

Issues Related to Modalities for Including Afforestation and Reforestation Project Activities under the Clean Development Mechanism in the First Commitment Period

Samoa, on behalf of the Alliance of Small Island States (AOSIS) welcomes the opportunity to submit its views on issues related to modalities for including afforestation and reforestation project activities under the Clean Development Mechanism in the first commitment period taking account the inputs identified in paragraph 2 of the Annex to FCCC/SBSTA/2002/L.8.

At the onset AOSIS notes that the consideration of these issues relates to specifically afforestation and reforestation the Clean Development Mechanism, however we believe that they have relevance to considerations under Article 6 (Joint Implementation) and that any annexes developed for the purpose of Article 12 should be used as a framework for the development of any annexes for land use, land-use change and forestry activities developed for Article 6.

The following is a series of issues associated related to the modalities for including afforestation and reforestation:

1. Issues Relating to the Definition of “Forest,” “Afforestation” and “Deforestation”:

AOSIS firmly believes that for the first commitment period, the definition of “forest”, “afforestation” and “reforestation” has been determined in the Annex to the Draft decision -/CMP.1 (*Land use, land-use change and forestry*) and that these definitions are part of the Marrakech Accord.

Should there be general agreement by all Parties that the definitions are subject to further negotiations and that the Marrakech Accord is open for renegotiation, AOSIS will submit new definitions and amendments to the Annex to the Draft decision -/CMP.1 (*Land use, land-use change and forestry*).¹

Dealing with the Unique Nature of Land Use, Land-use Change and Forestry:

The development of project based activities incorporating afforestation and reforestation under the CDM (and other LULUCF activities under Article 6) requires a unique approach. This is due to a number of factors including:²

- LULUCF activities will bring about a change in land use and potentially land tenure;
- The potential to displace people from their land;
- The dynamic nature of living systems, which are subject to seasonal changes and various perturbations, including the impacts of climate change;
- The potentially short-lived nature of some LULUCF sequestration activities;
- Difficulties associated with measuring sequestered carbon;
- Significant potential for environmental and social impacts;

¹ Should all Parties agree that the Marrakech Accord in relation to Land Use, Land-use Change and Forestry is subject to further negotiations, AOSIS will propose new definitions and amendments to the Annex to the Draft decision -/CMP.1 (*Land use, land use change and forestry*). These revisions include a change in the definition of forest, forest management, revegetation, a change to the accounting rule under Section B (Article 3, paragraph 3) paragraph 4 of the Annex, a change in the accounting provisions under paragraph 9, a revision to paragraph 11 of the Annex including a revision of the Appendix referred to in the paragraph, a deletion of paragraph 12 and a revision of the cap in paragraph 14.

² These are not listed in any particular order of significance

- Difficulties in setting baselines;
- The potential for projects to have effects on carbon storage elsewhere;
- The potentially broad scale of projects making them difficult to verify;
- Accounting requirements associated with various caps and limitations;
- The potential for projects to be influenced by non-direct affects e.g. nitrogen deposition, carbon fertilization etc.

With these aspects in mind, AOSIS believes that a unique approach must be taken to address these issues. This approach requires the need for:

- Specific annexes to be developed for each of these issues particularly in relation to non-permanence (and subsequent and accounting approaches), additionality, leakage, uncertainties, socio-economic impacts, environmental impacts (for both Article 12 and Article 6).
- Special accreditation standards to be set for Operational Entities reviewing LULUCF projects.

2. Issues Relating to the Consideration of “Non-permanence”

AOSIS believes that the issue of addressing non-permanence is one of the key elements in considering the eligibility of afforestation and reforestation projects under the CDM (and a fundamental issue for LULUCF activities under Article 6).

There are numerous approaches that have been suggested to address the issue of non-permanence. A number of these have been discussed in the OECD/IEA Information Paper: *Forestry Projects: Permanence, Credit Accounting and Lifetime*³. This paper provides a useful basis for discussion, (though we would contend that there are a number of assumptions and factors not relevant to the Kyoto Protocol that we would question in this paper).

Long-Term Carbon Integrity:

Fundamental to the consideration of any approach to address ‘non-permanence’ is the need to be consistent with the Kyoto Protocol and in particular to provide “**real, measurable and long-term benefits relating to the mitigation of climate change**”. Following this obligation, all afforestation and reforestation projects must aim to sequester carbon for the natural lifetime of the trees being planted and beyond. They should aim to provide an ongoing sequestration process based on serial changes to the planted forest system. This is what we understand “Long-Term Carbon Integrity” to mean.

Complications with Short Term Sequestration

Afforestation and reforestation projects that involve planting trees for later extraction (timber, thinnings, and other tree fibre products etc) would have great difficulty passing the Long Term Carbon Integrity requirement.⁴ This is simply due to the fact that these activities would have

³ OECD Environment Directorate and International Energy Agency, *Forestry Projects: Permanence, Credit Accounting and Lifetime*, Information Paper, 2001, COM/ENV/EPOC/IEA/SLT (2001)11

⁴ Note: If trees are planted for the purpose of producing fuelwood or any other type of biofuel, it is our view that this is not an afforestation or reforestation project. We would consider this to be a fuel substitution project, and should be accounted for in that context.

difficulty showing real, measurable and long-term benefits relating to the mitigation of climate change.⁵

It is evident that some proponents of CDM and JI projects believe that they can invest in short-term rotation forestry projects and hence obtain quick carbon credits for the project once the trees have reached the end of their maximum sequestration period. There appears to be a belief that these 'fast sequestration projects' also imply limited long-term liability for the sequestered carbon. This appears to be in the belief or hope that the trail of ownership of the sequestration rights will become sufficiently obscured by:

- accounting complications associated with the carry over of obligations between successive commitment periods;
- potential confusion, obscurity and/or poor book keeping associated with the conversion of RMUs into AAUs
- potential confusion, obscurity and/or poor book keeping associated with the maintenance of cancellation accounts
- deliberate company "reflagging" or dissolution so that ownership of carbon sequestration liability is lost or difficult to track.

Some proponents also appear to view short rotation forestry as a win-win situation in that carbon credits can be gained for the project as well as the economic benefits derived from the tree fibre taken from the afforestation/reforestation projects, hence providing double economic benefits. In reality this is a contradiction in accounting.⁶ Either the trees are grown for carbon or for fibre.

Means of Achieving Long-Term Carbon Integrity:

Non-permanence and hence Long-Term Carbon Integrity should be addressed by three interrelated means, with the three being applied collectively to each project proposal (they are not alternatives):

- Biodiversity Restoration Measures
- Local Community Agreement
- Legal Use of the Land and Carbon Ownership Right
- Ongoing Financial Viability
- Management System Capacity
- Perpetual Accounting Systems
- Perpetual Liability Requirements

Biodiversity Restoration Measures:

Afforestation and reforestation projects that aim to recreate natural forests⁷ (that were present prior to 1989) and provide a system of management to maintain these, as forests in perpetuity would provide the best opportunity for Long-Term Carbon Integrity. Such an approach is likely to provide additional sequestration as natural regeneration takes over from the planting process.

⁵ While some proponents of short rotation forestry have developed accounting systems, such as "temporary CERs", this approach is not consistent with the Kyoto Protocol and related decisions (see later discussion)

⁶ The only way this would be possible be if the tree fibre entered the carbon accounting system post harvest. This approach would create enormous accounting difficulties in trying to track the ownership and longevity of these carbon stocks. It would mean that owners of carbon sequestration rights (i.e. RMUs) would have to track the ownership of all the tree fibre that was taken from the project, in perpetuity. Such a system would be extremely complicated and open to extreme accounting difficulties, emissions measurement difficulties and potential fraud. It is believed that this accounting system is far too complicated to be considered in the first commitment period, if at all. The IPCC default of assuming that once a tree is cut down it is counted as an emission appears to be the most sensible approach at this stage and possibly into the future.

⁷ Using a mix of indigenous species to recreate, to the extent possible, the original forest

In this way, preference should be given to projects that maximise “biodiversity restoration measures”(BRMs). Apart from an increase in above ground biomass, under this “BRM” approach, soil carbon is more likely to increase.⁸ This approach not only provides the greatest opportunity for sequestering carbon in the long term, it also creates opportunities for linkages and synergies with other international agreements such as the Convention on Biological Diversity, the Convention to Combat Desertification and the Ramsar Convention.

Local Community Agreement:

Without the full legal agreement of local communities (including Indigenous Peoples) who may be affected by the project (both within and outside the project boundary), the prospect of the project remaining in perpetuity is highly unlikely. Full legal acceptance by all affected parties should be included in the *Project Design Document*. (Further details of social aspects are discussed later).

Legal Use of the Land and Carbon Sequestration Right:

Consistent with the fulfilment of local community agreements, the project should also indicate what measures are in place to ensure that the carbon is legally protected on the land. Two elements would be required:

- A title of legal authority to use the land⁹
- A legal right to own or have rights over the sequestered carbon on that land¹⁰

Ongoing Financial Viability

To ensure that a project is economically viable beyond the period of maximum sequestration, the *Project Design Document* would need to indicate what funding methods are to be employed to ensure the sequestration longevity of the project. A trust fund or other means of financial assurance would need to be identified within the project design.¹¹

Management System Capacity:

The project proponents would need to show in the *Project Design Document* that they have the management system capacity to ensure the sequestration longevity of the project. Included in the record of management system capacity would be a description of capacity to:

- undertake carbon sequestration measurements and record these appropriately;
- monitor environmental, social and financial aspects of the project;
- capacity to assess any leakage;
- undertake appropriate community consultation processes;
- ensure that all legal obligations and requirements are appropriately fulfilled;
- undertake measures to avoid potential emissions, e.g. pest management and fire management;
- enforce restrictions on land use e.g. controlling illegal logging, grazing, etc.

Kyoto Consistent Accounting:

While all efforts should be made to ensure that afforestation and reforestation project sequester carbon in perpetuity, losses are likely to occur and these need to be accounted for. An

⁸ While re-establishing natural forests may significantly reduce the risk of sequestered carbon being lost to the atmosphere it does not mean that emissions will not occur in the future. Disease outbreaks, fires, illegal logging etc are possible processes leading to emissions. These would need to be accounted for and measures developed to minimize this risk.

⁹ This could be outright legal ownership of the land or some sort of leasehold arrangement

¹⁰ The rights to own or use the carbon on the land would need to be in some form of carbon sequestration right or other form of proprietary access to the carbon, such as a *profit à prendre*.

¹¹ Such funding arrangements would need to fulfil financial additionality requirements

appropriate accounting system needs to properly reflect obligations under the Kyoto Protocol and any relevant decisions. To do this the accounting system should have the following characteristics:

- **Balanced Accounting:** It should ensure that any credits for enhanced carbon stocks is balanced by accounting for any subsequent losses in¹²:
 - a) the project stocks or emissions of greenhouse gases, (regardless of the cause and regardless of the timeframe);¹³
 - b) the offsite stocks or emissions of greenhouse gases (regardless of the timeframe) due to leakage;¹⁴
- **Not Inherit Credits:** It should only account for actual credits gained from the first commitment period. It should not anticipate or inherit credit from future commitment periods;¹⁵
- **Not Carry Over Credits:** It should not allow credits to be transferred to future commitment periods;¹⁶
- **Not Exceed Cap:** The system should not create opportunities to exceed the one percent cap in the first commitment period;¹⁷
- **Transparency and Verifiability:** It should provide an approach that is transparent and verifiable;¹⁸
- **Excludes Indirect Effects:** The accounting excludes removals from elevated carbon dioxide, nitrogen deposition and the dynamic effects of age structure;¹⁹

Various Accounting Approaches have been considered and most are discussed in OECD & IEA²⁰. AOSIS has developed a matrix to assess the compliance of these accounting systems with the Kyoto Protocol and relevant decisions. This is included in **Annex A** to this document.

Conclusions from Evaluation of Accounting Approaches:

It is evident that none of the suggested accounting approaches fulfil all requirements under the Kyoto Protocol and relevant decisions. The closest to meeting the requirements is the *Actual Stock Change* approach. However, the proposition that sequestration credits from the *Actual Stock Change* approach would be “permanent” is not consistent with the Kyoto Protocol.

Temporary Actual Stock Change Accounting:

It could be possible to develop an accounting approach using the *Actual Stock Change* approach and issuing ‘temporary net credits’ at the end of the first Commitment Period. These ‘temporary net credits’ would be issued on a full emission liability basis such that any subsequent losses, due to either project losses or off-site losses due to leakage, would be repaid in full. This could be called the *Temporary Actual Stock Change Accounting (TASCA)*. To be consistent with the Kyoto Protocol and related decisions on LULUCF, TASCA credits would need to have following characteristics:

¹² Consistent with para 1(g) of Draft Decision –/CMP.1 (*Land use, land-use change and forestry*)

¹³ Consistent with para 5(b) of Article 12 of Kyoto Protocol

¹⁴ Consistent with para 2 (e) of Decision 11/CP.7

¹⁵ Consistent with para 14 and 15 of the ANNEX to Draft Decision –/CMP.1 (*Land use, land-use change and forestry*)

¹⁶ Consistent with para 1(f) of Draft Decision –/CMP.1 (*Land use, land-use change and forestry*)

¹⁷ Consistent with para 15 of the ANNEX to Draft Decision –/CMP.1 (*Land use, land-use change and forestry*)

¹⁸ Consistent with Article 3.3 of the Kyoto Protocol

¹⁹ Consistent with para 1(h) of Draft Decision –/CMP.1 (*Land use, land-use change and forestry*)

²⁰ OECD Environment Directorate and International Energy Agency, *Forestry Projects: Permanence, Credit Accounting and Lifetime*, Information Paper, 2001, COM/ENV/EPOC/IEA/SLT (2001)11

- (a) Perpetual or Exchange Emission Liability;
- (b) Emissions Liability Insurance
- (c) *TASCA* Credits not Diminish

(a) Perpetuity or Exchange Emission Liability:

While the credits for *TASCAs* would be temporary the responsibility for any subsequent emissions would be permanent. The emissions liability for *TASCA* credits would remain with the acquirer of these credits, even though they would be placed in a retirement or cancellation account at the end of the first Commitment Period. This liability would remain on the project land in perpetuity or if the acquirer was able to show that an equivalent amount of emissions reductions credits were acquired elsewhere to exchange for this liability.

Until accounting procedures for LULUCF activities are developed for the second Commitment Period, the liability for *TASCA* credits could not (and possibly may not) be replaced with another sequestration project (as suggested in the *Temporary Expiring Credits* approach- Colombian Proposal).

(b) Emissions Liability Insurance:

Before *TASCA* credits (i.e. RMUs) are transferred to Acquiring Entity, the Acquiring Entity would need to show that it holds ***Emission Liability Insurance (ELB)***. This ***ELB*** would be in the form of an approved certificate indicating that they were holding, in reserve, an equivalent amount of emissions reduction credits equivalent to the *TASCA* credits being acquired. This ***ELB*** would be used to offset any emissions from project losses or off site emissions and the ***ELB*** would need to be held in perpetuity or until the *TASCA* credits were exchanged for equivalent emissions reductions elsewhere.

(c) *TASCA* Credits Not Diminish:

The value of the *TASCA* credits would not diminish over time (as implied by some other accounting approaches), though the initial sequestration rate calculation may have a discount applied to it, to incorporate measurement uncertainties (see later discussion on Measurement Uncertainties).

Possible Second Commitment Period Extension:

Depending on decisions relating to the second Commitment Period, it may be possible for a first Commitment Period afforestation and reforestation project to be extended. Again *TASCA* credits could be allocated for the sequestered carbon that has been accumulated during the Second Commitment Period. For the purpose of accounting and consistency with the Kyoto Protocol, the extension of the project would need to be considered as a new project, however verification procedures could be simplified. The extension of an existing activity would not remove any liability for *TASCA* credits obtained in the first Commitment Period.

Effective Liability Requirements to Address Non-Permanence:

Because of the considerable risks associated with LULUCF activities due to project land and off site losses of carbon stocks and greenhouse gas emissions it is necessary to establish and effective liability regime so that any subsequent losses are properly accounted for. Apart from requiring Perpetual or Exchange Liability (as discussed earlier) an effective regime would need to demonstrate clear ownership of liability.

Clear Ownership of Emissions Liability

Entering into a LULUCF project requires that both the potential acquirer of the RMU (as either CERs or ERUs) and the provider of the CERs must enter into a contractual arrangement that identifies who is liable for any subsequent emissions of any greenhouse gas or loss of carbons stocks. This '*Emission Liability Contract*' contract would need to be submitted the Designated Operational Entity as part of the ***Project Design Document***.

It would seem logical that initially, the ownership of the emission liability would rest with the project developer (the host country). Once the carbon sequestration right is transferred to the acquiring entity the liability is transferred to the acquiring entity (and hence the acquiring Annex I Party.) This liability requirement should be independent of the acquisition of any RMU as there may be a delay between the start of the project and acquisition of RMU.

Non-Permanence Annex:

Measures to report on and address LULUCF non-permanence should be included in an Annex to a Draft Decision on including afforestation and reforestation in the Clean Development Mechanism. A similar Annex would need to be developed (with some elaborations to include considerations relating to other eligible LULUCF activities) for Joint Implementation Projects.

3. Issues Related to the Consideration of “Additionality”

Addressing Additionality:

The project sequestration activities must be additional to those that would have otherwise occurred and hence determining additionality requires the application of stringent baselines. Apart from the general requirements for the development of baselines²¹, there are critical and unique characteristics associated with LULUCF projects. The characteristics of LULUCF baselines would include:

- Project-by-Project Baselines;
- Limited Crediting Period;
- Leakage Baseline
- Good Practice Benchmarks

Project-by-Project Baselines:

Because of significant differences in climate, geology, aspect, hydrology, species type and other ecological processes and interactions, it would be very difficult to conceive that generic baselines for afforestation and reforestation activities (and other LULUCF activities under JI) could be developed. Each project would need its own project baseline. In order to address the unique characteristics of LULUCF, the ***Project Design Document*** would need to clearly describe the following in the context of developing project-by-project baselines:

- Historical land uses, past practices and trends (prior to and after 1990)
- Current land uses, legal tenures and rights on the project land;
- Current estimates of carbon stocks on the project land
- Future trends within the project activity sector on a national level;
- Current and potential financial contributions to the project. For example, there should be an indication on how the project is not:
 - using ODA,
 - repackaging existing financed projects;
 - using financing based on uses of the forest products (e.g. future timber supplies);
 - not ‘topping-up’ existing financing

²¹ As described in para 45 of Draft Decision -/CMP.1 (*Mechanisms*)

- An estimate of changes in carbon stocks or greenhouse gases that would have taken place on the project land in the absence of the project;
- An explanation of intent (i.e. that the project is specifically designed for sequestering carbon and not for other purposes e.g. timber production).²²

Limited Crediting Period:

While baselines may be developed to show that a project could extend beyond the first Commitment Period, the crediting period for the project would not extend beyond the first Commitment Period. This requirement is consistent with the *TASCA* accounting discussed earlier.

Leakage Baseline:

In addition to the project baseline, a *Leakage Baseline* would need to be developed to clearly differentiate between existing activities and potential local, national and international emissions due to leakage. The *Leakage Baseline* would need to be included in the *Project Design Document*.

Assumptions used to define the baseline should be reviewed in the *Monitoring Plan* and undertaken at least every four years (so that adjustments can be made within each Commitment Period.)

Good Practice Benchmarks:

In order to ensure that individual project developers do not exaggerate the benefits of a project, the IPCC may be invited to produce Good Practice Benchmarks which could be developed for various ecosystem types and activities. These could be used as a comparison against estimates made by the project proponents. Realising that these Good Practice Benchmarks would only be relatively generic in nature and unlikely to represent real world situations, they could only be used for comparison purposes. They should not be used as a form of ‘top-down’ baseline setting.

Baseline Uncertainty Annex:

Measures to report on and address LULUCF baselines should be included in an Annex to a Draft Decision on including afforestation and reforestation in the Clean Development Mechanism. A similar Annex would need to be developed (with some elaborations to include considerations relating to other eligible LULUCF activities) for Joint Implementation Projects.

4. Issues Relating to the Consideration of “Leakage”

Leakage in LULUCF activities has characteristics unique to this type of activity and should be treated as such. Leakage needs to be considered at the local, national and international level and is relevant for both CDM projects and JI projects.²³

Various approaches can be applied to limit or avoid leakage. These include:

- Involving local participants in the project design as a means of ensuring that:
 - people are not displaced by the project;
 - socio-economic benefits accrue to communities affected by the project;
 - that land tenure rights and traditional rights are not violated

²² An indication of intent that a project is being used for carbon sequestration and as a biodiversity restoration measure would constitute a legitimate activity (as long as it was not part of an existing programme).

²³ For JI leakage emissions may be displaced to Non-Annex I countries

- Developing projects that are not likely to lead to market displacement
- Developing suitable baselines that account for potential local, national and international effects
- Ensuring that the changes in the life cycle of production (both upstream and downstream) are not affected by the project.

Efforts to address leakage should be included in the ***Project Design Document***, however this does not relinquish full responsibility for any subsequent emissions due to leakage. As indicated earlier, liability for leakage is perpetual unless the project activity is fully exchanged for emissions reductions elsewhere.

The ***Project Design Document*** may need to be rejected by the Designated Operational Entity or the Executive Board if:

- The project has the potential for significant leakage which cannot be easily addressed by the project (e.g. market leakage);
- The leakage is not easily measured or attributable²⁴

Leakage Annex:

Measures to report on and address LULUCF leakage should be included in an Annex to a Draft Decision on including afforestation and reforestation in the Clean Development Mechanism. A similar Annex would need to be developed (with some elaborations to include considerations relating to other eligible LULUCF activities) for Joint Implementation Projects.

5. Issues Relating to the Consideration of “Uncertainties”

Project uncertainties cover a variety of issues, which include:

- Measurement uncertainties
- Additionality uncertainties;
- Risk uncertainties;

Measurement Uncertainties:

Estimating carbon sequestration rates is a complex issue. This is particularly the case as individual project areas may contain a variety of ecological characteristics that would affect growth rates of tree species.²⁵ Subsequently the lack of site homogeneity could create significant measurement uncertainties. Actions should be taken to minimise these uncertainties and these actions should be identified and addressed in the ***Project Design Document*** and the ***Monitoring Plan***.

Measurement Uncertainties and Project Design Document Requirements:

To address some of the issues concerned with measurement uncertainties, the ***Project Design Document*** should have the following elements²⁶:

- Details of local field data collection and sampling methods;
- Estimates of carbon storage for particular vegetation types taken from the literature (and any Good Practice Guidance) and how these will be corrected using local field data.
- Measures to improve the confidence of carbon storage estimates, over time,

²⁴ Consistent with para 51 Draft decision -/CMP.1 (*Mechanisms*)

²⁵ As discussed earlier this could include differences in climate, aspect, hydrology, geology and species interactions.

²⁶ Note: These are examples of the elements required to address measurement uncertainties. It does not address all aspects that should be included in the ***Project Design Document***.

- Measures to estimate project losses and off site emissions;
- Clear explanations of what discount factors have been applied to the estimated sequestration rate to account for measurement uncertainties;
- Clear explanations of what discount factors have been applied to the estimated sequestration rate to account for Indirect Effects;
- Details of how actual changes in carbon stocks are to be measured and reported annually

Measurement Uncertainties and the Monitoring Plan:

The ongoing Monitoring Plan should aim to progressively reduce the uncertainties in measurements. As such the Monitoring Plan should include the following elements²⁷:

- Details of on-going local field data collection, sampling methods and actual records;
- Details of corrections to estimated sequestration rates;
- Details of possible leakage factors;
- Details of all project losses and off site emissions;
- Details of possible corrections to account for changes in indirect effects;
- Correlations between actual sequestration rates and discount rates applied to address measurement uncertainties

Elaborating Good Practice Guidance on Sequestration Rates:

The IPCC should be invited to further elaborate Good Practice Guidance to extend the knowledge of sequestration rates for a greater variety of tree species (and vegetation types) and differing climate conditions (though this Guidance should not be used as a substitute for ground truthing).

Additionality Uncertainties:

Numerous uncertainties surround the calculation of additionality for a project. All potential uncertainties associated with additionality should be clearly identified in the ***Project Design Document*** and review in the ***Monitoring Plan***. Primarily uncertainties associated with additionality should be addressed by providing accurate baselines (as discussed earlier).

Risk uncertainties:

Because of their very nature, LULUCF project activities are prone to a variety of risks. These include:

- **Physical or Environmental risks:** Due to perturbations to the sequestration activity eg. fire, pest outbreak, storm and flood damage;
- **Social risks:** Loss of community support for the project;
- **Economic risks:** Changes in the economic viability of the project;
- **Political risks:** Changes in the political support for the project
- **Legal risks:** Challenges to the legal validity of the project
- **Management risks:** Loss of management support for the project

Assessing the potential risks associated with LULUCF projects and providing means of limiting these risks should be key elements of the ***Project Design Document***. In addition precise carbon sequestration accounting, strict liability requirements and emissions insurance all help to minimise the risks associated with the project.

Uncertainty Annex:

²⁷ Note: These are examples of elements required to address measurement uncertainties. It does not address all aspects that should be included in the ***Monitoring Plan***

Measures to report on and address all aspects of LULUCF uncertainties should be included in an Annex to a Draft Decision on including afforestation and reforestation in the Clean Development Mechanism. A similar Annex would need to be developed (with some elaborations to include considerations relating to other eligible LULUCF activities) for Joint Implementation Projects.

6. Issues Relating to the Consideration of “Socio-Economic Impacts”

While LULUCF projects have the potential to provide new economic benefits to communities, they also have the potential to create significant adverse socio-economic impacts. Potential adverse socio-economic impacts include:

- Changes in rights of land use, including the potential displacement of local communities (including Indigenous Peoples) from their land or land traditional used by these people;
- Changes in traditional rights, practices and values;
- Changes in land tenure;
- Changes in economic activities around the project;
- Changes in the local economy;
- Potential influxes of non-local people associated with the project;
- Changes in local infrastructure
- Environmental impacts that may effect socio-economic activities adjoining or downstream of the project;

Means of addressing these impacts are complex but nevertheless extremely significant. Many of the impacts can be addressed by undertaking appropriate consultations with local communities and ensuring that the rights of these communities are not violated. Particular attention should be placed on ensuring that the welfare and rights of Indigenous Peoples are upheld.

Social Impact Assessment:

A social impact assessment should be included in the *Project Design Document*. This should include an identification of potential impacts along with a description of means to address these impacts. The Designated Operational Entity and the Executive Board should have the right to reject a project if the social impacts are not properly addressed. Furthermore, the Executive Board should have the right to invalidate a project and annul any credits gained from the project if, at any time, the project has infringed the rights and welfare of communities (including Indigenous Peoples). Indicators of unacceptable social impacts could be included in the Social Impact Assessment Annex (see below).

Responsibility for Social Impacts:

While the host Party has rights in determining their own sustainable development, the Kyoto Protocol also places responsibility on Annex I Parties to ensure that the implementation of commitments is carried out in such a way as to minimize adverse **social**, environmental and **economic** impacts on developing country Parties.²⁸ Therefore, entities from Annex I Parties have an obligation to ensure that the acquisition of sequestration credits does not have an adverse social effect. The social impact assessment in the *Project Design Document* should clearly spell out the respective ongoing obligations of both the host Party and the acquiring entity.

Socio-Economic Impact Assessment Annex:

²⁸ Article 3.14 of the Kyoto Protocol

Guidelines for the preparation of social impact assessments of LULUCF projects should be included in an Annex to a Draft Decision in the Clean Development Mechanism. A similar Annex would need to be developed (with some elaborations to include considerations relating to other eligible LULUCF activities) for Joint Implementation Projects.

7. Issues Relating to the Consideration of “Environmental Impacts”

Environmental Impacts:

LULUCF projects also have the potential to have significant environmental impacts. Potential environmental impacts include:

- Species displacement or loss due to changes in land use (e.g. through converting an indigenous grassland to a plantation);
- Alterations to habitats and biological diversity;
- Soil erosion;
- Changes in hydrology;
- Micro-climate changes;
- Increased potential for forest fires;
- Possible land and water contamination due to an increased use of pesticides;
- Increased potential for pest outbreaks;
- Introduction of alien species;

Environmental Impact Assessment:

As with social impacts, the environmental impacts of LULUCF are also complex. An environmental impact assessment should be included in the ***Project Design Document***. Special attention should be given to endangered species and habitats. This should include an identification of potential impacts along with a description of means to address these impacts. The Designated Operational Entity and the Executive Board should have the right to reject a project if the environmental impacts are not properly addressed. Furthermore, the Executive Board should have the right to invalidate a project and annul any credits gained from the project if, at any time, the project has incurred significant environmental impacts. Indicators of significant environmental impacts could be included in the Environmental Impact Assessment Annex (see below).

Should a LULUCF project fail due to project losses or off-site emissions or due inappropriate accounting systems, the resultant impact on the climate could bring further environmental impacts. Those countries most vulnerable to the impacts of climate change are likely to suffer. In this context, the cumulative effects of a number of project failures could lead to significant environmental harm in locations totally unrelated to the project. It is absolutely necessary that perpetual responsibility for sequestered carbon and factual accounting systems are in place to ensure that the environmental integrity of the projects (both CDM and JI) is maintained.

Responsibility for Environmental Impacts:

As with social impacts, the host Party has an obligation to consider the environmental impacts of the project, however the Kyoto Protocol also places responsibility on Annex I Parties to ensure that the implementation of commitments is carried out in such a way as to minimize adverse social, **environmental** and economic impacts on developing country Parties.²⁹ Therefore, entities from Annex I Parties have an obligation to ensure that the acquisition of sequestration credits does not have an adverse environmental effect. The environmental impact assessment in

²⁹ Article 3.14 of the Kyoto Protocol

the ***Project Design Document*** should clearly spell out the respective ongoing obligations of both the host Party and the acquiring entity.

Environmental Impact Assessment Annex:

Guidelines for the preparation of environmental impact assessments of LULUCF projects should be included in an Annex to a Draft Decision in the Clean Development Mechanism. A similar Annex would need to be developed (with some elaborations to include considerations relating to other eligible LULUCF activities) for Joint Implementation Projects.

Annex A

Evaluation Matrix of Proposed Accounting Approaches³⁰ and Criteria for Kyoto Consistent Accounting

	Description	Account for project land and off-site losses	Inherits Credits from the Future	Carries over Credits to the Future	Accounting Transparency	Ease in Applying Cap	Ease in Accounting for Indirect Effects
Actual stock change	<i>Credits equivalent to all carbon sequestered in a project as soon as that sequestration has occurred.</i>	If credits allocated “permanently” then they would not account for losses after end of project 'lifetime'.	No	Not necessarily	Relatively transparent	Actual accounting makes it easier to remain within cap.	Actual accounting would allow simpler factoring out.
Simplified Crediting	<i>Annual credits accrue linearly rather than actual sequestration rate</i>	Permanent crediting would not account for losses.	May inherit small amount of credits towards end of Commitment Period	Not necessarily	Some level of objectivity to predict carbon to be sequestered in project	If project starts during Commitment Period may exaggerate credits	Would need to set factoring out in determining linear credits
Average Storage Crediting	<i>Annual credits reflect the average carbon sequestered over a specified time period</i>	Averaging is based on limited project lifetime. Difficult to apply subsequent losses. Also difficult to adjust average if losses occur during project 'lifetime'	Takes credit from future commitment period	Implies project crediting beyond first Commitment Period	Establishing an 'average' sequestration rate is highly subjective and may be difficult to verify	Early crediting may create some accounting difficulties in accounting for cap.	Would need to be included in calculation for average. Would be difficult to account for potential increases in indirect effects.
Delayed Full Crediting	<i>Eligible for credits for all carbon sequestered in project after a specified time period</i>	Likely to pick up losses during pre-crediting period, but not after.	Initially does not inherit credits but after first credit period would inherit credits	Implies significant carry over to future commitment periods	Initially would account for credits and losses but may be less transparent later on	Delayed accounting unlikely to create difficulties in accounting for cap	Would need to factor in indirect effects in delayed calculations
Buffered Stock Change Crediting	<i>Allocate credits equivalent to a proportion of the change in carbon stocks. Remaining credits held as buffer and released at some future date.</i>	Buffered accounting is an arbitrary estimate of potential losses. Later allocation of buffer implies 'permanent' crediting and end of sequestration liability	While limited available credit it implies an 'advance' on credits beyond one commitment period	Holding of buffer implies carry over to the future	Calculation of buffer may be difficult to verify and any credit advance implies a calculation that may not be transparent	Early crediting may create difficulties in accounting for cap	Buffer could factor out indirect effects

³⁰ Based on OECD Environment Directorate and International Energy Agency, *Forestry Projects: Permanence, Credit Accounting and Lifetime*, Information Paper, 2001, COM/ENV/EPOC/IEA/SLT (2001)11

	Description	Account for project land and off-site losses	Inherits Credits from the Future	Carries over Credits to the Future	Accounting Trans-parency	Ease in Applying Cap	Ease in Accounting for Indirect Effects
Cautious Simplified Crediting	<i>Credits available once project begins to 'mitigate emissions'. Credits accrue at constant or non-constant rate</i>	Once crediting starts may be difficult to account for losses. Implies an end to project and end of sequestration liability	This depends when project starts	Crediting calculation implies carry over into subsequent commitment period	Calculation of crediting rate could be difficult to verify	Delayed crediting may limit difficulties in accounting for cap	Crediting rate could include factoring out of indirect effects
Ton-year Accounting	<i>Credits accrue in proportion to amount of carbon sequestered and how long it is sequestered for (based on an 'equivalence factor')</i>	While crediting generally below actual sequestration rate, it may be difficult to adjust for losses and implies an end of sequestration liability	No	Calculation of crediting rate and equivalence factor implies carry over	Calculation of "equivalence factor" complicated and may be difficult to verify	Limited crediting in first Commitment Period may limit difficulties in accounting for cap	Could possibly include in equivalence factor, but could be easily obscured
Temporary Expiring Credits	<i>Temporary and expiring credits allocated for fixed amount of time and not renewable</i>	Temporary credits implies liability for all losses until end of sequestration activity	This depends on when Temporary credits are allocated. If up front crediting, it would inherit credits from future	Implies liability beyond first Commitment Period	Calculation of credits may not reflect actual sequestration. Could create verification difficulties	Early crediting could create significant difficulties in accounting for cap.	Would need to account for indirect effects in allocation of credits
Renewable Temporary Crediting	<i>Temporary and expiring credits allocated for fixed amount of time, but credits renewable if sequestration remains in place</i>	Cumulative accounting would exaggerate credits and underestimate debits	This would depend on when credits are allocated	Renewal of credits would imply a carry over into subsequent commitment periods	Accounting would be inaccurate and hence difficult to verify	Early crediting could create significant difficulties in accounting for cap.	Would need to account for indirect effects in allocation of credits