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Climate, Community and Biodiversity Project Design Standards (First Edition)

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CCB Standards

The Climate, Community & Biodiversity Alliance

Climate, Community and Biodiversity
Project Design Standards

FIRST EDITION

These *Climate, Community and Biodiversity Project Design Standards* (the "*CCB Standards"*) identify land-based projects that can simultaneously deliver compelling climate, biodiversity and community benefits. The CCB Standards are primarily designed for climate change mitigation projects. The CCB Standards were developed by the Climate, Community & Biodiversity Alliance (CCBA). The CCBA is a global partnership of research institutions, corporations and environmental groups, with a mission to develop and promote voluntary standards for multiple-benefit land-use projects. For more information about the CCBA, please visit www.climate-standards.org or contact *info@climate-standards.org*.

This first edition of the CCB Standards represents the culmination of two years of research and a broad, international stakeholder process. Community groups, NGOs, companies, academics, project developers and others provided comments, critiques, and suggestions during the two-years. In addition, field-tests from Asia, Africa, Europe and the Americas shaped the CCB Standards considerably. A review team considered all comments and field-tests to create the first edition. The review team included the authors and three advising institutions: Tropical Agricultural Research and Higher Education Center (CATIE), the World Agroforestry Center (ICRAF) and the Center for International Forestry Research (CIFOR).

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Introduction

Humankind faces a number of pressing challenges as the 21st century begins. Compelling scientific evidence implicates human greenhouse gas emissions in changing the global climate. Poverty persists around the world, and is worsening in many regions. Biodiversity loss, especially in tropical forests, continues. These interconnected problems often reinforce one another, undermining the environment and sustainable community livelihoods.

Exemplary land management projects can cost-effectively address multiple global problems simultaneously. Such projects will ideally help counter climate change, promote sustainable development and conserve or restore biodiversity. Multiple-benefit projects are also more likely to attract a diverse portfolio of investors. For example, a reforestation project with obvious environmental and social co-benefits may attract private investors for the carbon credits, government money for sustainable development and conservation dollars for biodiversity support.

Conversely, poor-quality land management can result in negative tradeoffs between various outcomes. For example, a non-native plantation may sequester carbon, but it is not sustainable if it blocks migratory routes of key species or evicts local people. Although major international agreements call for integrated approaches to global problems, there is little concrete guidance on how to develop such holistic projects.

The Climate, Community and Biodiversity (CCB) Standards were created to foster the development of projects that deliver credible and significant benefits in an integrated, sustainable manner.

The CCB Standards are designed primarily for climate change mitigation projects. They Standards can be used in developing, developed or emerging economies, and can be used for projects funded with private and/or public investment.

The CCB Standards will be beneficial to a variety of users, including:

> *1) Project Developers* – Community groups, NGOs, agencies and others can use the CCB Standards for guidance in developing projects that deliver a suite of environmental and community benefits. Projects that meet the CCB Standards are likely to garner investments from funders that support multiple-value projects and best-practices projects.
>
> *2) Project Investors* – Private companies, multilateral agencies and other funders investing in carbon credits can use the CCB Standards as a project screen. The Standards will help investors minimize portfolio risks by identifying high-quality projects that are unlikely to become tied up by controversy. Multiple-benefit projects will create valuable goodwill and other ancillary returns for investors.
>
> *3) Government* – Governments of countries hosting projects can use the CCB Standards to ensure that projects will contribute to national sustainable development. Also, donor governments can use the Standards to pinpoint Official Development Aid (ODA) projects that efficiently satisfy multiple international obligations, such as the Millennium Development Goals and the UN conventions on Climate Change and Biological Diversity.

The CCB Standards evaluate projects in the planning or early stage of project implementation. For a project to be evaluated, the project proponentsmust first compile specific information about their proposed project. A third-party evaluator will then use this information to determine whether the project

satisfies indicators associated with given criterion. Each of the twenty-three criteria (consisting of fifteen required criteria and eight optional "point scoring" criteria) will be evaluated. To earn CCB Standards approval, projects must satisfy all fifteen required criteria. Exceptional projects that go beyond basic approval may earn a Silver or Gold rating, depending on the number of points scored (see box below).

CCB Standards Validation Levels

- **Approved**: For projects that satisfy all fifteen requirements.
- **Silver**: For projects that satisfy all requirements and receive at least one point from three different sections (General, Climate, Community, Biodiversity).
- **Gold**: For projects that satisfy all requirements, have a minimum of six points, with at least one point from each of the four sections.

In addition to recognizing exceptional projects, the CCB Standards are a tool for project developers interested in improving the design of their land-based projects. To this end, the CCB Standards include an Appendix of "Potential Tools and Strategies" highlighting resources and approaches that can improve how projects are built and run. More broadly, it is hoped that the CCB Standards will foster synergistic, innovative approaches to land management, especially in the various carbon markets.

Independent Evaluation

The CCB Standards rely on informed and impartial third-party evaluators to determine if a project merits approval. Thus, the credibility of the evaluators is critical to the overall credibility of the Standards.

Independent evaluation raises the credibility of projects but also increases project design costs. And most land-based climate change projects do not have ample budgets in the planning phase. There is also considerable fatigue among NGOs, multilateral agencies and the private sector for a new set of voluntary standards with its own certification process. Therefore, the CCBA is considering options for an evaluation process that builds on existing initiatives. The CCBA may authorize certifiers already approved by the Kyoto Protocol's Clean Development Mechanism, the California Climate Action Registry, existing forest certification programs, qualified private groups and other efforts. Such qualified groups would be encouraged to evaluate the CCB Standards at projects worldwide. Decisions will be posted on the website, www.climate-standards.org.

Project Checklist

General Section

Y			**G1. Original Conditions at Project Site**	Required
Y			**G2. Baseline Projections**	Required
Y			**G3. Project Design & Goals**	Required
Y			**G4. Management Capacity**	Required
Y			**G5. Land Tenure**	Required
Y			**G6. Legal Status**	Required
Y	?	N	**G7. Adaptive Management for Sustainability**	1 Point
Y	?	N	**G8. Knowledge Dissemination**	1 Point

Climate Section

Y			**CL1. Net Positive Climate Impacts**	Required
Y			**CL2. Offsite Climate Impacts ("Leakage")**	Required
Y			**CL3. Climate Impact Monitoring**	Required
Y	?	N	**CL4. Adapting to Climate Change & Climate Variability**	1 Point
Y	?	N	**CL5. Carbon Benefits Withheld from Regulatory Markets**	1 Point

Community Section

Y			**CM1. Net Positive Community Impacts**	Required
Y			**CM2. Offsite Community Impacts**	Required
Y			**CM3. Community Impact Monitoring**	Required
Y	?	N	**CM4. Capacity Building**	1 Point
Y	?	N	**CM5. Best Practices in Community Involvement**	1 Point

Biodiversity Section

Y			**B1. Net Positive Biodiversity Impacts**	Required
Y			**B2. Offsite Biodiversity Impacts**	Required
Y			**B3. Biodiversity Impact Monitoring**	Required
Y	?	N	**B4. Native Species Use**	1 Point
Y	?	N	**B5. Water & Soil Resource Enhancement**	1 Point

CCB Standards Validation Levels

✓ **APPROVED** – All requirements met

✓ **SILVER** – All requirements met, plus one point minimum from at least three different sections

✓ **GOLD** – All requirements met, six points minimum, at least one point from three different sections

Gen	Clim	Comm	Bio
G1.		**Required**	

G1. Original Conditions at Project Site

Concept

The original conditions at the project site before the project commences must be described. This description, along with projections (**G2**), will help determine the likely impacts of the project.

Indicators

The project proponents must provide a description of the project site, containing all the following information:

General Information

1) The location of the project and basic physical parameters (e.g., soil, geology, climate).
2) The types and condition of vegetation at the project site.

Climate Information

3) Current carbon stocks at the project site(s), using methodologies from the Intergovernmental Panel on Climate Change's Good Practice Guidance (IPCC GPG) or other internationally-approved methodologies (e.g., from the CDM Executive Board).

Community Information

4) A description of communities located in and around the project area, including basic socio-economic information (using appropriate methodologies such as the livelihoods framework).
5) A description of current land use and land tenure at the project site. (See also **G5**).

Biodiversity Information

6) A description of current biodiversity in the project area and threats to that biodiversity, using appropriate methodologies (e.g., key species habitat analysis, connectivity analysis), substantiated where possible with appropriate reference material.
7) A list of all IUCN Red List threatened species (which encompasses endangered and vulnerable species) and species on nationally recognized list (where applicable) found within the project boundary. (See also **B1**).

Gen	Clim	Comm	Bio
G2.		**Required**	

G2. Baseline Projections

Concept

An analysis of projected land-use trends is necessary to predict likely on-site changes without implementation of a project. This "without-project" future land-use scenario enables comparison of the project's likely impacts with what would otherwise have occurred.

Indicators

The project proponents must develop a defensible and well-documented "without-project" future land-use scenario and baseline projections, including the following information:

1) Description of the most likely land-use scenario in the absence of the project, identifying whether the scenario assumes that existing laws or regulations would have required that project activities be undertaken anyway.[1]

2) A projection of future carbon stock changes in the absence of the project, based on the land-use scenario described above. The timeframe for this analysis can be either the project lifetime (see G3) or the project accounting period, whichever is more appropriate[2]. If there is evidence that non-CO_2 greenhouse gas (GHG) emissions such as CH_4 or N_2O are more than 15% of the baseline GHG fluxes at the project site (in terms of CO_2 equivalents), they must be estimated.

3) Description of how the "without-project" scenario would affect local communities in the project area.

4) Description of how the "without-project" land-use scenario would affect biodiversity in the project area.

5) Description of how the "without-project" land-use scenario would affect water and soil resources. (See also **B5**).

[1] This is important for justifying whether the benefits being claimed by the project are truly "additional", i.e., the climate, community, and biodiversity impacts that would not be likely to occur without the project. For example, actions implemented by the project must not be required by law, or project proponents must make a compelling case demonstrating that the pertinent laws are not being enforced. The project proponents must provide credible and well-documented analyses (poverty assessments, farming knowledge assessments, remote sensing analysis, etc) showing that without the project, improved land-use practices would be unlikely to materialize.

[2] In some cases, the project lifetime and the project accounting period may be different.

Gen	Clim	Comm	Bio
G3.		**Required**	

G3. Project Design & Goals

Concept

The project must be described in sufficient detail so that a third-party can adequately evaluate it. Projects that operate in a transparent manner enable stakeholders and outside parties to contribute more effectively to the project.

Indicators

The project proponents must:

1) Provide a description of the scope of the project and a summary of the major climate, community and biodiversity goals.

2) Describe each major project activity (if more than one) and its relevance to achieving the project's goals.

3) Provide a map identifying the project location, where the major project activities will occur, and geo-referenced boundaries of the project site(s).

4) Provide a timeframe for the project's duration and the rationale used for determining the project lifetime. If the accounting period for carbon credits differs from the project lifetime, explain.

5) Identify likely risks to climate, community and biodiversity benefits during the project lifetime. Outline measures that the project plans to undertake to mitigate these risks.

6) Document and defend how local stakeholders have been or will be defined.

7) Demonstrate transparency by: making all project documentation publicly accessible at, or near, the project site; only withholding information when the need for confidentiality is clearly justified; informing local stakeholders how they can access the project documentation; and by making key project documents available in local or regional languages, where applicable.

Gen	Clim	Comm	Bio
G4.		**Required**	

G4. Management Capacity

Concept

The success of a project depends upon the competence of the implementing management team.

Indicators

The project proponents must:

1) Document the management team's experience implementing land management projects. If relevant experience is lacking, the proponents must demonstrate how other organizations will be partnered with to support the project.

2) Demonstrate that management capacity is appropriate to the scale of the project.

3) Document key technical skills that will be required to successfully implement the project and identify members of the management team or project partners who possess the appropriate skills.

4) Document the financial health of the implementing organization(s).

Gen	Clim	Comm	Bio
G5.		**Required**	

G5. Land Tenure

Concept

There should be no significant land tenure disputes in the project area, or the project should fundamentally help to resolve these tenure issues.

Indicators

Based on information about current land tenure provided in **G3**, the project proponents must:

1) Guarantee that the project will not encroach uninvited on private property, community property, or government property.

2) Guarantee that the project does not require the relocation of people, or any relocation is 100% voluntary and fundamentally helps resolve land tenure problems in the area.

3) Describe potential "in-migration" of people from surrounding areas, if relevant, and explain how the project will respond.

Gen	Clim	Comm	Bio
G6.		**Required**	

G6. Legal Status

Concept

The project must be based on a solid legal framework (e.g., appropriate contracts are likely to be in place) and the project must seek to satisfy applicable planning and regulatory requirements.

During the project design phase, the project proponents should communicate early on with relevant local, regional and national authorities and allow adequate time to earn necessary approvals. The project design should be flexible to accommodate potential modifications that may arise to secure regulatory approval.

Indicators

The project proponents must:

1) Guarantee that no laws will be broken by the project.

2) Document that the project has, or expects to secure, approval from the appropriate authorities.

Gen	Clim	Comm	Bio
G7.		**1 point**	

G7. Adaptive Management for Sustainability

Concept

Adaptive management is a formal, systematic, and rigorous approach to learning from the outcomes of management actions, accommodating change and improving management. It involves synthesizing existing knowledge, exploring alternative actions and making forecasts about their outcomes.[3]

Adaptive management is based upon the premise that ecosystems and social systems are complex and inherently unpredictable. Adaptive management views land management actions as learning opportunities and as potential experiments for systematically testing assumptions and identifying adjustments that could benefit the project. It enables a project to evolve to meet changing or unanticipated needs, and can help ensure that the project realizes its goals over the long term.

Indicators

The project proponents must:

1) Demonstrate how management actions and monitoring programs are designed to generate reliable feedback that is used to improve project outcomes.

2) Have a management plan for documenting decisions, actions and outcomes and sharing this information with others within the project team, so experience is passed on rather than being lost when individuals leave the project.

3) Demonstrate how the project design is sufficiently flexible to accommodate potential changes and that the project has a defined process in place to adjust project activities as needed.

4) Demonstrate an early commitment to the long-term sustainability of project benefits once initial project funding expires. Potential activities may include: designing a new project that builds on initial project outcomes; securing payments for ecosystem services; promoting micro-enterprise; and establishing alliances with organizations or companies to continue sustainable land management.

[3] The definition of Adaptive Management and several of the indicators were based on Nyberg (1999). *An Introductory Guide to Adaptive Management.*

Gen	Clim	Comm	Bio
G8.		**1 point**	

G8. Knowledge Dissemination

Concept

Field-based knowledge can be of value to other projects. If actively disseminated, this information can accelerate the adoption of innovative practices that bring benefits both globally and locally.

Indicators

The project proponents must:

1) Describe how they will document the relevant or applicable lessons learned.

2) Describe how they will disseminate this information in order to encourage replication of successful practices. Examples include: undertaking and disseminating research that has wide-reaching applications; holding training workshops for community members from other locales; promoting "farmer to farmer" knowledge-transfer activities; linking to regional databases; and working with interested academic, corporate, governmental or non-governmental organizations to replicate successful project activities.

Gen	Clim	Comm	Bio
CL1.		**Required**	

CL1. Net Positive Climate Impacts

Concept

The project must generate net positive impacts on atmospheric concentrations of greenhouse gases (GHGs) within the project boundaries and over the project lifetime.

Indicators

The project proponents must:

1) Use the methodologies of the Intergovernmental Panel on Climate Change's Good Practice Guidance (IPCC GPG) to estimate the net change in carbon stocks due to the project activities. The net change is equal to carbon stock changes *with* the project minus carbon stock changes *without* the project (the latter having been estimated in **G2**). Alternatively, any methodology approved by the CDM Executive Board may be used. This estimate must be based on clearly defined and defendable assumptions about how project activities will alter carbon stocks and non-CO_2 GHG emissions over the duration of the project or the project accounting period.

2) Factor in the non-CO_2 gases CH_4 and N_2O to the net change calculations (above) if they are likely to account for more than 15% (in terms of CO_2 equivalents) of the project's overall GHG impact.

3) Demonstrate that the net climate impact of the project (including changes in carbon stocks, and non-CO_2 gases where appropriate) will give a positive result in terms of overall GHG benefits delivered.

Gen	Clim	Comm	Bio
CL2.		**Required**	

CL2. Offsite Climate Impacts ("Leakage")

Concept

The project proponents must quantify and mitigate likely negative offsite climate impacts; namely, decreased carbon stocks or increased emissions of non-CO_2 GHGs outside the project boundary, resulting from project activities (referred to as "leakage" in climate change policy).

Indicators

The project proponents must:

1) Estimate potential offsite decreases in carbon stocks (increases in emissions or decreases in sequestration) due to project activities.

2) Document how negative offsite impacts resulting from project activities will be mitigated, and estimate the extent to which such impacts will be reduced.

3) Subtract any likely project-related unmitigated negative offsite climate impacts from the climate benefits being claimed by the project. The total net effect, equal to the net increase in onsite carbon stocks (calculated in the third indicator in **CL1**) minus negative offsite climate impacts, must be positive.

Gen	Clim	Comm	Bio
CL3.		**Required**	

CL3. Climate Impact Monitoring

Concept

Before a project begins, the project proponents must have an initial monitoring plan in place to quantify and document changes in project-related carbon pools, and non-CO_2 GHG emissions if appropriate, (within and outside the project boundaries). The monitoring plan should state which measurements will be taken and which sampling strategy will be used.

Since developing a full carbon-monitoring plan can be costly, it is accepted that some of the plan details may not be fully defined at the design stage, when projects are being evaluated by the CCB Standards. This will be especially true for small-scale projects.

Indicators

The project proponents must:

1) Have an initial plan for how they will select carbon pools and non-CO_2 GHGs to be monitored, and the frequency of monitoring. Potential pools include aboveground biomass, litter, dead wood, belowground biomass and soil carbon. Pools to monitor must include any pools expected to decrease as a result of project activities. Relevant non-CO_2 gases must be monitored if they account for more than 15% of the project's net climate impact expressed in terms of CO_2 equivalents.

Gen	Clim	Comm	Bio
CL4.		**1 point**	

CL4. Adapting to Climate Change and Climate Variability

Concept

Projects designed to anticipate and adapt to probable impacts of climate change and climate variability are more likely to sustain the benefits generated by the project over the long term.

Indicators

The project proponents must:

1) Identify likely regional climate change and climate variability impacts, using available studies.

2) Demonstrate that the project has anticipated such potential impacts and that appropriate measures will be taken to minimize these negative impacts.

Gen	Clim	Comm	Bio
CL5.		**1 point**	

CL5. Carbon Benefits Withheld from Regulatory Markets

Concept

When some carbon benefits generated by a project are *not* sold to satisfy regulatory requirements, additional mitigation action will be required elsewhere to meet these requirements. Therefore, withholding a portion of the project's carbon benefits from being used in capped markets will result in greater overall climate change mitigation.

Moreover, projects that do not sell all their carbon benefits in regulated regimes have the opportunity to experiment with climate change mitigation activities other than the ones eligible under these regimes (such as avoided deforestation, which is not currently creditable under the Clean Development Mechanism). Such experimentation may generate new knowledge that is of value to carbon rule makers and other project developers.

Indicators

The project proponents must:

- Not sell at least 10% of the total carbon benefits generated by the project[4] into regulated GHG markets (e.g., CDM, New South Wales GHG Abatement Scheme, Oregon Standard). Projects can sell these carbon benefits in a voluntary market or retire them.

[4] Total carbon benefits generated by the project can include those coming from activities that are currently not eligible for crediting under existing regulatory regimes (e.g., avoided deforestation).

Gen	Clim	Comm	Bio
CM1. **Required**			

CM1. Net Positive Community Impacts

Concept

The project must generate net positive impacts on the social and economic wellbeing of communities within the project boundaries and within the project lifetime. In addition, local communities and other stakeholders should be engaged early on so that the project design can be revised based on their input. Finally, projects should ensure that stakeholders can express concerns and grievances to project proponents and that these concerns are responded to in a timely manner.

Indicators

The project proponents must:

1) Use appropriate methodologies (e.g. the livelihoods framework) to estimate the net benefits to communities resulting from planned project activities. A credible estimate of net benefits must include changes in community wellbeing given project activities. This estimate must be based on clearly defined and defendable assumptions about how project activities will alter social and economic wellbeing over the duration of the project. The "with project" scenario must then be compared with the baseline scenario of social and economic wellbeing in the absence of the project (completed in **G2**). The difference (i.e., the net community benefit) must be positive.

2) Document local stakeholder participation in the project's planning. If the project occurs in an area with significant local stakeholders, the project must engage a diversity of stakeholders, including appropriate sub-groups, underrepresented groups and women living in the project vicinity. Stakeholders in the project's area of influence must have an opportunity before the project design is finalized, to raise concerns about potential negative impacts, express desired outcomes and provide input on the project design. Project developers must document stakeholder dialogues and indicate if and how the project proposal was revised based on such input.[5]

3) Formalize a clear process for handling unresolved conflicts and grievances that arise during project planning and implementation. The project design must include a process for hearing, responding to and resolving community grievances within a reasonable time period. This grievance process must be publicized to local stakeholders. Project management must attempt to resolve all reasonable grievances raised, and provide a written response to grievances within 30 days. Grievances and project responses must be documented.

[5] In cases where it is unclear whether a project will be implemented or not, it is acceptable to start with a preliminary community consultation, provided there are plans for a full engagement once the project is funded. (Such a cautious approach is warranted when there is evidence that raising community expectations prematurely could lead to frustration).

Gen	Clim	Comm	Bio
CM2. **Required**			

CM2. Offsite Community Impacts

Concept

The project proponents must quantify and mitigate likely negative social and economic offsite impacts; namely, the decreased social and economic wellbeing of communities or people living outside the project boundary, resulting from project activities.

Indicators

The project proponents must:

1) Identify potential negative offsite community impacts that the project is likely to cause.

2) Describe how the project plans to mitigate these negative offsite social and economic impacts.

3) Evaluate likely unmitigated negative offsite social and economic impacts against the social and economic benefits of the project within the project boundaries. Justify and demonstrate that the net social and economic effect of the project is positive.

Gen	Clim	Comm	Bio
CM3. **Required**			

CM3. Community Impact Monitoring

Concept

The project proponents must have an initial monitoring plan to quantify and document changes in social and economic wellbeing resulting from the project activities (within and outside the project boundaries). The monitoring plan should indicate which measurements will likely be taken and which sampling strategy will be used to determine how the project affects social and economic wellbeing.

Since developing a full community-monitoring plan can be costly, it is accepted that some of the plan details may not be fully defined at the design stage, when projects are being evaluated by the CCB Standards. This will especially be true for small-scale projects.

Indicators

The project proponents must:

1) Have an initial plan for how they will select community variables to be monitored, and the frequency of monitoring. Potential variables include income, health, roads, schools, food security, education and inequality. Community variables at risk of being negatively impacted by project activities should be monitored.

Gen	Clim	Comm	Bio
CM4.	**1 point**		

CM4. Capacity Building

Concept

Projects that include a significant capacity-building (training, skill building, etc) component are more likely to sustain the positive outcomes generated by the project and have them replicated elsewhere. The project proponents must include a plan to provide orientation and training for the project's employees and relevant community members with an eye to building locally relevant skills and knowledge over time.

Indicators

The project proponents must show that capacity building is:

1) Structured to accommodate the needs of communities, not only of the project;

2) Targeted to a wide range of groups, not just elites;

3) Targeted to women to increase their participation; and

4) Aimed to increase community participation in project implementation.

Gen	Clim	Comm	Bio
CM5. **1 point**			

CM5. Best Practices in Community Involvement

Concept

Projects that use best practices for community involvement are more likely to benefit communities. Best practices include: respect for local customs, local stakeholder employment, worker rights and worker safety.

Indicators

The project proponents must:

1) Demonstrate that the project was developed with a strong knowledge of local customs and that, where relevant, project activities are compatible with local customs.

2) Show that local stakeholders will fill all employment positions (including management) if the job requirements are met. Project proponents must explain how stakeholders will be selected for positions and where relevant, must indicate how traditionally underrepresented stakeholders and women, will be given a fair chance to fill positions for which they can be trained.

3) Show that the project will inform workers about their rights, and that the project complies with international rules on worker rights.

4) Comprehensively assess situations and occupations that pose a substantial risk to worker safety. A plan must be in place to inform workers of risks and to explain how to minimize such risks. Where worker safety cannot be guaranteed, project proponents must show how the risks will be minimized using best work practices.

Gen	Clim	Comm	Bio
B1. **Required**			

B1. Net Positive Biodiversity Impacts

Concept

The project must generate net positive impacts on biodiversity within the project boundaries and within the project lifetime, measured against the baseline conditions.

Projects should have no negative effects on species included in the IUCN Red List of threatened species (which encompasses endangered and vulnerable species) or species on a nationally recognized list (where applicable). Invasive species must not be planted by the project.

Genetically Modified Organisms (GMOs), as a relatively new form of technology, raise a host of ethical, scientific and socio-economic issues. Some GMO attributes may result in invasive genes or species. In the future, certain GMOs may be proven safe. However, given the currently unresolved issues surrounding GMOs, projects cannot use genetically modified organisms to generate carbon credits.

Indicators

The project proponents must:

1) Use appropriate methodologies (e.g., key species habitat analysis, connectivity analysis) to estimate changes in biodiversity as a result of the project. This estimate must be based on clearly defined and defendable assumptions. The "with project" scenario should then be compared with the baseline "without project" biodiversity scenario completed in **G2**. The difference (i.e., the net biodiversity benefit) must be positive.

2) Describe possible adverse effects of non-native species on the area's environment, including impacts on native species and disease introduction or facilitation. If these impacts have a substantial bearing on biodiversity or other environmental outcomes, the project proponents must justify the necessity of using non-native species over native species.

3) Identify all IUCN Red List threatened species and species deemed threatened on nationally recognized lists that may be found within the project boundary. Project proponents must document how project activities will not be detrimental in any way to these species.

4) Identify all species to be used by the project and show that no known invasive species will be used.

5) Guarantee that no genetically modified organisms will be used to generate carbon credits.

B2. Offsite Biodiversity Impacts

Concept

The project proponents must quantify and mitigate likely negative offsite biodiversity impacts; namely, decreased biodiversity outside the project boundary resulting from project activities.

Indicators

The project proponents must:

1) Identify potential negative offsite biodiversity impacts that the project is likely to cause.

2) Describe how the project plans to mitigate these negative offsite biodiversity impacts.

3) Evaluate likely unmitigated negative offsite biodiversity impacts against the biodiversity benefits of the project within the project boundaries. Justify and demonstrate that the net effect of the project on biodiversity is positive.

Gen	Clim	Comm	Bio
B3. **Required**			

B3. Biodiversity Impact Monitoring

Concept

The project proponents must have an initial monitoring plan to quantify and document the changes in biodiversity resulting from the project activities (within and outside the project boundaries). The monitoring plan should state which measurements will likely be taken and which sampling strategy used.

Since developing a full biodiversity-monitoring plan can be costly, it is accepted that some of the plan details may not be fully defined at the design stage, when projects are being evaluated by the CCB Standards. This will especially be true for small-scale projects.

Indicators

The project proponents must:

1) Have an initial plan for how they will select biodiversity variables to be monitored, and the frequency of monitoring. Potential variables include species abundance and diversity, landscape connectivity, forest fragmentation, habitat area and diversity, etc. Biodiversity variables at risk of being negatively impacted by project activities should be monitored.

Gen	Clim	Comm	Bio
B4.		**1 point**	

B4. Native Species Use

Concept

In most cases, species that are native to a region will have a higher biodiversity benefit than non-native species. In other cases, non-native species can be more effective than native species for rehabilitating degraded areas or providing fast growing biomass, timber, fruits and other beneficial products. For instance a project may need to use non-native species on severely degraded land to achieve ecological restoration before native species can be reintroduced.

Indicators

The project proponents must:

- Show that the project will only use species that are native to the region.

Or

- Justify that any non-native species used by the project are superior to native species for generating concrete biodiversity benefits (e.g., for rehabilitating degraded areas unlikely to support natives, or for producing fuel wood that reduces logging pressure on intact ecosystems).

Gen	Clim	Comm	Bio
B5.		**1 point**	

B5. Water and Soil Resource Enhancement

Concept

Climate change and other factors may stress and degrade water and soil resources at the project site over time. Projects should enhance the quality and quantity of water and soil resources.

Indicators

The project proponents must:

1) Identify project activities that are likely to enhance water and soil resources

2) Credibly demonstrate that these activities are likely to improve water and soil resource compared to the baseline, using justifiable assumptions about cause and effect, and relevant studies.

Appendix A

Potential Tools & Strategies Organized by CCB Standards Criteria

G1. Original Conditions at Project Site

a) Intergovernmental Panel on Climate Change. *Good Practice Guidance for Land Use, Land-Use Change, and Forestry,* www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_contents.htm

b) Rapid Rural Assessment methodologies, including: 1) Chambers, R. 1992. *Rural Appraisal: Rapid, Relaxed, and Participatory*. Institute of Development Studies Discussion Paper 311. Sussex: HELP; and 2) McCracken, A, Pretty, W, Conway, G., 1988, *An Introduction to Rapid Rural Appraisal For Agricultural Developmen*t, International Institute for Environment and Development, London. Also see: www.fao.org/docrep/W3241E/w3241e09.htm

c) Rapid Biodiversity Assessment methodologies include: 1) Draft Guidelines for methods, including indicators, for monitoring and the rapid assessment of wetland biodiversity, marine and coastal. Convention on Wetlands, Document STRP-11-10, Addendum 1. Viewable at: http://www.ramsar.org/strp11_doc10add1.pdf; and 2) www.biodiversityscience.org.

G2. Baseline Projections

a) Use of peer-reviewed programs for: calculating changes in carbon stocks (e.g., CO2Fix or Century): and predicting future land use trends (GEOMOD[6] or FRCA[7]).

b) Other tools may include local models, default baseline factors for the region, analysis of historical data, published deforestation rates, existing development plans, or other peer-reviewed models.

c) Remote sensing techniques and Geographical Information Systems (GIS) can detect and measure past and current rates of land cover change and project rates and types of change into the future.

d) *Baselines for CDM and JI Projects – Standardisation of Select Baseline Aspects* by the Hamburg Institute of International Economics (HWWA), http://jiq.wiwo.nl/probase/prob_fr.pdf

e) The CDM will soon have approved methodologies for land use baselines[8], http://cdm.unfccc.int/methodologies/ARmethodologies

f) Wollenberg, L., D. Edmunds and L. Buck. *Anticipating Change: Scenarios as a Tool for Adaptive Forest Management*. CIFOR.2000., www.cifor.cgiar.org/acm/methods/fs.html

g) Also see references under G1.

G3. Project Design & Goals

a) SouthSouthNorth CDM Practical toolkit. Full text at: www.cdmguide.org

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[6] GEOMOD is now available as a module through IDRISI, www.clarklabs.org

[7] For more information on FRCA please contact the Global Climate Change Initiative at The Nature Conservancy, http://nature.org/initiatives/climatechange/.

[8] For the CDM and other regulatory schemes, the "baseline" often refers to both the state of an area before the project and what would likely happen in the absence of the project.

b) FSC Principles and Criteria for Forest Stewardship. 2004. Forest Stewardship Council. Bonn Germany. http://www.fsc.org/en/whats_new/documents/Docs_cent/2,16

c) Sustainable Forestry Initiative. http://www.aboutsfi.org/core.asp.

d) IUCN World Commission on Protected Areas, 2003. *A Guide to Securing Protected Areas in the Face of Global Change: Options and Guidelines*. http://biodiv.wri.org/pubs_description.cfm?PubID=3904

e) Diversified project activities may include: primary or secondary forest conservation; reforestation or re-vegetation; agro-forestry plantations; densification; enrichment planting; introduction of new cultivation practices; introduction of new timber harvesting and/or processing practices (e.g., reduced impact logging); reduced tillage on cropland; improved livestock management; soil conservation; bio-energy production, improved fodder bank for livestock production, etc.

G4. Management Capacity

a) No specific tools

G5. Land Tenure

a) *Study of Land Tenure and a Conservation Strategy for Private Lands in the Core Area of the Osa Biological Corrido*r. 2004. Centro de Derecho Ambiental y de los Recursos Naturales (CEDARENA), Costa Rica. Key lessons learned at: www.eco-index.org/search/results.cfm?projectID=701.

b) *A Survey of Indigenous Land Tenure*. A Report for the Land Tenure Service of the Food and Agricultural Organisation. December 2001. March Colchester (editor), www.forestpeoples.org/Briefings/Landrights/fao_land_tenure_report_dec01_eng.htm

c) Bruce J.W., 1998. *Review of Tenure Terminology*. Tenure Brief 1, Land Tenure Center, University of Wisconsin-Madison. http://agecon.lib.umn.edu/ltc/ltctb01.pdf (In Spanish "Conceptos sobre tenencia de la tierra" : http://agecon.lib.umn.edu/ltc/ltctb01s.pdf)

d) Land Tenure Center, University of Wisconsin-Madison, http://www.ies.wisc.edu/ltc/index.html

e) Involuntary Resettlement and the World Bank: http://lnweb18.worldbank.org/ESSD/sdvext.nsf/65ParentDoc/InvoluntaryResettlement?Opendocument

f) References at the University of Florida Geomatics website: www.surv.ufl.edu/6905-landtenure/

G6. Legal Status

a) During the project design phase, project proponents should communicate early on with relevant local, regional and national authorities, providing adequate time to earn the necessary approvals.

b) The project design should be flexible enough to accommodate potential modifications required to secure regulatory approval.

c) *Legal Issues Guidebook to the Clean Development Mechanism*. UNEP. http://www.cd4cdm.org/Publications/CDM%20Legal%20Issues%20Guidebook.pdf

G7. Adaptive Management for Sustainability

a) The Adaptive Management Practitioners' Network: http://www.iatp.org/AEAM/index.html

b) Lee, K. N. 1999. *Appraising Adaptive Management*. Conservation Ecology **3**(2): 3., http://www.consecol.org/vol3/iss2/art3/

c) Salafsky, N., R. Margoluis, and K. Redford. *Adaptive Management: A Tool for Conservation Practitioners.* Washington, D.C.: Biodiversity Support Program, http://fosonline.org/resources/Publications/AdapManHTML/Adman_1.html

d) Elliott, G., M. Chase, G. Geupel, and E. Cohen. *Developing and Implementing an Adaptive Conservation Strategy*. Point Reyes Bird Observatory, www.prbo.org/cms/docs/consplans/ACSGUIDEweb.pdf

e) Lee, K. 1999. Appraising Adaptive Management. http://www.ecologyandsociety.org/vol3/iss2/art3/

f) Nyberg B., 1999. *An Introductory Guide to Adaptive Management for Project Leaders and Participants*. BC Forest Services Branch. http://www.for.gov.bc.ca/hfp/amhome/Pubs/Introductory-Guide-AM.pdf

G8. Knowledge Dissemination

a) Stand Management Cooperative, University of Washington, College of Forest Resources www.cfr.washington.edu/research.smc. This cooperative is an example of a regional database focused on high quality information on long-term effects of silvicultural treatments, treatment regimes on stand and tree growth and development and wood and product quality.

CL1. Net Positive Climate Impacts

a) Various economic and financial tools can be used, including: pay-back period with and without carbon financing; economic analyses showing without carbon financing that the project would be less profitable than other competing land-uses; analyses showing that the project would not be realized because of barriers such as lack of financial capital, prevailing practices, lack of capacity or knowledge, and institutional or market barriers.

b) Project proponents can also describe if there are similar projects in the area. If yes, are the projects financed privately or publicly? Is climate change financing used to make the comparable projects viable?

c) Intergovernmental Panel on Climate Change. *Good Practice Guidance for Land Use, Land-Use Change, and Forestry,* (especially Chapter 4.3 on LULUCF projects) www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_contents.htm. Also, see other references therein.

d) WRI/WBCSD GHG Protocol, www.ghgprotocol.org.

e) California Climate Action Registry Forestry Protocols for measuring carbon fluxes, www.climateregistry.org/PROTOCOLS.

f) CDM website (http://cdm.unfccc.int).

g) CDM and JI Validation & Verification Manual, developed by the International Emissions Trading Association (IETA) and the World Bank Carbon Finance Group: www.ieta.org/ieta/www/pages/index.php?IdSiteTree=1146

h) Brown S., 1997. *Estimating Biomass and Biomass Change of Tropical Forests: a Primer*. (FAO Forestry Paper - 134). http://www.fao.org/docrep/W4095E/W4095E00.htm

CL2. Offsite Climate Impacts ("Leakage")

a) Control plots can be used to compare carbon stock changes within a project area to those on surrounding lands.

b) Monitoring changes in areas without fixed plots can also provide insight into potential leakage.

c) Leakage contracts can be used, e.g., requiring timber concessionaires not to exceed logging quotas on non-project lands and to adopt sustainable harvesting regimes.

d) Projects that incorporate a variety of activities in an integrated and holistic manner may reduce the likelihood of generating negative leakage (see G3).

e) Schwarze, R., J. Niles, & J. Olander. 2002. *Understanding and Managing Leakage in Forest-Based Greenhouse Gas Mitigation Projects*. Philosophical Transactions of the Royal Society, Series A 1797:1685-1703. www.ghgprotocol.org/docs/carbon-leak.pdf

CL3. Climate Impact Monitoring

a) Standard techniques for field measurements of vegetation and soil should be used based on accepted protocols.

b) Intergovernmental Panel on Climate Change. *Good Practice Guidance for Land Use, Land-Use Change, and Forestry,* www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_contents.htm. Also, see other references therein.

c) Brown S., 1999. *Guidelines for Inventorying and Monitoring Carbon Offsets in Forest-Based Projects*. Winrock International, Prepared for the World Bank. http://www.winrock.org/reep/guidelines.html

d) MacDicken K.G., 1997. *A Guide to Monitoring Carbon Storage in Forestry and Agroforestry Projects*, WinRock, http://www.winrock.org/REEP/PDF_Pubs/carbon.pdf

CL4. Adapting to Climate Change & Climate Variability

a) Although the magnitude of the impacts of climate change remains speculative, there are several scientific tools that predict regional impacts from likely future climate change. For particular regions, these models may show, for instance, increased flooding or droughts, more extreme weather events, changes in temperature and rainfall, and other stresses to ecosystems.

b) Regional climate projection tools may be available for some areas.

c) Plant species that are tolerant of a changing climate may be used in the project.

d) R.J. Klein, E.L. Schipper, & S. Dessai. 2003. *Integrating Mitigation and Adaptation into Climate and Development Policy: Three Research Questions*. Tyndall Centre Research Paper #40, www.tyndall.ac.uk/publications/working_papers/wp40.pdf.

CL5. Carbon Benefits Withheld from Regulatory Markets

a) No specific tools

CM1. Net Positive Community Benefits

a) Colfer, C. J. P. (ed.). 2005. *The Equitable Forest: Diversity, Community, and Resource Management.* RFF, Washington DC (USA).

b) The International Council on Mining and Metals (ICMM) indicators on community engagement: (http://www.icmm.com/comminity_development.php)

c) The Access Initiative. 2003. *Assessing Access to Information, Participation, and Justice for the Environment: A Guide*. WRI, Washington DC (USA) http://pubs.wri.org/pubs_description.cfm?PubID=3814

d) Stec, Stephen. 2003. *Handbook on Access to Justice under The Aarhus Convention*. REC, Szentendre (Hungary). http://www.elaw.org/resources/text.asp?id=1940

e) Frank Ellis, 2000. *Rural Livelihoods and Diversity in Developing Countries*. Oxford University Press.

f) Livelihoods Connect (Sustainable Livelihoods ToolBox, Learning Guide, Key Documents): www.livelihoods.org

g) Kath Pasteur, 2001. *Tools for Sustainable Livelihoods: Livelihoods Monitoring and Evaluation*. IDS, http://www.livelihoods.org/info/tools/Pas-ME01.rtf

h) Case Studies of Monitoring Livelihoods Impact, http://www.livelihoods.org/lessons/lessons.html

i) Smith, J.; Scherr, S.J. 2002. *Forest carbon and local livelihoods: assessment of opportunities and policy recommendations*. CIFOR Occasional Paper. No. 37. 45p. http://www.cifor.cgiar.org/publications/pdf_files/OccPapers/OP-037.pdf

j) Rezende, Divaldo; Merlin, Stefano, 2002. *Social Carbon: Adding value to sustainable development*. Instituto Ecológica, Palmas, Brazil. http://www.ecologica.org.br/ofm_publications/

CM2. Offsite Community Impacts

a) Borrini-Feyerabend, G. (ed.). 1997. *Beyond Fences: Seeking Social Sustainability in Conservation*. IUCN, Gland (Switzerland). www.iucn.org/themes/spg/Files/beyond_fences/beyond_fences.html

b) Also, see references under CM1.

CM3. Community Impact Monitoring

a) Jain, S.P. and W. Polman. 2003. *A Handbook for Trainers on Participatory Local Development*.FAO, RAP publication 2003/07. http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/006/AD346E/ad346e0e.htm

b) *Lessons from the Field. Linking Theory and Practice in Biodiversity Conservation.* WWF Biodiversity Support Program. Issue 1, April 1998. http://www.worldwildlife.org/bsp/bcn/learning/Lessons/lesson1/bsp.htm#Keeping

c) Community Based Natural Resource Management (CBNRM) toolkit (http://web.idrc.ca/en/ev-3244-201-1-DO_TOPIC.html)

d) Also, see references under CM1.

CM4. Capacity Building

a) Livernash, Bob (ed). 2002. *Closing the Gap: Information, Participation, and Justice in Decision-Making for the Environment*. WRI, Washington DC (USA). http://pubs.wri.org/pubs_description.cfm?PubID=3759

b) IUCN, 2003. *Developing capacity to manage Protected Areas*. Workshop session, World Parks Congress, Durban, South Africa, 2003, http://www.iucn.org/themes/wcpa/wpc2003/english/programme/workshops/developing.htm

c) National Natural Resource Management Capacity Building Framework (Australian Natural Heritage Trust): www.nrm.gov.au/publications/capacity-building

CM5. Best practices in Community Involvement

a) Walker, B., S. Carpenter, J. Anderies, N. Abel, G. S. Cumming, M. Janssen, L. Lebel, J. Norberg, G. D. Peterson, and R. Pritchard. 2002. *Resilience management in social-ecological systems: a working hypothesis for a participatory approach*. Conservation Ecology **6**(1):14. www.consecol.org/vol6/iss1/art14/

b) International Labor Organization Declaration on Fundamental Principles and Rights at Work. www.ilo.org/public/english/standards/decl/index.htm.

B1. Net Positive Biodiversity Impacts

a) D. B. Lindenmayer and J. F. Franklin (eds.). 2002.*Conserving Forest Biodiversity: A Comprehensive Multiscaled Approach*. Island Press, Washington DC.

b) G. K. Meffe and C. R. Carroll. 1997. *Principles of Conservation Biology, 2nd Edition*. Sinauer Associates, Inc. Sunderland, MA.

c) B. G. Savistsky and T. E. Lacher, Jr. (eds.). 1998. *GIS Methodologies for Developing Conservation Strategies*. Colombia University Press, NY.

d) G.M. Mace, A. Balmford, J.R. Ginsberg, 1999. *Conservation in a Changing World*. Cambridge University Press.

e) IUCN. The IUCN Red List Categories and Criteria, Version 3.1. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK, www.redlist.org/info/categories_criteria.html

f) www.redlist.org (searchable by country)

g) www.cites.org (searchable by country for species threatened through international trade)

h) Talk to appropriate regulatory groups and consult national databases for additional lists of threatened species.

i) Global Invasive Database, developed by the IUCN/SSC Invasive Species Specialist Group (ISSG) as part of the global initiative on invasive species led by the Global Invasive Species Programme (GISP). http://issg.appfa.auckland.ac.nz/database/welcome/

j) Center for Invasive Plant Management http://weedcenter.org/index.html

k) Morse, L.E., J.M. Randall, N. Benton, R. Hiebert, and S. Lu. 2004. *An Invasive Species Assessment Protocol: Evaluating Non-Native Plants for Their Impact on Biodiversity. Version 1*. NatureServe, Arlington, Virginia. http://www.natureserve.org/getData/plantData.jsp

l) Haysom, K.A. and Murphy, S.T. 2003. *The status of invasiveness of forest tree species outside their natural habitat: a global review and discussion paper*. Forest Health and Biosecurity Working Paper FBS/3E. Forestry Department. FAO, Rome (unpublished). http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/006/J1583E/J1583E00.HTM

m) Hagan, John M. 2004. *Identification of core biodiversity indicators to apply to sustainable forestry*. National Council on Science for Sustainable Forestry, Washington, D.C. http://www.ncseonline.org/NCSSF/page.cfm?fid=2687#tools

n) National Council for Air and Stream Improvement, Inc. (NCASI). 2003. *Wildlife and Biodiversity Metrics in Forest Certification Systems*. Technical Bulletin No. 0857. Research Triangle Park, NC: National Council for Air and Stream Improvement, Inc. http://www.ncasi.org/publications/Detail.aspx?id=81

B2. Offsite Biodiversity Impacts

a) Lambeck, R. and Hobbs, R.J. (2002) *Landscape and regional planning for conservation: Issues and practicalities*, in Applying Landscape Ecology in Biological Conservation. New York, USA: Springer-Verlag, pp.360-380.

b) Van der Sluis, T., M. Bloemmen, I.M. Bouwma, 2004. *European Corridors: Strategies for corridor development for target species*. Alterra, Wageningen University and Research Centre, Netherlands. http://www.alterra.wur.nl/webdocs/internet/corporate/prodpubl/boekjesbrochures/ecnc_compleet.pdf

c) Opdam P., Foppen R., Vos C, 2002. *Bridging the gap between ecology and spatial planning in landscape ecology*. Landscape Ecology 16: 767–779, 2002. http://leml.asu.edu/jingle/Landscape_Ecology/PDFs/Applications/Opdam_Foppen_Vos.2001.pdf

d) D. B. Lindenmayer and J. F. Franklin (eds.). 2002. *Conserving Forest Biodiversity: A Comprehensive Multiscaled Approach*. Island Press, Washington DC.

B3. Biodiversity Impact Monitoring

a) NHM. *Biodiversity: measuring the variety of nature and selecting priority areas for conservation*. Natural History Museum (NHM), UK, http://www.nhm.ac.uk/science/projects/worldmap/index.html

b) NCASI. 2004. *Managing Elements of Biodiversity in Sustainable Forestry Programs: Status and Utility of NatureServe's Information Resources to Forest Managers*. NCASI Tech. Bull. 0885. Research Triangle Park, NC. http://www.ncasi.org/Publications/Detail.aspx?id=2603

B4. Native Species Use

a) Cock, M.J.W. 2003. *Biosecurity and Forests: An Introduction - with particular emphasis on forest pests.* FAO Forest Health and Biosecurity Working Paper FBS/2E, 2003. http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/006/J1467E/J1467E04.htm

b) Parrotta, J.A., J.W. Turnbull, N. Jones. 1997. *Catalyzing native forest regeneration on degraded tropical lands*. Forest Ecology and Management 99 (1-2): 1-7.

c) World Agroforestry Centre: Tree Database. http://www.worldagroforestry.org/Sites/TreeDBS/databases.htm

d) US Geological Survey – invasive species reports and links: http://biology.usgs.gov/cro/invasive.htm

B5. Water & Soil Resource Enhancement

a) Scott, D.F., L.A. Bruijnzeel, and J. Mackensen. 2004. *The hydrological and soil impacts of forestation in the Tropics*. *In* M Bonell & LA Bruijnzeel (eds.) 2004. *Forests, water and people in the humid tropics*. CUP.

b) FAO Land and Water Division. http://www.fao.org/landandwater/default.stm

c) FAO Soils Bulletins. For instance: N°57 “Soil and water conservation in semi-arid areas”, N°64 “A study of the reasons for success or failure of soil conservation projects”, N°68 “Field measurement of soil erosion and runoff”, N°50 “Keeping the land alive. Soil erosion: its causes and cures”. All documents are available at www.fao.org/documents

Appendix B

Glossary

Adaptive Management – Is a philosophy that accepts that management must proceed even without complete information. It views management not only as a way to achieve objectives, but also as a process for probing to learn more about the resource or system being managed. Learning is an inherent objective of adaptive management. Adaptive management is a process where policies and activities can adapt to future conditions to improve management success.

Additionality – Environmental or emissions additionality refers to the carbon accounting procedures being established under the Kyoto Protocol, whereby projects must demonstrate real, measurable, and long-term results in reducing or preventing carbon emissions that would not have occurred in the absence of CDM activities. Proof of additionality is critical because developing countries do not have legally binding reduction commitments by which to judge changes in national baselines.

Baseline – The baseline represents forecasted conditions (whether carbon-, community- or biodiversity-related) under a business-as-usual scenario (i.e., had the project activities not been implemented). Often referred to as the "baseline scenario".

Carbon Dioxide (CO_2) – Roughly 3.7 units of CO_2 equal one unit of carbon (C). CO_2 plays a critical role in creating and regulating the earth's climate (see Greenhouse Gas).

Carbon Dioxide Equivalent (CO_2e) – Is the universal unit of measurement used to indicate the global warming potential of each of the seven greenhouse gases. It is used to evaluate the impacts of releasing (or avoiding the release of) different greenhouse gases. The Global Warming Potentials (GWP) of the three GHGs associated with forestry are as follows. CO_2 persists in the atmosphere for about 200-450 years and its GWP is defined as 1. Methane persists for 9-15 years and has a GWP of 22 (meaning that it has 22 times the warming ability of carbon dioxide). Nitrous oxide persists for about 120 years and has a GWP of 310.

Carbon Pools – A reservoir of carbon. A system that has the capacity to accumulate or release carbon. Carbon pools are measured in terms of mass (e.g., metric tons of carbon). The major carbon pools associated with forestry projects are: live biomass (including above and below ground components, i.e., roots), dead biomass, soil, and wood products.

Carbon Sinks – Any process, activity or mechanism that results in the net removal of greenhouse gases from the atmosphere.

Carbon Stocks – The quantity of carbon held within a pool at a specified time.

Carbon Source – Opposite of carbon sink. A carbon pool is a net source of carbon to the atmosphere if less carbon is flowing into it than is flowing out of it.

C&I – see **Criteria** and see **Indicators**

Clean Development Mechanism (CDM) – Is a mechanism established by Article 12 of the Kyoto Protocol for project-based emission reduction activities in developing countries. The CDM is designed to meet two main objectives: to address the sustainable development needs of the host country, and to increase the opportunities available to Treaty Parties to meet their reduction commitments. Under the CDM, Annex I (industrialized) countries can accrue "certified emission reduction units" (CERs), which are tradable carbon "credits", in return for financing carbon reduction project activities in non-

Annex I (developing countries) that help further their sustainable development. For more information visit: http://cdm.unfccc.int

Climate Change Mitigation – The reduction of greenhouse gas (GHG) emissions to achieve stabilization of GHG concentrations in the atmosphere and subsequently a cessation of further warming.

Community – Groups of people who live within a project site, or who live adjacent to the project and derive an income or livelihood from the site.

Convention on the International Trade in Endangered Species (CITES) – International agreement among 167 governments aiming to ensure that cross-border trade in wild animals and plants does not threaten their survival. The species covered by CITES are listed in three Appendices, according to the degree of protection they need. For more information visit: www.cites.org.

Criteria (singular **Criterion**) **–** A standard on which a judgment or decision can be based. The CCB Standards are broken down into 23 discrete criteria (comprising fifteen required criteria and eight optional "point-scoring" criteria).

Evaluator – A recognized, qualified and independent professional who evaluates which of the individual CCB Standards criteria are satisfied by the project in question. Based on this determination, the project may earn CCB Standards approval or, in exceptional cases, achieve "silver" or "gold" status. Given that investments in carbon offset projects are likely to take place before projects are initiated, it is important that *ex ante (i.e., "beforehand")* validation assessments are performed, such as through the use of the CCB Standards.

Good Practice Guidance (GPG) – Refers to the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (LULUCF). The *GPG-LULUCF* assists in producing inventories for the land use, land-use change and forestry sector that are not overestimates, so far as can be judged, and in which uncertainties are reduced as far as practicable. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources. For more information visit: www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.htm

Greenhouse Gases (GHG) – Greenhouse gases are gaseous components of the atmosphere that trap infrared heat and contribute to the Earth's greenhouse effect. In addition to carbon dioxide (CO_2), prominent GHGs related to forests include methane (CH_4) and nitrous oxides (N_2O).

Indicators – Agreed list of quantitative markers for monitoring progress towards desired goals and targets. The CCB Standards include indicators under each criterion that third-party evaluators must use to determine whether the project in question satisfies that particular criterion.

Intergovernmental Panel on Climate Change (IPCC) – Established in 1988 as a special body by the UN Environment Programme and the World Meteorological Organization to provide assessments to policymakers of the results of ongoing climate change research. The IPCC is responsible for providing the scientific and technical foundation for the United Nations Framework Convention on Climate Change (UNFCCC), primarily through the publication of periodic assessment reports (see "Second Assessment Report" and "Third Assessment Report"), posted at http://www.ipcc.ch/.

Invasive Species – Those non-native species, which threaten ecosystems, habitats, or species.

Kyoto Protocol to the UNFCCC – Establishes legally binding commitments for Annex I ("developed") countries to collectively reduce GHG emissions by more than 5 percent below 1990 levels by 2008 to 2012. The Kyoto Protocol includes a set of mechanisms in addition to domestic mitigation —such as International Emissions Trading, Joint Implementation, and the Clean Development Mechanism—that allow countries to achieve their commitments. As of February 2005, over 140 countries had approved the Protocol, including all developed countries except the U.S., Australia and Monaco.

Land Use, Land-Use Change and Forestry (LULUCF) – The Kyoto Protocol rubric for land-based activities that have the potential to impact carbon stocks and emissions.

Local Stakeholder – Entities within the community, such as individuals, definable groups, organizations or governments that have a stake in, or may be impacted by, proposed project activities.

Native – Native species are considered those that are part of the composition of a natural representative ecosystem of the area where the project site is located.

Non-Native – Species occurring outside their natural range, whether accidentally or intentionally introduced.

Permanence – The longevity of a carbon pool and the stability of its stocks, given the management and disturbance environment in which it occurs. A feature of LULUCF projects is the possibility of a reversal of carbon benefits from either natural disturbances such as fires, disease, pests, and unusual weather events; or from the lack of reliable guarantees that the original land use activities will not return after the project concludes. Strategies have been identified that mitigate potential reversals such as the establishment of contingency carbon credits, insurance, conservation easements and mixed portfolios of projects.

Project Proponents – the entity or individual organizing, proposing or advocating a particular carbon offset project. The project proponents could be the project designer(s), developer(s) and/or investor(s), or other parties working on behalf of the project.

Project Designer – the entity performing the initial assessments necessary to initiate a carbon offset project.

Project Developer – the entity actually implementing and maintaining the carbon offset project.

Reforestation – Is the direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. According to the language of the Kyoto Protocol, for the first commitment period (2008-2012), reforestation activities are limited to reforestation occurring on lands that did not contain forest at the start of 1990.

Sequestration – The process of increasing the carbon content of a carbon pool other than the atmosphere. There are various opportunities to remove atmospheric CO_2, either through biological processes (e.g. the growth of plants and trees), or geological processes (e.g., storage of CO_2 in underground reservoirs).

United Nations Framework Convention on Climate Change (UNFCCC) – The UNFCCC, along with the Convention on Biological Diversity (CBD), were two agreements to emerge from the 1992 U.N. Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil. The Kyoto Protocol emerged out of the UNFCCC[9] and sets specific timelines and timetables for reducing industrialized nations' GHG emissions and allows some international trading in carbon credits. For more information visit: http://unfccc.int

Workers – For the purposes of the CCB Standards, workers are defined as people directly working on project activities in return for compensation (financial or otherwise), including employees, contractors, and community members that are paid to carry out project-related work.

[9] In force by the United Nations, including ratification by the US.