCAR makes the suggested revisions and allows for a second round of public comments on the revised FPP. A number of the areas that require revisions are complex and could be addressed with a multitude of approaches which should be reviewed by a second public comment round.

Terra Global has tried to provide as comprehensive a set of comments as possible. However, with the erroneous posting of the deadline in February - that was only changed last week to January - we were required to pull these comments together in a more hurried timeline than was desired and originally planned.

While Page 5 clearly states that the FPP are not for use outside the US, we understand and support the CCAR's attempt to develop protocols that would ultimately support international forestry projects acceptance under California's cap and trade system. Terra has provided some limited comments on the applicability of these protocols internationally and primarily in developing countries in the future. Expanding the geographical scope of the FPP will be a very powerful way to impact global GHG emissions from land use as forests in the United States are not nearly as threatened or as fragile as those in tropical developing countries. There are a number of areas where the draft CCAR FPP is inconsistent with other protocols developed under the CDM or by the VCS. These protocols could have been used to strengthen, extend and provide for some uniformity from the onset. Terra would like to reiterate its desire to support CCAR formally using its significant experience with carbon development for international land-use projects as the developers of the world's first avoided deforestation methodology for the VCS.

Wood products should be removed from this document entirely, and released when the completed version is revised.

Specific Comments provided by page and section number

Section – Abbreviations and Acronyms

CRT (Carbon Reduction Ton) needs to be added to the Abbreviations and Acronyms. It is currently mentioned on page 27 with no definition.

Formatting - Separate "PF" from "Reserve" better – the two definitions read almost as one.

Section 2.1 - Eligible Forest Project Types and Definitions - Page 2

Forest definition has a minimum forest cover of 10%. It should be ensured that this definition remains compatible with the CDM definition. Also include a minimum tree height, and minimum area of a forest.

Section 2.1.1 - Reforestation – Page 2

The protocol only includes Native Tree cover. This excludes a number of potentially valuable projects that could bring valuable GHG benefits. This should be added

Section 2.1.1 - Reforestation – Page 3

The concept of a "significant disturbance" is ambiguous. What happens in case fires was man-made, when is a landowner negligent; in cases of pests: if the 20% decrease is spread over 2 years or so, is this still a disturbance.

Section 2.1.1 - Reforestation – Page 3

Like the other versions of the FPP there is no good description of how to demonstrate that a project was historically forested. If no aerial photos or vegetation cover maps existed, could one look at soil type and prove that there is no difference between the non-forested area and the surrounding forest? Could a project developer rely on oral history?

Section 2.2 - Project Developers - Page 3

The protocol should allow for entities to both own or have long term legal control over the trees.

Section 3.1 – Additionality - Page 4

The use of the term "Additionality" is muddled under the FPP to mean net project credits (project GHG less baseline) not the "test" of whether the project would have happened in the absence of a carbon market or is business beyond usually regardless of the amount of net GHGs. This is inconsistent with international standards, where additionality refers to the question whether the project would have happened in absence of carbon credits, and relates more to the financial and legal barriers for developing and implementing a project, and not so much to the question whether project credits are

above baseline credits. In practice these barriers are included in the CCAR baseline analysis. It might be good to point this out in a text box or so.

Section 3.2 – Project Start Date – Page 4

Specify whether baseline data is required for each consecutive year of a 100 yr period.

Section 3.2 – Project Start Date – Page 4

The term "listed" is unclear and should specify what is required to list a project, does it mean submit a fully completed set of project documents or something else?, if it means complete submission then the time required for listing after the start date should be increased from 6 months or 2 years.

Section 3.2 – Project Implementation Agreement – Page 4

A sample of the Project Implementation Agreement should be provided for review under the public comment

Section 3.4 – Project Implementation Agreement – Page 5

Public lands should not be exempt for submission of the Project Implementation Agreement, while it may be true that the process is more open and transparent, agencies managing public land should still be required to provide the same commitments as private land

Section 3.4 – Project Implementation Agreement – Page 5

There is no justification for requiring a conservation easement only on Avoided Conversion projects. If the FPP will allow other projects types not to have a conservation agreement then Avoided Conversion should not be required because conservation can be supported with without an easement and other areas of the protocols discount for this risk of not having an easement

Section 3.4 – Project Location – Page 5

This section clearly states that the protocol is not for use outside the U.S.; however there are sections that would imply or reference potential use outside the U.S. These should be removed.

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 5

The harvest unit is described as less than 40 acres. However, in the West, harvest areas often are much greater than 40 acres. If for the purposes of the FPP, a "harvest unit" is less than 40 acres, it should be listed in the Glossary of Terms. This only relates to Natural Forest Management from less than 40 acres to 10,000 acres. Why not say "from the harvest unit to 10,000 acres."

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 6

This section states that projects that do not initially meet the natural forest management plan must do so before verifying. Does this mean that credits cannot be earned for years in which the project does not meet the requirement?

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 6

Reforestation projects with no immediate intent to harvest do not have to achieve the same score for habitat features. What if this project starts harvesting in year 3; do they need to meet the score at that time, and is this checked in verification. If not, this opens the door to just postponing harvesting for the sake of not having to comply with habitat features.

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 6

How do you quantify that "no diversity of species exists": proportion of dominant species >95%? There should be an exact cutoff of some metric.

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 6

Management of species distribution […]: how does one calculate how management favors one species over another? It is unclear what the 75% relates to: proportion of commercial trees thinned divided by proportion of existing commercial trees perhaps?

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 6 - 8

Table 3.1; please explain the categories under functional habitat elements.
P6: please specify the minimal score that is required from Table 3.1. What is the alternative minimal score for projects that have no immediate intent to harvest?

Section 3.5.1 – Promotion and Maintenance of Native Species – Page 6 - 8

As in the previous FPP versions, this table is hard to interpret and impossible to read. If each chart in the table were all on one page it would be much easier to understand. A quick review of the tables/charts before the final print would save considerable time spent wondering over what they mean.

Section 3.5.2 - Promotion of On-Site Forest Carbon Stocks – Page 9

The sentence…"reductions shall not be …" is unnecessarily complex; remove double negation

Section 3.5.2 - Promotion of On-Site Forest Carbon Stocks – Page 9

What if a more accurate sampling leads to a decrease in C stocks because the previous estimates were an overestimate?

Section 5.1 – Accounting for Secondary Effects (Leakage) – Page 10

It is appropriate for the FPP to include leakage for projects and this topic is not straightforward. The inclusion of activity-shifting leakage should be clarified into trying to measure activity shifting leakage within an entity (i.e. they reduced harvest on some lands only to increase it on others) AND activity shifting leakage outside of the entity, where the project has caused others to increase harvesting. This generally means that within a given reference region, the project actions forces non-project-participants to increase GHG emissions, e.g. avoided conversion projects that simply force development in other areas. While most of this is addressed, using clearer definitions could be helpful. However, the FPP does not address "market leakage", which may occur outside of the project entity or further away from the project area. This was only recently added to the VCS guidelines; FPP should either include this or state that it is not a requirement of the protocol.

Section 6.1.1 – Primary Effects Estimating On-Site Baseline Carbon Stocks - Page 11

"to the extent similar […] project's assessment area": it is unclear as to what is meant here.

Section 6.1.1 – Primary Effects Estimating On-Site Baseline Carbon Stocks - Page 11

This paragraph seems to be pushing salvage logging. Some scientific papers demonstrate that salvage logging harms the ecosystem much more than previously thought and leaving large amounts of carbon after a disturbance is necessary for a healthy natural recovery. This paragraph is in disagreement with FPP definition of natural forest management.

Section 6.1.2 – Secondary Effects…. - Page 12

What about the use of fertilizer and other non-biomass and non-combustion related emissions?

Section 6.1.2 – Secondary Effects…. - Page 12

The values provided for leakage for reforestation projects, are based on limited research and should only be used as a default in the absence or more defined and project appropriate data that can be provided by the project developer. It should be clearly specified, how project developers can provide and use numbers based on research and data other than those provided here. These could lead to significant mis-estimation for some projects.

Section 6.1.2 – Secondary Effects…. - Page 12

It is unclear what is the test for "commercial viability"; this should be defined clearly.

Section 6.1.2 – Secondary Effects…. - Page 13

Looking to the acres under forest cover for a entity and assuming anything > 5% implies leakage, does not specifically allow for a number of factors that could explain changes in forest cover acres other than leakage. These should be clearly outlined, specified as adjustments that can be made to the 5% test.

Section 6.1.2 – Secondary Effects…. - Page 13

Define "forest cover type". From table 6.1, it seems to be only forest/non-forest, or does it also include forest strata?

Section 6.2.1.1 – Private Forest Land - Page 13

USDA FS Forest Inventory and Analysis (FIA) is not a very detailed data spread. Using this for a baseline may be difficult to apply on such a large scale. There are no national forest practice rules or standard to use as a baseline, but a good suggestion would be to make every state create forest practice laws.

Section 6.2.1.1 – Private Forest Land - Page 14

The statement "forests with above-average stocks", is this similar to the concept on p 15 for "projects whose initial project inventories exceed the applicable mean"? If so, use consistent terminology.

Section 6.2.1.1 – Private Forest Land - Page 14

Don't understand point 1, at the top of the page. What does "programmatically" assessing common management behavior mean?

Section 6.2.1.1 – Private Forest Land. Additional Constraints - Page 15

Replace "standing live carbon stocks" by "standing live baseline carbon stocks" to avoid any confusion.

Section 6.2.1.1 – Private Forest Land Additional Constraints - Page 15

Clarify here whether the "applicable assessment area mean" is calculated solely based on the FIA data.

Section 6.2.1.1 – Private Forest Land Additional Constraints - Page 15

The "in addition" part allows one to choose between a or b, or must one go forth with the most conservative of the two options? This is unclear.

Section 6.2.2 – Secondary Effects, Leakage Risk Assessment – Page 16

The percentages in this section are forest type and region-specific; there should be an option and guidance for use of other numbers for different forests and locations.

Section 6.2.2 – Secondary Effects, Leakage Risk Assessment – Page 16

Replace "board feet" by "timber", the unit of measurement does not matter, it is assumed that the "board feet" was added to distinguish timber masses from biomass?

Section 6.2.2 – Secondary Effects, Leakage Risk Assessment – Page 17

Figure contains "standing live pool", is this equivalent to the "above-ground living biomass" defined earlier? Consistent terminology is required to minimize confusion.

Section 6.2.2 – Secondary Effects, Leakage Risk Assessment – Page 17

The test of harvest volume within the entity but outside the project is not a reliable test for leakage. There could be other reasons unrelated to the project results in an increase in harvest such as increased demand.

Section 6.3.1.1 – Baseline Characterization for Immediate Site…. – Page 18

The requirement to provide a 100-yr baseline without revising the baseline seems unrealistic. Consider a required baseline adjustment every 20 yr or so.

Section 6.3.1.1 – Baseline Characterization for Immediate Site…. – Page 18

For projects with legal restriction but have had illegal actitivies of degradation and deforestation that will be reduced due to project actions these should also be able to be included.

Section 6.3.1.2 Baseline Characterization… – Page 19

Disparity in Value: the threshold of 25% is quite high. We understand the need for a set (conservative) threshold, but 25% seems too high, this is going to exclude many projects and is not consistent with how investment decisions are made, the test should lower and expressed as a percentage of current interest rates.

Section 6.3.1.2 Baseline Characterization… – Page 20

This table outlines a set of fixed drivers of deforestation (conversion), but it also excludes important ones that may be specific to an area such as recreation appeal and other factors. The FPP should allow project developers to submit other risk factors and it should provided guidance for incorporation of these into the conversion risk.

Section 6.3.1.2 Baseline Characterization… – Page 20

Table 6.3333 0 Even if projects scored maximally on all indicators in Table 6.2, projects are still discounted with 40%. This seems overly conservative. This means that maximally 60% of the gross credits that are potentially available can become carbon offsets, which is a very steep discount.

Section 6.3.1.2 Baseline Characterization…, Estimated Rate and Effect… – Page 21

Are the credits from avoided conversion projects always spread over 10 years, or can project participants choose this period with documentation? What if during the 100-yr project implementation period the risks to conversion increase; can the "extra" credits be claimed, or are they fixed?

Section 6.3.2 Secondary Effects – Quantifying Net Changes… - Page 23

On "planned conversions": allowing project participants to leave out conversions for which the lack of a causal link can be established by the project participants is opening a potentially significant back door to erode leakage. The demonstration of the causality must be specified in further detail, so that only a limited number of specific exceptions are allowed.

Section 6.4 – Quantifying Total Net GHG Reductions – Page 24

On quantifying total net GHG reductions: if baseline predictions need to be made for a period of 100 years, do net GHG reduction predictions also be made for 100 years. Is there a requirement to periodically updated these upon a new inventory of carbon stocks?

Section 6.4 – Quantifying Total Net GHG Reductions – Page 24

Step # 5 – this includes wood products; this should be removed until the fully drafted protocol with the inclusion of wood products is developed.

Section 6.4 – Quantifying Total Net GHG Reductions – Page 24

It is great to see that a system is in place to deduce QRs according to the uncertainty of the measurements. However, the current approach seems flawed. Since the QR's are based on a difference of year y and year y-1: [AC(y)-AC(y-1)], the uncertainty-penalty must also happen based on the uncertainty of this difference. To calculate the uncertainty of the difference, error propagation rules are used:

sqrt(U(AC(y))^2+ U(AC(y-1))^2

where "U( )" indicates the "uncertainty of a random variable", which is equal to CD(y)*AC(y). The error propagation rules hold in case there is no correlation between U(AC(y)) and U(AC(y-1)). This happens when temporary measurement plots are used. In the formula used in the draft protocol, the QRs are discounted according to the difference of the uncertainties (AC(y-1)-AC(y)). This seems inherently flawed. It is not some statistical detail. The difference between the two approaches becomes obvious in the use of permanent sampling plots vs. temporary sampling plots. The error on biomass changes over time calculated by permanent sampling plots will be MUCH less than the error based on non-paired temporary plots. The authors seem to be aware of this as on p 40 it is stated "permanent plots, which are statistically efficient for stock change estimates". In the current version, there is no advantage in

using permanent sampling plots, which is inherently wrong. Even when the argument is made that this formula is not a statistical rigorous deduction, but a practical way to penalize project proponents who have inventories with low accuracies, there must be a mechanism in place to favor permanent sampling plots. In fact, since all carbon offsets are based on differences in stocks over time, it should be obliged to use permanent sampling plots.

Section 6.4 – Quantifying Total Net GHG Reductions – Page 25

Only the project activity stocks have a deduction for confidence, there is no equivalent mechanism for baseline stocks, which seems arbitrary.

Section 6.4 – Quantifying Total Net GHG Reductions – Page 25, 26

Top right corner text is hard to read. Charts that were nearly impossible to read were in the last two revisions as well. A final edit looking at tables and charts alone would fix this.

Section 7 – Ensuring Permanence of Credited Emission Reductions – Page 27

The use of a reserve pool by CCAR should only be viewed as a temporary approach to permanence. As AB 32 clarifies how FPP offsets can be used to meet regulatory requirements, the cap and trade rules, not the project protocol, should specific that the regulated entity is responsible for any reversals of past offset used for compliance. This would allow the market factors to determine the price for forest offsets as a function of risk. A reserve pool managed by CCAR can be used as an interim step but it is not the most efficient way to insurance permanence.

Section 7 – Ensuring Permanence of Credited Emission Reductions – Page 27

The FPP should allow for other forms of risk reduction besides only commercial insurance such as an entity's own pool of credits or structured insurance products. It should be clear who estimates and verifies the extent to which the project developers can do hedging and insurance solutions can be applied to reduce/eliminate the amount the project must contribute to the reserve pool.

Section 7 – Ensuring Permanence of Credited Emission Reductions – Page 27

It should be clearly defined that reversals are not simply lower net GHG from one year to the next (which could be due to a number of planned factors), but reduction in carbon stocks due to fixed set of perils.

Section 7 – Ensuring Permanence of Credited Emission Reductions – Page 27

CRT is mentioned without a definition. Suggestion: put CRT in Abbreviations and Acronyms.

Section 7.2.2 – Use of Buffer Pool… – Page 28

The project *may* terminate if a reversal reduces the stocks below baseline. Who decides whether the project will in fact terminate? Do the project proponents have the option to terminate the project?

Section 7.2.2 – Use of Buffer Pool… – Page 28

The term "reduction" is potentially confusing in a sentence with the word "reversal"; suggest changing this to "creditable GHG reductions". The following statement is rather cryptic "other than restoring the buffer pool for any remaining reductions". Consider adding "to restore the buffer pool according to the initial risk of reversal percentage". This may be important if pooled buffer CRTs from other projects are used to compensate project reversals, and the risk reversal percentage is gradually eroded, so that the "actual" buffer percentage is lower than the initially determined risk reversal.

Section 7.2.2 – Use of Buffer Pool… – Page 28

If CRTs from pooled buffers of other projects had to be used, the proportion of "available" buffer pool CRTs to released CRTs decreases for all CCAR projects, and the CRTs of projects are no longer backed up by buffer pools according to the "risk of reversal". Isn't this a problem? If the reversed project continues, don't they first have to restore any used pooled buffer CRTs from other projects to ensure that buffer pools are still available to the proportion determined by the risk reversal.

Section 7.2.2 – Use of Buffer Pool… – Page 28

If buffer CRTs are used to compensate reversals, they start representing a carbon offset that was purchased by a buyer, and therefore should be buffered again to avoid potential reversal of the used buffer CRTs. What mechanisms are in place to guarantee this?

Section 7.2.2 – Use of Buffer Pool… – Page 28

For fire risk, it would be better to have an actual Fire Risk Reduction Management option for landowners. The risk reduction would be insurance in itself.

Section 7.2.2 – Use of Buffer Pool… – Page 28

There is no mechanism in place to release the buffer pool after project start, e.g., upon a demonstrated good and low-risk project management.

Section 8.2 – Annual Monitoring Requirements – Page 29

On the paragraph under monitoring, starting with "To promote transparency…": consider changing this sentence to "you must include a history of the ownership". This will provide potential buyers of ALL of the owners of the area, and not only the owners at the time of verification. This may be important for liability reasons.

Section 8.2 – Annual Monitoring Requirements – Page 29

Are the annual monitoring reports publicly available?

Section 8.2 – Annual Monitoring Requirements – Page 29

Clearly state in the beginning of the monitoring section that there are two levels of monitoring: (1) "plain" annual monitoring, reviewed by a verifier (and upon which the release of CRTs is based), which contain non-field-verified data and (2) a field review accompanied monitoring, done every 6 year, which will contain much more data and narrative.

Section 10 – Glossary of Terms – Pages

Fix capitalization of terms. Some capitalized some are not. This suggests as if some of these are more significant than others.

Section A.3 – Onsite Forest Inventories – Page 39

On forest inventories: there does not seem to be a requirement for having permanent sampling plots. This means that changes in carbon stocks are MUCH harder to quantify.

Section A.3 – Onsite Forest Inventories – Page 40

Permanent plots are not required, and the FPP 2.1 had semi-permanent plots that must last at least six years. This revision only requires temporary flagging at plot center. It seems that every version is moving farther away from permanent plots.

Section A.3 – Onsite Forest Inventories, Develop Inventory Methodology… – Page 43

Example A.3 It is obvious that allometric relations are used to go from DBH and height per tree to biomass (column 7). However, interpreting column 8 is impossible. The term "Weight" is confusing, as it relates to the effect of gravity on mass. I prefer "expansion factor", with as unit "ha^-1". What is the formula for calculating this factor?

Section A.5. Estimate Carbon in Wood Products – Page 47

The wood products section is incomplete and it should clearly state that a new version will be completed and published for public comment.

Section B.1 – About Models… Page 51

Additional models should be demonstrated to the verifier, not a state forester.

Section Appendix C – Determination of Risk Rating… - Page 53

A general comment about this entire Risk Section is that the numbers are far too high and often very arbitrary or theoretical. When adding these unmitigated risks together, you will reduce the project credits far beyond that which is likely given all these things are unlikely to happen. This area should be

further refined to collective represent a better estimate of the likelihood of overall risk of reversal and proper calibration of the reserves on a project.

Section Appendix C – Determination of Risk Rating… - Page 53

Does the risk calculation from Appendix C need to be re-done annually in the monitoring report? If not, this should be the case as risk may change drastically over the course of a project's lifetime, both negatively and positively. Obviously, this will introduce more uncertainty in the credits that will be released over time. A revision of the risk should be done at a time the baseline is revised.

Section C.1 – Financial Risk – Page 53

FR 1 – The criteria of using the number of years that the investment is "recouped" should clearly state that what is meant by that. Does that mean it is has a cumulative cash flow that is positive? Does this mean that the IRR meets a risk adjusted test? It should also provide guidance for the assumptions that can be used for the prices of timber and carbon. In addition, this should specify how donor-based funding can be used in the financial analysis.

Section C.1 – Financial Risk – Page 53

FR 1 & 2 – It is unclear where the number of 40% comes from. This value is very high; some background should be provided. In addition, the FPP should provide for some sort of interpolation for breakevens below 10 years instead of two buckets.

Section C.2.2 - Management Risk II – Page 56

For projects that do not meet the three zero-conversion criteria, the risk of conversion should take into account the opportunity costs of potential conversion, i.e. how much will be made if converted. In addition, the "mission of the land owner" should be considered and the ability of the land owner to financially support the on-going conversation.

Section C.3 – Social Risk – Page 59

Describing social risk is an important part that has been basically left out of the FPP. I would commend CCAR for their work on this.

Section C.3.1 & C.3.2 – Social Risk I & II – Page 59 & 60

These are arbitrary and insignificant, and the overlook changes daily. It is recommended to remove these reductions.

Section C.3.3 – Social Risk III – Page 61

This section is theoretical. In this unclear emerging regulatory market, it will not be able to be applied in a sound way for many years; therefore, remove it. In addition, the use of CER is not defined.

Comments for Application of the FPP Outside the U.S.

Based on discussions with CCAR, it sounds like the goal is to expand these protocols for use outside the U.S. We have tried to provide a few comments as to the ability to apply these outside the U.S. and the potential issues that would arise.

The Idea of a Project implementation Agreement holding for 100 years may not work internationally to ensure permanence. A system of higher buffer percentages and reversal risks and a max 30-yr or 50-yr PIA agreement could be substituted for the current 100 yr requirement.

In an international context, there must be a stricter definition of what constitutes a "commercial" species.

Table 5.1 N2O from increased fertilizer use, and CH4 from ruminants to attain agricultural intensification projects should be added in the international context + CO2&N2O add forest fires from controlled burning

Tropical forest models should be included to ensure compatibility outside of the U.S.

It will be very hard to define an applicable mean internationally. Therefore, it could be required that in the absence of a national baseline, projects should choose the more conservative baseline option number 2 (see p 15).

On Page 17: it should be specified what the 10% means, or a reference should be added to the statistics section.

Section 6.3.1. Option 1 - the "immediate threat of conversion" seems similar to "planned deforestation" under the VCS; while option 2 – "assessment of the risk …" is similar to "unplanned deforestation" under the VCS. Consider mentioning these terms for compatibility reasons, with the caveat that "unplanned" means "not immediate planned", as at the most detailed level every conversion is planned.

Country-based deforestation risks from the FRA assessment could be used instead of the county conversion rates.

Page 23- tropical forest growth models will likely be less reliable than in the US, what is the minimum time requirement for monitoring inventories when there's no models used? Annually? Or only when the monitoring report is verified.

Thank you very much for the opportunity to provide our comments if the FPP,

Leslie Durschinger
Founder, Managing Director
Terra Global Capital, LLC