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Subsidiary Body for Scientific and Technological Advice

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Item 4 of the provisional agenda

Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

Views on issues identified in decision 1/CP.16, paragraph 72 and appendix II

Submissions from Parties

1. The Subsidiary Body for Scientific and Technological Advice, at its thirty-fifth session, invited Parties and admitted observer organizations to submit to the secretariat, by 28 February 2012, their views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in its paragraph 71(c). It requested the secretariat to compile the submissions from Parties into a miscellaneous document for its consideration at its thirty-sixth session (FCCC/SBSTA/2011/5, para. 21).
2. The secretariat has received 15 such submissions from 13 Parties.¹ In accordance with the procedure for miscellaneous documents, these submissions are attached and reproduced* in the language in which they were received and without formal editing.
3. The two submissions received from intergovernmental organizations² and the nine submissions received from non-governmental organizations³ have been posted on the UNFCCC website.

¹ Available at <<http://unfccc.int/5901.php>>.

* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

² <<http://unfccc.int/3714.php>>.

³ <<http://unfccc.int/3689.php>>.

FCCC/SBSTA/2012/MISC.1

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* This submission is supported by Croatia, Serbia, the former Yugoslav Republic of Macedonia and Turkey.

SUBMISSION BY THE PLURINATIONAL STATE OF BOLIVIA

**DEVELOPMENT OF THE
JOINT MITIGATION AND ADAPTATION MECHANISM
FOR THE INTEGRAL AND SUSTAINABLE
MANAGEMENT OF FORESTS**

The UNFCCC conference in Durban undertook the first steps towards the building of an alternative approach to REDD+. This submission has the purpose of providing the necessary inputs and views on guidelines and related aspects for the design and implementation of the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests¹ as mandated in the Paragraph 67 of the 1/COP17 decision,² as one of the modalities for financing the activities related to reducing emissions from deforestation and forest degradation to be undertaken in developing countries with important forest resources that require to be conserved for achieving the goals of local development and due to their functions in climate change.

The Convention's main approach has defined a framework to arrange financial transfers to support the reduction of greenhouse gases (GHG) emissions in the context of the Reduction of Emission from Deforestation and Forest Degradation (REDD+). This framework, however, is intended to tackle separately both mitigation and adaptation issues, and has not fully considered the possibilities to embrace the integral management of forests as systems of life³ and forest' landscapes in order to generate sustainable landscape dynamics⁴, which may decisively contribute to the governance of forests with the objective of achieving sustainable and climate friendly economies while meeting people's needs for food, fiber and energy.

The latter approach challenges the current conceptual and methodological state of art in climate change negotiations; thereby, it requires of more refined conceptual definitions and methodologies. This submission is aimed at contributing to such endeavor. Specifically as input for FCCC/SBASTA/2011/L5, paragraph 5 related with Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation,

¹ From the perspective of the Bolivian government the integral governance of forests promotes forest conservation, sustainable development of forest landscapes and sustainable livelihoods of local and indigenous people by valuing the potential of forests and other land uses in forest landscapes as well as of other natural resources without negatively affecting their multiple environmental functions, and by guaranteeing the sustained continuation of those functions in articulation with social, cultural, and economic aspects of forest management.

² The referred paragraph states the following: "Notes that non market based approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests as a non-market alternative that supports and strengthens governance, the application of safeguards as referred to in decision 1/CP.16, appendix I, paragraph 2(c.e), and the multiple functions of forests, could be developed".

³ We adopt here the definition of the United Nations (Decision of COP17 regarding Land use, land-use change and forestry) which consider forests are systems of life that have multiple and integral functions and consist of communities of diverse, interrelated and interdependent components; therefore they encompasses landscapes where are interacting different natural resources such as forest, land, water and biodiversity, among others,

⁴ This concept refers to the management of forest taking into account landscapes based predominantly on forests and cultivated landscapes with forests but also other natural resource-use elements such as land, forest and water-use created by local people ensuring a social and environmental sound rural development.

sustainable management of forests and enhancement of forest carbon stocks in developing countries (SBASTA). With this regard, it will also be important that the LCA and SBASTA could design a route map in order to move forward the design and implementation of this Mechanism.

1. Context

Following the mandate of the World Conference on the “Rights of People and Mother Earth” held in Tiquipaya, Bolivia in April 2010, the Plurinational State of Bolivia has questioned the implementation of REDD+ schemes. The Plurinational State of Bolivia questions the linking of forests to global carbon markets for ethical reasons since this authorizes the effective conversion of what is considered the sacred Mother Earth into a commercial commodity, allowing the transfer of responsibilities for mitigation of climate change from developed to developing countries, fostering the latter to continue subsidizing the former. In addition, these arrangements—mediated by the market—may lead to the loss of sovereignty by States and people with regard to the management and use of their natural resources.

In his letter to the indigenous peoples of the world, President Evo Morales states that “Nature, forests and indigenous people are not for sale” (October, 2010) and declares that “It is an obligation of developed countries, as part of their climatic and environmental debt, to contribute financially to forest conservation in the tropics but **not through their conversion into commodities**. There are many alternative ways of supporting and financing developing countries, indigenous peoples and local communities that are contributing to the conservation of forests” [emphasis added].

Beyond ethical considerations, as mentioned above, there are important reasons that justify the establishment of a non-market mechanism which values sustainable and integral management as key factors for supporting local and indigenous people⁵ to manage their forests, and forest landscapes, in sustainable ways, thus contributing to enhance local and national forest governance as a way to improve people’s livelihoods relying on climate friendly and resilient economies, and simultaneously ensuring sustained reduction of the GHG emissions without affecting the legitimate goals of socio-economic development. The latter means that supporting joint mitigation and adaptation measures can contribute to foster the transition of developing countries towards pathways of social and environmental sound rural development by strengthening local resource use and management practices of forests and other land uses in forest landscapes—in community forest management, agroforestry, forest gardens, and smallholder tree planting—without compromising the forests’ multiple environmental functions and supporting the source of livelihoods of the people that depend on forest resources.

There is no doubt that local traditional uses of forest as a systems of life are climate friendly, and economically, culturally, and socially viable options that have higher impacts on reducing poverty. These traditional uses of forests maintain a high potential for adaptation to global warming given that changes in temperature and precipitation are becoming more serious; they are often the most productive options, thus can be economically and socially attractive; they rely on production systems that with a low dependence on external inputs and consumption of resources that need to be

⁵ Local people refers to landholders living within or surrounding natural forests, as well as small-and medium-scale land and forest holders occupying mixed forest and agrarian landscapes and other areas needing forest restoration.

produced or extracted elsewhere. Finally, they have a low impact on GHG emissions, and under proper institutional conditions can contribute to enhance carbon stocks.

In our proposal, the strengthening of local and indigenous people, and their diverse social and economic options associated to the multiple management of forest and forest landscapes is highlighted as the privileged option to enhance forest governance, and with it sustaining a pattern of climate sound rural development. This proposal is suggested in opposition to the one that privileges the transition to low-carbon resilient economies based on financial transfers subject to meeting additional reductions in their GHG emissions, as it is currently stated in REDD+. Nonetheless, making progress towards integral and sustainable management of forests, and forest landscapes, requires of important complementary actions aimed at reduction of deforestation and forest degradation, mainly through aligning forest and non-forest policies, leveling the playing field by reducing barriers that work against the rural poor, and reducing asymmetries in access to land and other assets. In addition, the support and development of institutions at different levels is central for this proposal to work.

2. Foundations and guidelines

The Joint Mitigation and Adaptation Mechanism is based on the following foundations:

- (a) Reinforces the principle of “non-commodification” of the environmental functions of the forests based on the recognition that forests are not only reservoirs of carbon.
- (b) Recognizes, values and supports the efforts of indigenous and local populations’ collective action to strengthens local institutions regarding integral and sustainable management of forests and forest landscapes.
- (c) Supports the respect for local and indigenous people’s rights and the compliance of States’ duties and society’s obligations in the integral and sustainable management of forests and in the creation of sustainable forest landscape dynamics.
- (d) Promotes the governance of forest with joint results in mitigation and adaptation.
- (e) Strengthens local resource uses and production practices of local and indigenous people oriented to the conservation and integral and sustainable management of forests and forest landscapes, including use of land, water and biodiversity.
- (f) Contributes to tackle the contextual conditions and the underlying causes of deforestation and forest degradation taking into account country-specific needs.
- (g) Promotes the development of local people’s sustainable livelihoods without compromising the need to fulfilling their food and energy needs

The following guidelines should be considered in the implementation of the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests:

- (a) Facilitating the development of an enabling policy environment and incentives, according to country-specific situations, to reduce deforestation and forest degradation, thus complying with additionality in GHG emissions reduction.
- (b) Supporting the integral and sustainable management of forests, and sustainable forest landscapes dynamics, through an approach which is based on the convergence of rights, duties and obligations rather than on the payment for environmental services.

- Rights of people to enhance their livelihoods to overcome poverty (land and forest tenure, self-governance and defense of indigenous rights) and duties to protect forests and the goods and functions that they provide
 - Rights of nature to be respected in its whole condition to regenerate life.
 - Duties of States to establish appropriate institutional conditions and incentives to promote the integral and sustainable management of forests ensuring the provision of multiple environmental functions.
 - Obligations of developed countries to support the rights of developing countries through transparent, new and predictable flow of financial resources.
- (c) Recognizing, valuing and supporting the development of institutions (regulations and sanctions) of local and indigenous people in order to conserve forests, and support the development of sustainable forest landscape dynamics, sustainable livelihoods for local people, and climate friendly economies.
- (d) Developing multi-scale programs and projects, with wider social participation, favoring forest conservation options, sustainable forest landscape dynamics, and sustainable livelihoods of local and indigenous people.
- (e) Fostering private-, public- and community-based initiatives promoting the sustainable use of forests and forest landscapes, including the access of local communities and local people to a wide variety of financial and non-financial services in order to strengthen local resource use and productive practices.

3. Proposal of the Approach and Mechanism

The implementation of the non-market based approach as stated in the paragraph 67 of the 1/COP17 decision outcome is based on the creation and establishment of the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests, and the reduction of pressures conducive to deforestation and forest degradation.

The Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests will be established in two levels: international and national, nevertheless respecting fully the sovereignty of developing countries

The Joint Mechanism should fulfill at each level the following three main tasks: coordination, financial and operational, as described below.

3.1 Coordination

Coordination is a responsibility that should be developed for the Joint Mitigation and Adaptation Mechanism in the two different arenas. First, at the international arena coordination is a key issue in order to achieve the following:

- Constitution of the Joint Mitigation and Adaptation Mechanism at the international arena ensuring decision making with active involvement of national governments of developing countries.

- Establishment of a dialogue between the international and national arena in order to move towards the development of “agreements of compensation” taking into account the principle of differentiated but common responsibilities in climate change.

Second, at the national arena, once constituted the Joint Mitigation and Adaptation Mechanism in each specific country, coordination will take into account the following issues:

- Establishment of a scenario of decision making with local and indigenous peoples’ representative organizations in order to develop the full potential of the Mechanism.
- Agreements with individuals, local communities or indigenous territories, and local governments, in order to set out indicators for moving towards an integral and sustainable management of forests and forest landscapes, and sustainable livelihoods.
- Development of criteria for the eligibility and implementation of joint mitigation and adaptation actions as well as identification of indicators regarding the agreement of compensation considering joint mitigation and adaptation actions.
- Revision of national policy framework to address drivers of deforestation and forest degradation and the establishment of a system of incentives for long term integral and sustainable management of forests and forest landscapes, with effects on enhancing sustainable people’s livelihoods and related GHG emission targets.

3.2 Operational

This is an outstanding task in both international and national levels in order to make this proposal operational in an effective, efficient, accountable and equitable way, taking into account the procedures tuning with country-specific realities. The operational priorities that should be taken into account are the following:

- a) Definition of standard eligibility criteria for joint mitigation and adaptation actions at different scales: i) individual, ii) communal or indigenous territories, and iii) municipal.
- b) Establishment of methodologies for the assessment of ecological stability of forests and forest landscapes considering social-environmental balances and tradeoffs.⁶
- c) Identification and formulation of multidimensional indicators of forests integrality and sustainability including deforestation and forest degradation, joint indicators of mitigation and adaptation, and the establishment of baselines against which progress towards the achievement of indicators may be measured.
- d) Control and monitoring of forest condition at multiple levels (i.e. local, sub-national and national) emphasizing the development of monitoring systems arranged and implemented by local and indigenous people based on multidimensional indicators comprising social and environmental aspects associated with the use and management of forests.

⁶ The monitoring of goals will be undertaken using the following instruments: Geographic information systems for monitoring deforestation and forest degradation; community monitoring of local institutions linked to forest situation based on simplified protocols of the International Forestry, Resources and Institutions (IFRI) Research Program; local monitoring of multidimensional indicators of integrality and sustainability together with joint indicators of mitigation and adaptation.

- e) Systematization of local practices, under the premise that the joint mitigation and adaptation approach is a process based on “learning through experience”.

3.3 Financial

The financial is without doubt the most important task to be fulfilled by the Joint Mitigation and Adaptation Mechanism through funds to be constituted at the international and national levels in the scope of climate compensations and other institutional arrangements. The funding of mitigation and adaptation actions in developing countries should be developed in a direct, expedite and immediate way according to national strategies and priorities respecting fully the sovereignty and national capacities of developing countries.

The potential sources of financial support for the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forest are the following:

- (a) **External Public funds** (linked to the “Green Climate Fund” developed by the UNFCCC). The funding sources will be derived from public funds in developing countries as outlined in Article 4.7 of the UN Framework Convention on Climate Change in the scope of climate compensations. These funds are transferred through agreements of compensation from the “Green Climate Fund” to the “Climate Justice National Fund” to be constituted by developing countries at national levels following country-specific policies.
- (b) **Ethical private fund**, fundraising activities targeting international private funds outside the markets, which can be channeled directly to the “Climate Justice National Fund” at the national arena.
- (c) **Business funding**, developing “*pro-climate justice*” business initiatives with private-community partnership regulated by the Joint Mitigation and Adaptation Mechanism, in the context of a national and international regulatory framework.

The financial support should consider the following aspects:

- Financial support for the creation and strengthening of local institutions, initiatives and actions oriented to the integral and sustainable management of forests’ and forest landscapes, and development of sustainable livelihoods joining mitigation and adaptation, taking into account three levels: i) individual or familiar, ii) communal or indigenous territories, iii) local governments.
- Financial support for the production, transformation, and commercialization of forest’ and forest landscapes’ products fostering diversification and the strengthening of local resource use and practices.
- Supplementary financial support to those sub-national governments that meet targets for reduced deforestation and forest degradation and the establishment of sanctions for those which fail to do so.
- Financial support for the development of monitoring of forest at multiple scales including those arranged and implemented by local and indigenous people.

4. Actions

The following actions should be undertaken in order to move forward the design and implementation of the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests.

- a) It is important that the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (LCA) provides a road map for how to move forward with the design and implementation of this Mechanism. It is suggested the following:
 - The Mechanism should be designed during the year 2012 and approved officially in the COP18.
 - The legal framework in order to link the Mechanism to the Green Climate Fund of the UNFCCC should be developed beginning the year 2012 up to the 2013.
 - The Mechanism should be fully implemented in the year 2014

- b) There is the need of a specific working agenda to be developed through the Subsidiary Body for Scientific and Technological Advice (SBSTA) during the year 2012 in order to move forward the Mechanism, considering the following issues:
 - Definition of the scope and indicators of integral and sustainable management of forests and forest landscapes and of joint mitigation and adaptation actions.
 - Definition of the scope of agreements of compensation and related financial issues.
 - Definition of the methodological issues regarding the implementation of the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests.
 - Relationship between the Green Climate Fund and the Joint Mitigation and Adaptation Mechanism for the Integral and Sustainable Management of Forests both at the international and at the national arenas.
 - Complete design of the mechanism taking into account the three tasks: coordination, financial and operational.

**This submission is supported by Croatia, the Former Yugoslav Republic of Macedonia,
Serbia and Turkey**

**Subject: Submission on methodological guidance for activities relating to reducing
emissions from deforestation and forest degradation and the role of conservation,
sustainable management of forests and enhancement of forest carbon stocks in
developing countries (SBSTA)**

Introduction

This submission sets out the EU views on the issues identified in:

- The COP 17 decision on safeguards and reference levels:
 - Timing of the first and the frequency of subsequent presentation of the summary of information on safeguards (paragraph 5)
 - Further guidance to ensure transparency, consistency, comprehensiveness and effectiveness when informing on safeguards (paragraph 6)
 - Technical assessment of the proposed forest reference emission levels and/or forest reference levels (paragraph 15)
- The SBSTA 35 conclusions
 - Guidance on national forest monitoring systems (paragraph 4)
 - Guidance on modalities for measuring, reporting and verifying (paragraph 4)
 - LULUCF activities (paragraph 5)
 - Drivers of deforestation and forest degradation (paragraph 5)
 - Issues to be addressed when developing and implementing national strategies and action plans (paragraph 5)

Guidance on systems for providing information on how safeguards are addressed and respected

Timing of the first and the frequency of subsequent presentation of the summary of information

The summary of the information on how all safeguards are being addressed and respected throughout the design and implementation of each phase undertaken by the country should be included both in the National Communications and in the biennial update reports in addition to the guidance provided in Annex III to decision -/CP.17 (Outcome of the work of AWG-LCA) and in decision 17/CP.8. According to paragraph 41 of decision 2/CP.17 developing country Parties should submit their first biennial update report by December 2014 and subsequently every two years. Least developed country Parties and small island developing States may submit biennial update reports at their discretion.

Further guidance to ensure transparency, consistency, comprehensiveness and effectiveness when informing on safeguards

Most safeguards and reporting requirements are already covered by international conventions. Further UNFCCC guidance should build upon these requirements and should be updated as appropriate. To operationalize the provision of information on how the safeguards are addressed and respected throughout the design and implementation of each phase undertaken by the country, developing countries should develop and apply national indicators, quantified where possible, for the different safeguards. International processes and existing monitoring schemes for biodiversity could provide useful lessons and experiences. A core set of information requirements, common for all countries, should be agreed to ensure transparency, consistency, comprehensiveness and effectiveness. The summary of information to be provided in National Communications and biennial update reports should include:

<i>Safeguards as contained in paragraph 2 of Appendix I to decision 1/CP.16</i>	<i>Information requirements</i>
(a) That actions complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements;	Description on how REDD+ actions contribute to achieving objectives of national forest programmes and relevant international agreements and processes;
(b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;	Description of policy, legal, institutional and regulatory frameworks, including on law enforcement and recourse mechanisms;

(c) Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;	Identification of different right holders and their rights; identification of relevant international obligations, national circumstances and laws taken into account; and description how those rights are respected;
(d) The full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities, in the actions referred to in paragraphs 70 and 72 of this decision;	Description of participatory process for the design and implementation of a national REDD+ strategy or action plan and how this process was applied, including a description of the process for stakeholder identification, consultation and engagement and of systems to disseminate and receive information;
(e) That actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;	Identification of the positive and negative impacts of REDD+ actions, the national REDD+ strategy or action plan on biodiversity, ecosystem services and conservation of natural forests taking into account the national biodiversity strategy and action plan under the CBD; and identification and monitoring of natural forests;
(f) Actions to address the risks of reversals;	Description of the potential risks, actions to address them and liabilities;
(g) Actions to reduce displacement of emissions;	Description of the actions and identification of significant sources, and the collection of data on the displacement of emissions.

The EU notes in this regard that the Collaborative Partnership on Forests has carried out helpful work in the past on ways to reduce the forest-related reporting burden on countries through streamlining reporting requests across international agreements and processes, increasing data comparability and compatibility, and facilitating the accessibility and flows of existing information¹. The SBSTA should consider how the outcomes of the CPF work could be used in relation to REDD+ reporting requirements.

¹ <http://www.fao.org/forestry/cpf/mar/en/>.

Technical assessment of proposed forest reference emission levels and/or forest reference levels

The objectives of the technical assessment by a team of independent experts are to assess whether Parties have provided transparent, complete, consistent with guidance agreed by the COP, and accurate information on the data, methodologies and procedures used in the construction of forest reference emission levels and/or forest reference levels and to provide, as appropriate, technical recommendations for ensuring consistency with the guidance agreed by the Conference of the Parties.

The technical assessments should be carried out by an independent team of experts under the auspices of the UNFCCC in consultation with the Party and should result in a summary report. The team of technical experts should assess whether the information on reference levels has been provided in accordance with the guidelines for submission of information on reference levels as contained in the annex to decision 2/CP.17 and whether the information is consistent with each country's greenhouse gas inventories. The summary reports should be made publicly available on the UNFCCC REDD web platform.

Following the technical assessments, proposed forest reference emission levels and/or forest reference levels should be forwarded to the COP for further consideration and possible adoption.

The EU has proposed draft decision text on this matter in Appendix I of its earlier submission contained in FCCC/SBSTA/2011/MISC.7.

Guidance on national forest monitoring system

The combination of Decision 4/CP.15, Decision 1/CP.16 and IPCC inventory guidelines and methodological guidance provides essential elements to guide the development of national forest monitoring systems. National forest monitoring systems should build upon existing systems and need to be capable of providing estimates of anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks through the monitoring of forest carbon stocks and forest area changes and enable the monitoring of natural forests.

National forest monitoring systems should provide unbiased estimates that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and assurance and suitable for review. The systems should be efficient in the use of resources and so it may be efficient to combine the national forest monitoring system with the system to provide information on how safeguards are addressed and respected.

Guidance on modalities for measuring, reporting and verifying, as referred to in appendix II to decision 1/CP.16

Decision 1/CP.16 requests SBSTA to develop modalities for MRV of performance of anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest area changes resulting from the implementation of REDD+ activities, consistent with MRV modalities for nationally appropriate mitigation actions by developing countries (NAMAs). These modalities should be further developed under SBSTA with a view to adopt a decision on modalities for MRV of performance of anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest area changes resulting from the implementation of REDD+ activities.

Although the IPCC's guidance provides default values for undisturbed forest, additional work may be necessary to estimate changes in forest carbon stocks, including sample-based ground observations, in a cost-effective manner:

- where deforestation is taking place on forests that have already been subject to human activity,
- where default values are not appropriate to particular ecosystem types (including wetlands and organic soils),
- where countries wish to depart from default values and use higher tier methods.

The IPCC 2006 Guidelines contain useful additional scientific information and should be available for use in applying the currently agreed Guidelines. The IPCC Task Force in National Greenhouse Gas Inventories should be invited to prepare supplementary documentation to consolidate and facilitate the use of existing guidance and guidelines for REDD+ including existing guidance and guidelines on the use of remote sensing to collect more reliable and comparable information.

The emissions and removals from REDD+ activities should be reported in National Communications and biennial update reports. In paragraph 7 of Annex III to decision xx/CP.17 (outcome of the work of AWG-LCA) non-Annex I Parties are encouraged to include tables included in Annex 3A.2 to the IPCC GPG in their biennial update reports.

The results of REDD+ actions and activities regarding changes to forest-related GHG emissions and removals as reported in National Communications and biennial update reports should be independently analysed. Annex IV to decision xx/CP.17 (outcome of the work of AWG-LCA) provides a basis for this.

The EU has proposed draft decision text on this matter in Appendix II of its earlier submission contained in FCCC/SBSTA/2011/MISC.7.

The EU believes that SBSTA could usefully consider simplified reporting requirements that could be used, in earlier phases, in combination with conservative estimates of emission reductions before results-based actions are subject to full monitoring, reporting and verification (e.g., using tier 1 approaches and default carbon density values in combination with land conversion matrices, excluding certain carbon pools and non-CO₂ greenhouse gas, addressing a subset of subnational jurisdictions, activities or biomes).

LULUCF activities

Given the importance of rural development, food security, mitigation and adaptation in the agricultural sector and of agricultural expansion as a driver of deforestation, the implications of REDD+ implementation should be considered from a broad perspective.

LULUCF activities that are not included in REDD+ could be addressed as a NAMA and/or in the context of adaptation strategies. These options could be assessed as part of a SBSTA work programme on agriculture.

Drivers of deforestation and forest degradation

In paragraph 68 of decision 1/CP.16 all Parties are encouraged to address drivers of deforestation and forest degradation. Addressing the drivers is necessary for reaching the collective aim to slow, halt and sustainably reverse forest cover and carbon loss.

Causes of deforestation and forest degradation operate at various levels, from the local level to domestic and global markets. However, deforestation and forest degradation are to a large extent driven by national circumstances, including insufficient law enforcement and institutional capacities (notably as regards governance and tenure). For this reason, drivers of deforestation and forest degradation should best be identified and prioritized at national level in a transparent and participatory manner.

At the same time, ways to reduce the pressure on forests should be identified and addressed in consumer countries. The EU is committed to develop specific initiatives to address the impact of the EU consumption and production patterns on natural resources. In recent years it has already put policies in place to address its responsibility as a consumer towards illegal logging in third countries. The EU Action Plan on Forest Law Enforcement, Governance and Trade (FLEGT), Voluntary Partnership Agreements with timber trade partners and the EU Timber Regulation provide a number of measures to prevent illegal timber products to access markets, to improve the supply of legal timber and to promote the demand for responsible wood products. The development of policies to control the impacts of the overall demand for products which may drive deforestation and degradation must be seen as an integral and key component of international efforts to reduce deforestation and forest degradation.

Issues to be addressed when developing and implementing national strategies and action plans

Addressing drivers of deforestation and degradation, land tenure issues, forest governance issues, gender considerations and safeguards (the issues mentioned in paragraph 72 of decision 1/CP.16) are crucial for any national strategy or action plan to be effective in the long run. For example, securing use and tenure provide more certainty for long term investments, it prevents land grabbing and enables a fair allocation of benefits and liabilities. It is in itself a key motivation for many stakeholders to engage into REDD+ activities.

REDD+ actions and activities will only be successful if protecting forests is in the interest of local and national stakeholders. The full and effective participation of all stakeholders, including indigenous peoples and local communities is therefore required to ensure a fair and efficient implementation of REDD+ actions and activities.

Submission by the Gambia on behalf of the Least Developed Countries on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in its paragraph

1. Subsidiary Body for Scientific and Technological Advice in its thirty-fifth session invited

Parties and accredited observers to submit to the Secretariat their views by 28 February 2012 on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in its paragraph 71(c).

The SBSTA also requested the secretariat to compile the submissions from Parties into a

Miscellaneous document for consideration by the SBSTA at its thirty-sixth session.

2. The LDCs herewith submit its views as follows:

Drivers of deforestation and forest degradation

3. LDCs refer to the Decision 4/CP.15, paragraph 1 and to the Decision 1/CP.16 paragraph 72 as the basis for the submission.

4. LDCs are of the view that there are several aspects that should be considered in addressing drivers of deforestation and forest degradation.

- (i) Definitions for forest and forest degradation should not be only as tree cover but also as complex ecosystem interact with livelihood of people.
 - (ii) Given the importance of identifying the drivers of deforestation and degradation and the associated methodological issues for estimating emissions, the recognition of the LDC communities' high dependency on forests for their daily livelihoods, food, shelter, energy and medicines must be considered fully in the REDD+.
 - (iii) LDCs have their own national priorities and challenges. Therefore, in addressing drivers of deforestation and forest degradation, national circumstances, such as capabilities, projected trends of population growth, GDP growth, energy requirement, and all other relevant parameters should be considered.
 - (iv). Developing, as necessary, modalities and guidelines for identifying and addressing drivers of deforestation and degradation and the associated methodological issues for estimating emissions.
 - (v). Provide guidance on how Parties can take action to integrate REDD+ across different related sectors, such as agriculture, energy, mining etc.
 - (vi). Ensure that the IPCC guidelines and its supplements are available for use for REDD+.
5. LDCs consider that forest governance issues, land tenure, gender considerations and participation of relevant stakeholders should be considered as essential part of the REDD+ safeguards

Development of a robust and transparent national forest monitoring systems

6. LDCs refer to the Decision 4/CP. 15 and decision 1/CP.17

- (i) Should be practical, simple and implementable system for estimating anthropogenic forest-related GHG fluxes, carbon stocks and area changes.
- (ii) Combination of remote sensing and ground-based inventory approach (Decision 4/CP.15) for estimating forest-related emissions and use of methodology and equipment that is cost efficient.
- (iii). A robust and transparent national forest monitoring system should be process should be country-driven, build on LDCs existing institutions and systems where possible.
- (iii) The LDCs group should ask for modalities that is general and should also allow for flexibility so countries with different socio-economic systems can be accommodated.
- (iv) All the above within the context of and first dependent on the provision of financial and technological support REDD+ activities are dependent on the provision of financial incentives and resources and technology from the developed countries.
- (v) LDCs must be given priority support in areas such as: general readiness; policy development and implementation; technology development and transfer (as set out in Article 4.9); demonstration activities; development of reference emission levels/reference levels.
- (vi) Establishment of national forest monitoring systems; and systems for providing information on safeguards.
- (vii) LDCs have urgent funding needs to enable them to prepare for and undertake REDD+ actions. Despite various international REDD+ initiatives, large gaps remain. UNFCCC Article 4.9 is clear that Parties shall take full account of the specific needs and special situations of LDCs in their actions with regard to funding and transfer of technology.

Paper no. 4A: Ghana

Views on robust and transparent national forest monitoring systems as referred to in paragraph 71c of decision 1/CP.16

29 February 2012

1. The SBSTA at its 35th session invited Parties to submit their views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in its paragraph 71c¹.
2. For this purpose the Coalition for Rainforest Nations and a number of like-minded developing countries met in London to consider issues related to paragraph 1 above. This submission has been prepared to reflect those discussions and expresses input from many other developing country Parties on the same issues.
3. The submission of views to SBSTA35 made on 19 September 2011 by [Belize, Cameroon, Central African Republic, Costa Rica, Cote d'Ivoire, Democratic Republic of Congo, Dominican Republic, Ecuador, Gabon, Ghana, Guyana, Honduras, Kenya, Panama, Papua New Guinea, Republic of Congo, Solomon Islands, Togo and Uganda on modalities for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the activities referred to in paragraph 70 of decision 1/CP.16 included in document FCCC/SBSTA/2011/MISC.7 should be recalled.
4. Activities identified in paragraph 70 to decision 1/CP.16 (REDD+ activities) and nationally appropriate mitigation actions identified in paragraphs 48 and 49 to decision 1/CP.16 are two fundamental elements of developing country Parties mitigation actions. . Diverse mitigation actions may be undertaken by developing country Parties as communicated by them in accordance with paragraph 49 of 1/CP.16.
5. **Consistency between the MRV of REDD+ and NAMAs:** Modalities for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the activities referred to in paragraph 70 of decision 1/CP.16, should be consistent with any guidance on measuring, reporting and verifying (MRV) nationally appropriate mitigation actions by developing country Parties (NAMAs) as agreed by the COP, in accordance with paragraph 60 and Appendix II of 1/CP.16 and with the guidelines contained in Annex III to decision [-/CP.17], Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, and taking into account methodological guidance developed by the SBSTA in accordance with decision 4/CP.15.
6. **MRV Cannot be more burdensome for REDD+:** The consistency between the MRV of nationally appropriate mitigation actions by developing country Parties (NAMAs) and the MRV of REDD+ activities recognized by decision 1/CP.16 shall be observed and Parties shall not permit the introduction of more burdensome requirements for the MRV of REDD+ activities.
7. **National Forest Monitoring Systems:** In accordance with Decision 4/CP.15 on methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries the national forest monitoring systems should:

¹ FCCC/SBSTA/2011/L.25, paragraph 5.

- a. Be consistent with any guidance on measuring, reporting and verifying nationally appropriate mitigation actions by developing country Parties taking into account methodological guidance developed by SBSTA in accordance with decision 4/CP.15;
- b. Be based on a combination of remote sensing and ground-based forest carbon inventory approaches;
- c. Include all national forest areas, and may integrate subnational forest monitoring systems based on national circumstances.
- d. Maximize the frequency of monitoring and assessment subject to available funding and national capacities.
- e. Permit the use of a “tiered approach” in setting the national forest monitoring system, based upon national circumstances, in accordance with the IPCC Guidelines and Guidance as agreed by the Parties.
- f. Be developed through a step-wise approach that reflects the phased approach for REDD+ decided in paragraph 73 Decision of 1/CP.16. In particular, the National Forest Monitoring System for REDD+ Phase II should be used to demonstrate that the REDD+ demonstration activities are results based but should also be assessed through simplified parameters and criteria.

8. **Measuring:** Measurements should be consistent with data requirements for estimating emissions and removals based on IPCC guidance and guidelines within Decision 4/CP.15. Therefore, collected data should be representative of the full variability for forest types present in the country, their carbon stocks and related dynamics, be free of bias as far as can be judged and ensure spatial and temporal consistency of compiled databases.

9. **Reporting:** The consistency referred to in paragraph 5 above should be maintained, including:

- a. Additional flexibility given to least developed country Parties and small island developing states when considering enhanced reporting in national communications, including inventories from Parties not included in Annex I to the Convention.
- b. National communications submitted every four years including biennial update reports that include updates of:
 - i. National greenhouse gas inventories, including a national inventory report.
 - ii. Information on mitigation actions, needs and support received.
 - iii. Tables included in Annex 3A.2 to the Good Practice Guidance for Land Use Change and Forestry and Sectoral Report Tables annexed to Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories.
 - iv. Consistent time series back to reported years in previous national communications.

- v. Additional or supporting information, including sector specific information such as for REDD+, which may be supplied through a technical annex.

10. **Verification:** The consistency referred to in paragraph 5 above should be maintained. Therefore, subject to paragraph 63 of decision 1/CP.16 and Annex IV to decision 1/CP.17, Parties have agreed to conduct international consultations and analysis of the biennial reports under the SBI, in a manner that is non-intrusive, non-punitive, and respectful of national sovereignty and legislation, with the aim to improve transparency of mitigation actions and their effects. This process may be undertaken through two step process of analysis by technical experts and sharing of views in consultation with the Party concerned:

- a. In consultation with the Party a technical analysis of the biennial update reports submitted by Parties, by a team of technical experts from the roster of experts organized by the UNFCCC Secretariat that will result in a Summary Report. The information considered will include, inter-alia, a National Greenhouse Gas Inventory Report.
- b. A facilitative sharing of views, which will serve as input on the biennial update reports and summary report identified above.

11. **Capacity Building:** The Parties to the Convention should establish and support, both technically and financially, programs for specific capacity development in developing country Parties implementing REDD+ activities with the aim to:

- a. develop robust and transparent forest monitoring systems;
- b. fulfill the required forest sector reporting requirements within National Communications and Biennial Update Reports;
- c. support the process or international consultation and analysis of National Communications and Biennial Update Reports.

In addition, the Parties should establish a free resource for the most accurate existing and future satellite imaging data available globally given that the accuracy of the national forest monitoring systems may improve depending on the financial and technical support received in order to build the required national capacity to access and process available information and data.

12. **MRV of support:** Measurement, reporting and verification of the support provided by Annex I Parties to Parties not included in Annex I for activities referred to in this submission of views should be carried out by an expert review team equitably balanced between members of developed and developing countries selected from the roster of experts of the Convention and supported by the secretariat in consultation with relevant national authorities in accordance with countries national capacity and capabilities.

Paper no. 4B: Ghana

Views on how to address drivers of deforestation and forest degradation as referred to in paragraph 71c of decision 1/CP.16

29 February 2012

1. The SBSTA at its 35th session invited Parties to submit their views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in paragraph 71c of that decision¹.
2. For this purpose the Coalition for Rainforest Nations and a number of like-minded developing countries met in London, England to consider issues related to paragraph 1 above. This submission has been prepared to reflect those discussions and views from many other developing country Parties on the same issues.
3. The submission of views to SBSTA35 made on 19 September 2011 by Belize, Cameroon, Central African Republic, Costa Rica, Cote d'Ivoire, Democratic Republic of Congo, Dominican Republic, Ecuador, Gabon, Ghana, Guyana, Honduras, Kenya, Panama, Papua New Guinea, Republic of Congo, Solomon Islands, Togo and Uganda on modalities for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes resulting from the implementation of the activities referred to in paragraph 70 of decision 1/CP.16 included in document FCCC/SBSTA/2011/MISC.7 should be recalled.
4. **Addressing the drivers of deforestation in the context of sustainable development:** In accordance with Article 3, paragraph 4 of the Convention, Parties have a right to, and should, promote sustainable development. The Parties have requested developing country Parties to address the drivers of deforestation and forest degradation, in accordance with national circumstances and capabilities, when developing and implementing their national strategies or action plans². Within this context, the drivers of deforestation and forest degradation should be addressed by developing country Parties at the national level.
5. **National REDD+ Plans:** Subject to the provision of adequate financial support, developing country Parties are encouraged to develop national plans covering all relevant sectors of the economy. Domestically and internationally, the drivers of deforestation and forest degradation should be identified within the national REDD+ plans as appropriate. Developing country Parties should also identify the impacts of drivers of deforestation and forest degradation on forested lands, while considering the contribution to national incomes and economic development, and develop the policies, incentives and funding needed to address each of them.
6. **Paper on the International Drivers:** The SBSTA may request the UNFCCC Secretariat to prepare a technical paper identifying the key international drivers impacting land use change, including, inter-alia, agriculture, mining, construction, transportation, etc., and further estimating the scale of their respective impacts on forested lands and their contribution to sustainable development in developing country Parties.
7. **International Forums:** The Parties should identify existing forums outside the UNFCCC, such as industry forums, and advocate new industry forums where none exist, to exchange views with the relevant stakeholders associated with each international driver of deforestation and forest degradation with the view to identifying policies to reduce the associated deforestation and forest degradation.

¹ FCCC/SBSTA/2011/L.25, paragraph 5.

² Decisions 4/CP.15 and 1/CP.16.

Paper no. 5: Honduras

Submission by Honduras

(7) Methodological Guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management, of forests and enhancement of forest carbon stocks in developing countries.

The Government of Honduras, in response to the invitation to Parties contained in document FCCC/SBSTA/2011/L.25, welcomes the opportunity to provide its views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in its paragraph 71(c).

Overview

As part of the elaboration of its Readiness Preparation Proposal that outlines the process by which the Government of Honduras will develop its national strategy for participating in REDD+, in particular in the analysis of drivers of deforestation and forest degradation presented in the document "Evaluación Preliminar sobre Causas de Deforestación y Degradación de Bosques en Honduras", through empirical analysis and systematic research an understanding has been gained on drivers of deforestation and forest degradation in the country.

Honduras has prepared this submission in order to provide elements that contribute to facilitate decision making during the next session of the SBSTA and COP regarding how to address drivers of deforestation and forest degradation, on the basis of lessons learnt and work already carried out by the country, as they relate to the elements discussed in this submission.

Drivers

Recalling paragraph 3 of Decision 2/CP.13 that encourages Parties to explore a range of actions, identify options and undertake efforts, including demonstration activities, to address the drivers of deforestation relevant to their national circumstances, with a view to reducing emissions from deforestation and forest degradation and thus enhancing forest carbon stocks due to sustainable management of forests, Honduras highlights the importance of undertaking national studies to analyze the proximate and underlying causes of deforestation and forest degradation in developing countries.

Further to that, Honduras considers that, given the relevance of these studies in order to optimize the process of reducing emission from deforestation and forest degradation at the national level, financial support from Annex I countries to elaborate the diagnostic framework to assess and address the relevant drivers of deforestation and forest degradation in developing countries should be made available at a scale sufficient to perform those studies in phase one of REDD+, as described in paragraph 73 of decision 1/CP.16, and then additional funding should be provided to facilitate the implementation of actions.

Honduras considers that the aforementioned analysis while providing lessons that are country specific is instrumental to the overall effectiveness of REDD+.

Fiscal implications of addressing drivers of deforestation and forest degradation should be taken into account when considering a framework and assessing resources needed to address both domestic and international drivers. Opportunity costs of alternative activities and costs of policy incentives are a relevant consideration, in particular in those developing countries where a few agricultural activities provide major fiscal resources and finance key imports.

Honduras supports the idea that a means to disseminate lessons learnt and successful experiences in

addressing underlying causes of deforestation and forest degradation should be made a specific component of the international REDD+ system, given similarities across countries in particular in relation to international indirect drivers.

Lessons learnt on the barriers to complete a diagnostic framework include gaps in the availability of data and information, insufficient financial resources and availability of resources to generate pertinent information in a systematic manner.

Honduras considers that tenure issues, forest governance issues, in particular capacity to enforce an existing appropriate legal and regulatory framework, and gender considerations are essential components of a robust and effective REDD+ mechanism and financial resources and political commitment are both essential to ensure that safeguards are fully implemented.

Submission on SBSTA Agenda item 4

“Robust and transparent national forest monitoring systems”

SBSTA Agenda item 4: Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (UNFCCC Document: FCCC/SBSTA/2011/L.25 dated 3 Dec 2011)

In the conclusions proposed by the Chair on the above SBSTA Agenda item 4, the SBSTA 35 at Durban invited Parties and accredited observers to submit to the secretariat, their views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on *“Robust and transparent national forest monitoring systems”*. The submission from India on the subject follows:

Essential elements of a robust and transparent national forest monitoring system imply application at each stage of the processes and procedures, a transparent, independent and open systematic approach covering, inter alia, the three pillars of successive progression of the measurement, reporting and verification of forest carbon stocks for compiling national level accounting. Salient elements of robustness and transparency of the three pillars of accounting are described below:

Measurement

1. The activity data will be the area change in the forest and trees outside forests (ToF) for estimating impact of deforestation, and the changes in forest carbon stocks for estimating forest degradation.
2. This data will be collected through application of the satellite remote sensing, and actual measurements in the sample plots laid following a suitable sample design.
3. Data relating to the forest carbon stocks, and forest carbon stock change will be computed for the agreed time interval as submitted at agreed periodicity.
4. The forest carbon stocks, and carbon stock change data will be compiled into a national level forest inventory.
5. The responsible organisation including the nodal organization should be decided based on the capability of the organization to handle the volume and complexity of the data, and to coordinate and liaise with the States and Provinces of the country.
6. Information collected above will form the component of forest carbon stocks in the national GHG inventory.

Reporting

7. Reporting units for forest carbon stocks will be million tonnes CO₂eq.
8. Emissions and removals will be estimated at the national level.

9. Other relevant information, such as forest area, area under different density classes, forest canopy cover, and drivers of deforestation and forest degradation will also be included in the national accounting.
10. The unit of the measurement for the area of forest and ToF will be hectare.

Verification

11. The processes, procedures and methodologies for generating the information will be evaluated by independent experts having subject knowledge.
12. The accuracy of inventory will also be reviewed by independent experts not involved in any of the processes of preparing the forest carbon stocks inventory.
13. The calculations/reports of analysis will also be rechecked by independent evaluators before being submitted to the UNFCCC.

General

14. Definition of 'forest' for national level accounting of forest carbon stocks should be flexible to allow the developing countries to elect ToF area and/or other tree resources outside the traditional forests to be included in the national accounts.
15. Stratification of forests and other tree resources including ToF as part of a robust sample design will be in accordance with the developing country's administrative capability, and agro-ecological and physiographic variations.
16. Processes, procedures and methodologies for measurement will be finalized in an open and transparent manner including peer review of the same by independent internal and external experts, and display of the same on the website for comments and review by others.
17. Same dispensation will be applicable to reporting and verification also.
18. Stratification of forest areas, ToF and other tree resources, crown density classes, sampling design, precision of estimates, protocol for collecting sample data, models and equations used in computing forest carbon stocks will form essential part of accounting report submitted to the UNFCCC, and will also be put on the website for public reference.
19. All equations, growth and biomass yield models used in computation of forest carbon stocks will be based on published records, and freely and readily accessible to all for evaluation.
20. Developing countries will have the option to choose all or any of the pools of forest carbon stocks.
21. Indigenous peoples, local communities, civil societies and other interested entities will be fully involved and informed about the technological, methodological, policy, and financial aspects of the Measuring, Reporting and Verification (MRV) processes and procedures.
22. All process for quality assurance and quality control (QAQC) will be applicable to all processes, procedures and methodologies used in generating the information.

Submission by India to SBSTA, UNFCCC

SBSTA Agenda item 4: Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (UNFCCC Document FCCC/SBSTA/L.25 dated 3 Dec 2011)

In the conclusions proposed by the Chair on the above SBSTA Agenda item 4, the SBSTA 35 at Durban invited Parties and accredited observers to submit to the secretariat, their views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on “how to address drivers of deforestation and forest degradation” (Identify associated methodological issues to estimate emissions and removals resulting from these activities). The submission from India on the subject follows:

Drivers of Deforestation and Forest Degradation

Drivers of deforestation and forest degradation in Indian perspective fall in two categories- one, those are planned and projected in accordance with policies, legal framework and management plans, etc, and second, that are spontaneous, beyond government and management control, and usually not accounted for.

Planned (controlled) and unplanned (uncontrolled) withdrawals from forests affect the forest carbon stocks, and, therefore, require proper understanding and management tools including transparent governance, effective enforcement and appropriate mitigation actions. Both categories of drivers relevant to India are listed below:

Planned Drivers – *Developmental works* and projected use such as

- Road and railway construction
- Coal, iron and other mining activities
- Hydro-electric power and irrigation projects
- Industrial requirements
- Expansion of cities and towns

Unplanned Drivers – *Unauthorized activities, routine local unsustainable practices not covered in official management plans*, and natural causes such as

- Encroachment of forest land for agriculture and housing
- Uncontrolled felling
- Fuelwood, small timber and NTFP extraction
- Unregulated livestock grazing
- Fodder collection

- Natural disturbances
 - Forest fires
 - Insect attack
 - Disease outbreak
 - Forest dieback
- Illegal mining operations

Minimizing the impacts of planned or controlled drivers is possible by introducing appropriate policy instruments and management options including effective legal framework and site specific mitigation measures. Challenge lies in addressing and managing the unplanned or uncontrolled drivers and activities which are mainly a direct outcome of local people's dependence on the adjoining forest areas to meet their livelihood needs of fuelwood, grazing, fodder, and food supplements, etc, and to a very small extent on the illegal mining activities within forest. Weaning the local communities away from such livelihood related practices will require sizable investment in providing alternatives for the forest products that the communities have been deriving from the forests traditionally, but not necessarily in a sustainable manner. The number of people dwelling in or near, and dependent on forests for various livelihood needs is estimated to be of the order of 300 millions. Many of these people are poor, with little land and limited options for sustaining livelihood.

Strategy has to be two pronged. Assess the withdrawals from forests due to uncontrolled and unrecorded activities, and thereafter embark on a coordinated, nation-wide approach to minimize such withdrawals from forests and bring these within the sustainable limits. An important input in the sustainable approach would be micro and macro level planning for providing alternatives of forest products routinely derived from forests, and used by the local communities.

In so far as planned forest land use change is concerned India has adequate and effective policy, legal and management framework for regulating such changes. The framework includes:

- National Forest Policy, 1988
- National Environment Policy, 2006
- Forest (Conservation) Act, 1980
- Wild Life Protection Act, 1972

However, with regard to unplanned and unrecorded withdrawals from forests by local communities to meet their livelihood needs, a nationwide planned and coordinated strategy comprising micro level community centered interventions aimed at sustainable management of forests, will be necessary. These interventions will also serve as confidence building measures for the local communities to become willing

and driving partners in operationalization of REDD-plus mechanism by controlling deforestation and forest degradation, and will institutionalize equitable and transparent distribution of benefits from REDD-plus.

The implementation of REDD-plus in India will invite greater stakeholder involvement in the management of forests, specifically the local communities, civil society, and also research organizations, which will be a positive sign for achieving and maintaining forest sustainability through enhancement of forest ecosystem goods and services. Appropriate and well thought out interventions will lead to greater community support for government, and stronger community dislike for destructive practices. Possible policy and management interventions for the purpose are

- Transparency in governance both at micro and macro levels
- Preparation of community-centered micro plans for sustainable management of local forest resources through active people's participation
- Transparency in forest related information, land use change, and revenues including future REDD-plus incentives
- Public accountability for policies and management decisions
- Secure and equitable rights to forest utilization
- Fair, transparent, and corruption-free accounting and disbursement of benefits and REDD-plus incentives

Proper awareness amongst stakeholders is expected to play a key role in deciding the level of participation and commitment of different stakeholders including the local community. To achieve this, the stakeholders will need to be adequately and properly informed, motivated, and empowered to take appropriate action. Besides this, other relevant government support programmes will need to be lined in to minimize dependence of local community on local forest resource. These programmes could include

- Alternative cheap cooking fuel supply
- Promoting non-conventional energy sources
- Low cost permanent housing facilities
- Improving agricultural and livestock productivity
- Free education for children
- Better infrastructural facilities including health
- Effective use of modern communication audio video tools for creating awareness among community

Striking a balance between the need to increase food production for growing population and to halt deforestation, requires increase in agricultural production without further deforestation. This can be

addressed through improved land planning and substantial investment in technology to increase yields of existing farmlands. Strengthening of agricultural research will be imperative to enhance agricultural productivity in a sustainable manner. Similar approach will be needed for livestock production management.

Effective deployment of the proposed interventions will be incumbent upon commissioning of, and inferences from appropriate research in tune with the local requirements. Some of the research priorities are:

- Effective and improved silvicultural operations for improving site specific productivity with focus on local livelihoods
- Assessment of site specific performance of species for better productivity of basket of forest products including small timber, fuelwood and NTFPs
- Assessment of fast growing tree species with higher productivity and their site evaluation for inclusion in local agroforestry practices
- Development of quick and effective insect and disease control mechanism including prediction of such outbreaks and remedial measures thereof
- Forest fire prediction and control mechanism
- Production of fuelwood, fodder, and NTFPs to suit local requirements
- Increased soil and water conservation measures

Drivers of deforestation and forest degradation and forest carbon stock accounting

Overarching objective of REDD-plus is to effect i) emissions reductions from activities resulting in deforestation and forest degradation, and ii) increase in removals through conservation, sustainable management of forests and enhancement of forest carbon stocks. To ascertain the efficacy of management aimed at reducing emissions, and increasing removals, it will be imperative to assess the status of forest carbon stocks and changes therein at national level with reasonable accuracy. It is clear that measurement of deforestation, and resultant loss of carbon stocks is easier to determine than the forest degradation and associated carbon loss. Measurement of degradation which is basically caused by uncontrolled and unrecorded withdrawals from forests usually by local communities, is more complex and will require proper sample design and extensive ground verification for precise estimation. In other words, cost and time effective methodologies will need to be developed to estimate so far unrecorded withdrawals from forests. These withdrawals will need to be accounted for even if nobody pays for these. Intensity and prevalence of drivers can help in identifying strata of forest subject to different degrees of degradation, which will be useful while developing methodology for precise estimation of withdrawals. Existing remote sensing technologies are not capable of estimating forest degradation as compared to deforestation, which is clearly captured in satellite imageries.

In any case, the procedure and methodologies used for ascertaining deforestation and forest degradation are independent of causative drivers as these are designed to measure the end result of influence of such drivers in terms of net forest carbon stocks that exist at a given point of time in the forest area under measurement. The net forest carbon stocks at the time of measurement are the end result of negative impacts of drivers and positive impacts of management activities resulting in enhancing removals like conservation, sustainable management of forests and enhancement of forest carbon stocks.

Controlling and managing drivers of deforestation and forest degradation will improve status of forest carbon stocks. However, measurement of forest carbon stocks at regular intervals will be necessary to incorporate the contribution of management of deforestation and forest degradation in the national level accounting of forest carbon stocks.

Continuous unnoticed processes of forest degradation become apparent only when substantial number of trees or quantum of biomass has been removed. Degradation results in slow and gradual loss of forest carbon stocks, which may not be captured immediately. Unchecked forest degradation may finally culminate in deforestation. Deforestation is complete removal of forest vegetation resulting in immediate loss of biomass carbon stocks.

Deforestation and forest degradation can be assessed based on the following two data, which may be available either from the Forest Survey of India (FSI) report or from the state forest departments as well as from published research papers. These will also facilitate successive assessments. To assess the total loss of forest carbon stocks in a given period and area, two components have to be considered:

- (1) The carbon stock loss in areas that changed from forest land to other land uses in the respective period, and
- (2) The reduction of average carbon stock in areas that remain forest land.

Following table summarizes the methodological issues for estimation of emissions and removals caused by various LULUCF activities associated with different drivers of deforestation and forest degradation.

Table: LULUCF activities, drivers of deforestation and forest degradation, and associated methodological issues for estimation of emissions and removals

Identified LULUCF Activity	Drivers of Deforestation and Forest Degradation	Identified Methodological Issues
<p>Planned</p> <ul style="list-style-type: none"> • Developmental works • Projected management interventions • Iron and coal mining 	<ul style="list-style-type: none"> • Requirement of forest land for developmental purposes • Infrastructure development • Increasing energy requirement of growing population • Housing needs of increasing urban population • Industrial requirement of land, and wood-based raw material 	<ul style="list-style-type: none"> • Precise assessment at shorter time intervals of estimation of forest carbon stocks lost in small areas of different forest types due to degradation • Precise assessment at shorter time intervals of degradation in a cost effective manner specifically when the crown density does not undergo any change
<p>Unplanned</p> <ul style="list-style-type: none"> • Livelihood needs of forest products of local communities • Encroachment and uncontrolled felling 	<ul style="list-style-type: none"> • Livelihood imperatives • Growing population 	<ul style="list-style-type: none"> • Precise assessment of so far unrecorded withdrawals by local communities in a cost and time effective manner
<ul style="list-style-type: none"> • Natural disturbances 	<ul style="list-style-type: none"> • Lack of human and technical infrastructure and capability to contain damage after occurrence of an event of natural disturbance 	<ul style="list-style-type: none"> • Precise assessment as and when the natural disturbances occur

**Views of the Government of the Republic of Indonesia
on
Methodological guidance for activities relating to reducing emissions from
deforestation and forest degradation and the role of conservation,
sustainable management of forests and enhancement of forest carbon stocks
in developing countries**

1. Subsidiary Body for Scientific and Technological Advice in its thirty-fifth session invited Parties and accredited observers to submit to the Secretariat their views by 28 February 2012 on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems as referred to in its paragraph 71(c). The SBSTA also requested the secretariat to compile the submissions from Parties into a miscellaneous document for consideration by the SBSTA at its thirty-sixth session.
2. The Government of the Republic of Indonesia herewith submit its views as follows:

A. Issues to be addressed in developing and implementing national strategy or action plan:

I. Drivers of deforestation and forest degradation

3. Indonesia refers to the Decision 4/CP.15, paragraph 1, which requested developing countries undertaking REDD+ activities to identify: (a) drivers of deforestation and forest degradation resulting in emissions and also the means to address the drivers; (b) activities within the country that result in reduced emissions, increased removals, and stabilized forest carbon stocks; and to the Decision 1/CP.16 paragraph 72, which requested developing country Parties to address, inter alia, drivers of deforestation and forest degradation, when developing and implementing their national strategies or action plans, as the basis for the submission.
4. Indonesia is of the view that there are several aspects that correspond to efforts in addressing drivers of deforestation and forest degradation, among others are:
 - (i) Effectiveness of efforts to address drivers of deforestation and forest degradation is dependent on reliability of information relating to the drivers and on the understanding on relevant issues;
 - (ii) While confronting with the task to deal with development challenges faced by many countries all over the world such as poverty eradication, economic development and governance issues, developing nations have their respective domestic unique challenges. Therefore, efforts to addressing drivers of deforestation and forest degradation have to take into account national circumstances and capabilities of developing countries;

- (iii) There is a critical issue on how information relating to developing countries' efforts in addressing drivers of deforestation and forest degradation should be provided and what channels to be used for providing information. As the success in addressing drivers of deforestation and forest degradation will determine the success of REDD+ implementation, Indonesia is of the view that information on how drivers of deforestation and forest degradation are addressed will be embedded in the report of the REDD+ actions result in the form of reduced emissions, stabilized forest carbon stocks, and enhanced forest carbon stocks.

5. Key drivers of deforestation and forest degradation within the boundaries of the country were identified during the study undertaken by the Indonesia Forest Climate Alliance (IFCA) in 2007 as well as during the process of developing National REDD+ Strategy in 2010-2011. Further stakeholder processes to identify drivers of deforestation and forest degradation and ways to address these drivers are underway. At the same time, activities which resulted in reduced emissions and increased removals/sequestrations and stabilization of forest carbon stocks are also carried out.

6. Since early 2000s, a number of policy interventions have been introduced, including the enforcement of regulations such as combating illegal logging and its associated trade, combating corruption, forest fire prevention as well as implementation of mandatory and voluntary instruments of sustainable forest management and verification of timber legality. These policy interventions have brought about significant reduction in forest cover loss from 3.51 million hectare per year (1996-2000) to 0.83 million hectare per year (2006-2009).

II. Forest governance issues, land tenure, gender considerations and safeguards, full and effective participation of relevant stakeholders including indigenous peoples and local communities

7. Governance issues and engagement of relevant stakeholders including local communities as well as gender mainstreaming are already part of the safeguards tenet under decision 1/CP.16, Annex 1. Forest countries usually have policy and other instruments that are relevant to REDD+ safeguards. Indonesia, in this case, has a number of policies and other instruments relating to sustainable forest management including stakeholders participation and gender mainstreaming into development planning. These instruments can be the embryo for the development of a system for information provision on how safeguards, as referred to in Annex 1 of Decision 1/CP.16, are addressed and respected.

8. Land tenure is one of the difficult, multifaceted issues in Indonesia. The Government is now reviewing existing relevant national legislation, in which stakeholder consultation is of paramount importance in this process. Both national and forestry sector spatial planning are already in place and are reviewed every five years. Remote-sensing data, combined with ground check, enables review process; thus spatial planning and its associated decisions would be based on reliable information. Moreover, as review process of spatial planning is a multi-stakeholder process, it can be a kind of avenue to resolve land conflict and other land tenure issues.

B. Development of a robust and transparent national forest monitoring systems

9. Indonesia refers to :

- (a) The Decision 4/CP. 15 paragraph 1 (c) which requested parties to use the most recent Intergovernmental Panel on Climate Change guidance and guidelines, as adopted or encouraged by the Conference of the Parties, as appropriate, as a basis for estimating anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes. Furthermore, based on Decision 4/CP. 15 paragraph 1 (d) and decision 1/CP.17 paragraph 71 (c), Parties are requested to establish a robust and transparent national forest monitoring system and, if appropriate, sub-national systems as part of national monitoring systems, that:
 - i Use a combination of remote sensing and ground-based forest carbon inventory approaches for estimating, as appropriate, anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes;
 - ii Provide estimates that are transparent, consistent, as far as possible accurate, and that reduce uncertainties, taking into account national circumstances and capabilities;
 - iii Are transparent and their results are available and suitable for review as agreed by the Conference of the Parties;
- (b) Further provision on the development of a robust and transparent national forest monitoring system for monitoring and reporting of REDD+ activities under decision 1/CP.16 paragraph 71 (c), includes sub-national monitoring and reporting as an interim measure, monitoring and reporting of emissions displacement at the national level, if appropriate, reporting on how displacement of emissions is being addressed, and on the means to integrate sub-national monitoring systems into a national monitoring system.

10. Responding to the aforementioned subjects, Indonesia considers that:

- (i) A robust and transparent national forest monitoring system should be built upon existing system(s); it should be flexible and allows improvement over time according to national circumstances, capabilities and support received. This is based on the fact that forest countries generally already have national forest monitoring system in place although the systems may not readily accommodate “carbon component”. As for Indonesia, it has “Forest Resource Information System (FRIS)” introduced since 2007 (further enhancement of Forest Resource Inventory System, since early 1980s). For the purpose of monitoring and reporting REDD+ activities and overall mitigation

actions in forestry, the system has been interfaced with National Carbon Accounting System (INCAS) and, in the future, with National Green house Gas Inventory System.

- (ii) Similar to the development of national forest reference emission level and/or forest reference level as referred to in COP 17 decision, a robust and transparent national forest monitoring system could be developed with stepwise approach, enabling parties to improve the system by incorporating better data and improved methodologies, taking into account new knowledges, trends and any modification of scope and methodologies. Thus, parties should be allowed to translate the guidance under decision 4/CP.15 paragraph 1 (d) in accordance with national circumstances, capabilities and support received.
- (iii) It is important to establish national standard as a basis to address national/sub-national approaches of REDD+ activities, and to provide estimates that are transparent, consistent, accurate and comparable across the country. In this case, Indonesia has developed National Standard on Land Cover Classification (SNI 7645: 2010) as the basis for monitoring forest cover changes and National Standards on Ground-Based Forest Carbon Accounting (SNI 7724: 2011 and SNI 7725: 2011) as the basis to determine local specific emission factor/removals factors/carbon stocks¹.
- (iv) The forest monitoring system should contain, as appropriate, a description of data sets including pools and gases as well as scope of REDD+ activities, approaches, methods, models and assumptions used, if applicable. Likewise, it should also includes description of relevant policies and plans, and of changes from previously submitted information, including information on GHGs emissions and removals and forest carbon stocks, calculated against forest emissions level or reference level. Furthermore, the system should also include description of process for reporting.

¹ The English version of SNI 7724 : 2011 and SNI 7725 : 2011 can be downloaded from the Indonesian Ministry of Forestry's website: www.dephut.go.id/index.php?q=id/node/8287

JAPAN's submission on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems

[28 February, 2012]

In order to make an effective framework on reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD-plus), it is necessary to identify and to effectively address drivers of deforestation and forest degradation, taking into account of national circumstances. In addition, with assuming on-going and future measures and actions on REDD-plus implementation, it is essential to develop robust and practical methodologies including forest monitoring system, and MRV systems, and to develop and strengthen practical domestic structure in which social and environment safeguards are incorporated. In this regard, it is important that the SBSTA steadily move forward with its scientific and technological work, especially the work identified in paragraph 75 of Decision 1/CP.16. Therefore, Japan welcomes this opportunity to submit views on methodological issues, especially on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems, in line with conclusion of SBSTA 35, paragraph 5 in FCCC/SBSTA/2011/L.25.

1. How to address drivers of deforestation and forest degradation

As there are various drivers of deforestation and forest degradation, either direct or indirect, such as illegal logging, forest fire, and expansion of agricultural land etc., it is important to establish cross-sectoral system which includes identifying drivers of deforestation and forest degradation, dialogue and coordination between sectors, and to implement the system in transparent manner. Such initiatives may include establishment of land use management system, strengthening structure for land use management by local government, administrative coordination between non-forest sector and forest sector in forest exploitation issue, and cooperation with international initiative on forest conservation and poverty alleviation. These contribute to strengthen forest governance if appropriately designed in collaboration with forest related policies and programmes.

In accordance with paragraph 72 to Decision 1/CP.16, it is necessary to identify drivers of deforestation and forest degradation and to incorporate measures to address them in a national strategy or action plan and to implement these measures. In phases of readiness and demonstration, capacity for measures to address drivers should be developed. In demonstration and full implementation phases, the performance of measures to address drivers of deforestation and forest degradation should be monitored and evaluated by the government in collaboration with intergovernmental organizations. In full implementation phase, full accessibility to information related to drivers should be secured to promote results-based actions.

Basic information related with drivers is important when examining measures to drivers. In addition to estimation of greenhouse gas emissions and removals from forests in a developing

country and the change over time, national forest monitoring system is expected to provide basic information for considering measures to drivers, including safeguards referred to in paragraph 2 in Annex I to Decision 1/CP.16 and forest reference emission levels/forest reference levels, and information on measures to drivers, structure of these implementation and monitoring results on the progress of measures.

Identification of drivers of deforestation and forest degradation significantly contributes to develop concrete and effective REDD-plus actions, such as measures to illegal logging and forest fire management. In addition, it leads to promote effective implementation of national forest programme and consideration of indigenous people and local communities. Consideration of indigenous people and local communities enhances forest management that suits that region, and thus is effective to avoid reversals and displacement referred to in paragraph 2(f) and (g) in Annex I to Decision 1/CP.16.

Developing and enhancing capacity in each country is expected through sharing up-to-date knowledge and good practices on identification of deforestation and forest degradation, safeguard consideration and forest reference emission levels/forest reference levels.

2. Robust and transparent national forest monitoring systems

Modality of national forest monitoring system (hereafter NFMS: National Forest Monitoring System) referred to in paragraph 71(c) to Decision 1/CP.16 should include purpose, characteristics and design, reporting and review and others as scientific and technical elements, as follows:

(a) Purpose and importance of NFMS

NFMS provides basic information to comprehensively assess various effects by performance of REDD-plus activities. In addition to emission reduction, it is inevitably important to promote sustainable forest management, such as deploying multiple functions of forests. From this point of view, NFMS should contain information on drivers of deforestation and forest degradation, afforestation and reforestation, and safeguards referred to in paragraph 2 in Annex I to Decision 1/CP.16, in addition to estimation of greenhouse gas emissions and removals from forests in a developing country and their changes over time. This contributes to strengthen forest governance including law enforcement and to further consider counter measures to deforestation and forest degradation, and to promote effective implementation of REDD-plus, further on, sustainable forest management including deploying multiple functions of forests.

(b) Characteristics and design of NFMS

NFMS is the system to monitor results-based actions as referred to in footnote 8 to paragraph 77 to Decision 1/CP.16, in consistent subnational with national system, and it provides estimation of anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes, along with the most recent IPCC guidance and guidelines. It

should provide scientifically reliable estimation that is transparent, complete, consistent over time, comparable and reviewable and allows assessment of uncertainty and quality assurance and control. In addition, from the view point that NFMS supports MRV system, NFMS needs to be consistent with MRV system.

As referred to in paragraph 70(c), it is required to use a combination of remote sensing and ground-based forest carbon inventory approaches for estimation. Continuous and repeated on-the-ground survey supported by the rational survey design and reliable structure of the implementation should be placed as an important element to monitor dynamics of forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks. According to national circumstance, some parts of forest monitoring may be implementable with participation by local people if it is practical and is able to maintain scientific reliability. It is expected to disseminate positive influences to REDD-plus activities as this participatory approach may contribute to deepen understanding on forest conservation and sustainable forest management by local communities and to build cooperative relationship between government and local communities.

As mentioned above, information related with safeguards including forest governance should be included in NFMS. The information may include the status of forest laws and policies, coordination mechanisms with other land sector such as agriculture and with indigenous peoples and local communities, and system on land tenure and ownership.

Application of remote sensing technology for forest monitoring should be further considered by the IPCC as existing IPCC guidance and guidelines do not cover updated and adequate information on the technology.

It is also important to effectively use existing information including use of forest inventory system, and to take into account of operation of NFMS.

(c) Reporting and review

Developing countries should internationally report information on national forest monitoring system (e.g. forest inventory, framework of forest monitoring system, operation structure, resources, progress of development, capacity building efforts and safeguards) through national communications, biennial update report and supplemental report on REDD-plus. In addition, the report should be internationally reviewed by experts.

(d) Others

NFMS should be developed, taking into account of national circumstances and capacities, and be continuously improved to make more reliable system by integrating updated knowledge. Especially, development and enhancement of capacity in each country are expected through sharing up-to-date knowledge and good practices on forest monitoring methodologies. In addition, future

technical development and accumulation of knowledge on remote sensing technology would make monitoring more useful and reliable.

For effective implementation of activities referred to in paragraph 71 to Decision 1/CP.16, NFMS should be developed with consideration and development of forest reference emission levels/forest reference levels and systems for providing information on how safeguards are addressed and respected. In addition, it should be implemented in line with frequency of update of forest reference emission levels/forest reference levels and timing of submitting biennial update report.

New Zealand submission to the Subsidiary Body for Scientific and Technological Advice

1. In making this submission New Zealand is responding to an invitation to Parties and accredited observers to provide views on issues identified in Decision 1/CP.16, paragraph 72, and Appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems (NFMS) as referred to in paragraph 71(c) of that decision. This submission only addresses NFMS.

Introduction

2. New Zealand considers that excellent progress has been made on REDD+ over the last several years, and that this is reflected in Decisions 1/CP.16 and [-/CP. 17]. In particular, New Zealand notes the developments on forest reference levels and forest reference emission levels (reference levels). The central role that reference levels play in REDD+ was confirmed under Decision [-/CP.17] with the agreement that reference levels expressed in tonnes of CO₂ equivalent per year are benchmarks for assessing each country's performance in implementing REDD+ activities.

3. New Zealand considers that these decisions on reference levels underscore the need for robust and transparent data to be used in constructing country-specific reference levels, and that NFMS are essential to this process.

4. Decision 1/CP.16 at paragraph 71 requests developing country Parties aiming to undertake REDD+ activities (as specified in paragraph 70 of the decision) to develop a set of specific elements. One of these elements is a robust and transparent national forest monitoring system for the purposes of monitoring and reporting REDD+ activities.

5. New Zealand also notes that Parties agreed in Decision [-/CP.17] that a step-wise approach to reference levels may be useful, enabling Parties to improve the reference level by incorporating better data, improved methodologies and, where appropriate, additional pools. The mechanism for attaining this improved data is through a well-developed NFMS.

6. The scope of REDD+ is another factor that underlines the importance of NFMS. The original RED concept dealt only with deforestation. However, the concept has evolved, Decision 1/CP.16, at paragraph 70, sets out five REDD+ activities, being: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks. The so-called plus elements of REDD+ (the latter 3 activities), and the activity of reducing emission from forest degradation, all require NFMS that include a system for monitoring forest carbon stock and carbon stock change.

7. New Zealand considers that Decisions 2/CP.13, 4/CP.15 and 1/CP.16 provide the foundation for SBSTA's work on NFMS. New Zealand notes the preliminary guidance provided in Decision 4/CP.15. At paragraph 1(d), Parties are requested:

To establish, according to national circumstances and capabilities, robust and transparent national forest monitoring systems and, if appropriate, sub-national systems as part of national monitoring systems that:

- (i) Use a combination of remote sensing and ground-based forest carbon inventory approaches for estimating, as appropriate, anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes;
- (ii) Provide estimates that are transparent, consistent, as far as possible accurate, and that reduce uncertainties, taking into account national capabilities and capacities;
- (iii) Are transparent and their results are available and suitable for review as agreed by the Conference of the Parties.

8. New Zealand notes that the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance (GPG) for Land Use, Land-Use Change and Forestry provides a framework for approaches and methodologies to estimate and monitor emissions and removals of greenhouse gases and changes in carbon stocks resulting from REDD+ activities. The GPG include principles of transparency, consistency, comparability, completeness and accuracy.

Guidance to SBSTA

9. Many developing country Parties are either actively undertaking or contemplating work on a NFMS or sub-components of such a system (such as mapping via remote sensing). It is essential that such efforts are directed as efficiently as possible, and that redundancies of effort, as a result of a lack of direction to Parties, are avoided.

10. Whilst, as noted above, some existing guidance is available, many developing country Parties are seeking more clarity as to what is required of them. New Zealand's view is that consideration of NFMS should be a priority for SBSTA this year.

11. New Zealand notes the value expert meetings provided in furthering SBSTA's consideration of reference levels and systems for providing information on how safeguards are addressed and respected.

12. New Zealand proposes, as an initial step, that Parties may wish to consider agreeing a set of high-level principles at SBSTA in May 2012. New Zealand suggests the following:

Parties affirm the following principles to guide the development of NFMS:

- That the respective capabilities and national circumstances of developing country Parties be recognised;
- That NFMS systems provide transparent, complete, consistent and accurate information, and that this be used in the construction of reference levels/reference emission levels;
- That early commencement of NFMS and maximum participation by developing country Parties be encouraged;
- That the development of NFMS should be seen as a process and continuous improvement encouraged;

- That external review provides a valuable mechanism for improving NFMS;
- That incremental development of NFMS be enabled, but that such developments should be compatible with future, potentially more comprehensive, systems;
- That NFMS may, as an interim measure, focus on forest areas and/or REDD+ activities¹ where forest carbon stock change is assessed as most significant;
- That NFMS include both remote sensing and ground-based sample plot measurement;
- That NFMS enable informed policy decisions; and
- That the role of indigenous peoples and local communities in the development of NFMS be recognised.

13. New Zealand suggests that consideration be given to scheduling an expert meeting on NFMS in the second half of 2012. Such a meeting could be used to elaborate the above principles. It could also enable consideration of whether further detailed guidance on NFMS is necessary at this time, and, if so, what issues such guidance should address. This may include considering whether to invite the IPCC to develop supplementary guidance on particular aspects of NFMS for REDD+.

New Zealand's experience: Lessons learnt for REDD+ NFMS (Summary)

14. To inform Parties' consideration of NFMS for REDD+, New Zealand presents in this submission a list of lessons learnt in the development of New Zealand's forest carbon inventory system (Land Use & Carbon Analysis System – LUCAS). New Zealand's LUCAS was custom-built for use as a carbon reporting and accounting system, and as such provides valuable insight for consideration of NFMS for REDD+ countries, despite New Zealand's differing reporting and accounting commitments. It is worth noting that New Zealand's forest carbon inventory system was built from the ground up over a period of only around ten years. During this time, LUCAS was subject to continuous improvement, incremental investment, and contributed to meeting New Zealand's reporting obligations.

15. The list below is presented as a guide. Where necessary, we've included additional commentary on the specific implications for REDD+ (in italics). A more detailed explanation including an elaboration of New Zealand's experience is provided in Appendix I.

- i. The establishment of a specifically designed network of ground-based sample plots is considered best practice for NFMS. Ground-based sample plots are necessary to accurately measure forest carbon stock and stock change.

In recognition of the respective capabilities and national circumstances, IPCC default emission factors provide an acceptable approach for REDD+ countries while NFMS are being fully developed. The development of specific regional emission factors could also provide a valuable interim step.

- ii. Where possible, and if necessary, initial mapping should be undertaken prior to the operational design of a forest inventory, so as to provide the basis for selecting forest sample plots on a systematic grid (with a randomised starting point) .

¹ As set out in 1/CP.16 at paragraph 70.

Not all plots need to be installed and measured immediately for a REDD+ NFMS, but developing a national framework ensures that where measurements are taken they will be able to be incorporated into a national system in a statistically valid manner. This is particularly important where Parties may be planning to use sub-national forest monitoring systems as an interim measure, or where particular areas are being targeted for measurement due to a high probability of land-use change².

The exercise of mapping forest area should be undertaken periodically.

- iii. Permanent sample plots (PSPs) may be preferable to temporary plots as a greater number of temporary plots are necessary to estimate forest carbon stock change to the same level of accuracy and confidence. PSPs may be more expensive to establish and re-measure on a per plot basis, and have maintenance costs that temporary plots do not incur, but fewer are required; therefore, the higher per unit costs may be offset by the lower number of plots required. In addition, the data collected from permanent plots are not subject to spatial variability that could mask real temporal changes.
- iv. Existing data (carbon stock, forestry concession etc) may provide useful background, but NFMS should be designed on a first principles basis. A number of questions should be addressed prior to the use of existing plot data, including: was the sample randomly or selectively located, is the sample size adequate, are the data collected sufficient, and does the sample increase accuracy or confidence of the country's estimate.
- v. The use of trial inventories can greatly assist in finalising the inventory sample design, testing field measurement protocols, and providing improved cost estimates for the inventory. They can also be used to confirm that the inventory sample intensity is practical and sufficient.
- vi. Remote sensing data are a valuable tool for mapping forest area (or more specifically woody land use classes), and in conjunction with other data can detect land-use change, and assign land-use classifications. It is possible to determine forest area and detect land-use change via ground-based sample plots, but the number of plots required can be cost prohibitive (as a large number of plots are necessary to achieve acceptable detection probability and sampling error), and such an approach is also vulnerable to fraud (as plots may be treated differently).
- vii. A combination of remote sensing and ground-based sample plots is recommended for an effective NFMS. This strategy offers the advantage of potentially improving the precision of data from each source.

The relative importance ascribed to remote sensing and ground-based sample plots should be determined initially by respective capabilities and national circumstances of developing country Parties, recognising forest characteristics, land-use, and existing expertise and systems.

² Paragraph 71(c) of Decision 1/CP.16 permits REDD+ countries to use, 'if appropriate, sub-national monitoring and reporting as an interim measure, in accordance with national circumstances'.

- viii. A substantial, long-term investment is necessary for an effective NFMS. Data processing and analysis comprise a substantial component of the required investment, and training and capacity building of field teams needs to be factored in.

A long-term commitment also ensures that the system is sustainable. For example, the annual re-measurement of a proportion of ground-based sample plots is not only more practical, but helps ensure that expertise is retained. Similarly, it is important that funding for mapping be constant, so that maps of consistent (or improving) quality can be compared.

- ix. Information sharing amongst Government agencies and others relevant entities should be encouraged and existing data, where suitable, should be used to enhance knowledge of the area in forest.
- x. Significant effort is required to accurately prepare forest maps for an historical base year, with a lack of existing data of sufficient precision the primary factor.

This is likely to be even more of an issue for REDD+ countries. Consideration should be given as to what is an appropriate base year or time period necessary for historical data.

- xi. The development of a NFMS should be seen as a process. The goal should be continuous improvement. Advice from external sources is vital for improvement.

16. New Zealand looks forward to discussing the above ideas with other Parties in May 2012, and continuing to work on what we consider to be a fundamental element of an effective REDD+ mechanism.

Appendix I- New Zealand's experience: Lessons learnt for REDD+ NFMS (detailed discussion)

New Zealand's national forest inventory was custom-built for use as a carbon reporting system, and as such provides valuable insight for consideration of NFM for REDD+, despite New Zealand's differing reporting and accounting commitments.

New Zealand's experience of developing a national forest carbon inventory system (to meet UNFCCC and Kyoto Protocol reporting obligations) has direct parallels with the work many developing country Parties will need to undertake for REDD+. At the time of establishment, New Zealand did not have an existing functioning national forest inventory on which to build the national forest carbon inventory. As such, New Zealand was not able to use existing national unbiased estimates of total stem volume combined with biomass expansion factors to predict total biomass, nor derive individual tree biomass allometric functions from existing data to apply to a national sampled set of individual tree measurements.

New Zealand collects data on both planted production and natural forests, but neither process produced information with sufficient detail and coverage to be used for national forest carbon inventory purposes. Data on planted production forests are collected annually in a voluntary survey, the National Exotic Forest Description (NEFD). It focuses on timber availability for planted production forests, and is based on forest area, forest age-class distribution, silviculture, and harvest rates, as reported by those that respond to the survey, from within the forestry sector. The NEFD has parallels with forestry concession data collected by some developing country Parties. Data on natural forests are collected for a wide variety of purposes and stored in the National Vegetation System (NVS) (as detailed below). The NVS stores a large volume of vegetation survey and plot data, including data on tree and shrub stem measurements of diameter at breast height (DBH), and vegetation composition measures such as cover by height tier and seedling counts in sub-plots.

Initial work began on designing a system to meet UNFCCC reporting requirements in the late 1990s. The design and implementation of the natural forest inventory and Soil Carbon Monitoring System (Soil CMS) began with funding allocated on an annual basis. Land cover maps were used as a substitute for land use maps to identify where the sample plots should be established. The system was built to allow the inclusion of a subset of existing permanent plots (the NVS plots mentioned above) to take advantage of their existence and to get an early understanding on what if any carbon stock change was occurring in natural forests. The subset of plots were not representative of the vegetation mapped as natural forest and therefore provided an assessment only of the carbon stock changes occurring on those plots rather than providing any level of confidence in what was occurring at the national level.

Following New Zealand's ratification and entry into force of the Kyoto Protocol, long-term funding was committed and the work programme extended on New Zealand's national forest carbon inventory (Land Use & Carbon Analysis System – LUCAS). The programme comprises three main components:

- mapping of land use and land-use change since 1990 and the change between 2008 and 2012;

- the establishment of a forest carbon inventory which enables the measurement of forest and soil carbon stock and change; and
- the establishment of IT, database and carbon accounting systems for verification, calculation and reporting.

LUCAS focuses principally on carbon inventory and modelling for natural forest, planted forest and soils, and is designed to provide the data required for New Zealand's UNFCCC and Kyoto Protocol reporting and accounting obligations. A first priority was to develop sound techniques for collecting land-use data, and then to work out how to calculate the carbon values for each of the five carbon pools (above ground biomass, below ground biomass, dead wood, litter, soil organic matter). In doing so, it was critical that the methodologies used met the Intergovernmental Panel on Climate Change Good Practice Guidance. The results of investigations and method development for each component are published in independent peer-reviewed journals. This provides transparency and ensures that New Zealand's approaches are acceptable to the international community.

In order to determine carbon stocks at a national level for plantation forest, site-specific data are gathered through permanent sample plots in the two categories of forest – first in post-1989 and subsequently in the pre-1990 forests. Post-1989 forest sites are located throughout New Zealand where a randomly allocated 4-km grid coincides with mapped post-1989 forest. Between 2007 and 2008 around 300 permanent post-1989 forest sample sites were measured by ground crews using forestry inventory methodology developed from standard protocols.

In order to measure land-use change New Zealand made extensive use of satellite imagery, aerial photography, and other spatial data. It should be noted that land-use mapping from satellite imagery over New Zealand is hampered by two factors. First, it is difficult to get complete coverage of the country in one summer due to cloud cover. Second, steep slopes cause shadowing which makes automatic classification of the imagery difficult. To counter the latter issue, New Zealand developed techniques to remove the effects of terrain from satellite imagery, which significantly improved image classification and subsequent land-use mapping.

New Zealand's experience – lessons learnt for REDD+ NFMS:

(i) The establishment of a specifically designed network of ground-based sample plots is considered best practice for NFMS. Ground-based sample plots are necessary to accurately measure forest carbon stock and stock change.

General comment

The use of ground-based sample plots is well established as a mechanism to measure and quantify bio-physical and environmental attributes.

New Zealand notes the findings of a UNFCCC technical paper on NFMS (FCCC/TP/2009/1). The paper states at paragraph 92: 'For most of the tropics, existing data sets are generally insufficient, and so collecting additional field measurements using standard forest carbon inventory methods for each ecosystem likely to be deforested or degraded will be necessary'.

In recognition of respective capabilities and national circumstances, IPCC default emission factors may provide an acceptable approach for REDD+ countries while NFMS are being fully developed.

New Zealand experience

New Zealand used a systematic grid approach for the establishment of a network of permanent sample plots. Where the grid intersected forest or woody vegetation a permanent sample plot was installed. The plots were established systematically on a 4 or 8-km grid - natural forest (8-km grid); pre-1990 planted forest (8-km grid); and post-1989 forest (4-km grid). New Zealand used 20 m x 20 m permanent plots to measure the natural forest. In total approximately 1256 plots were installed in natural forests between 2002 and 2007, which provided carbon stock estimates within $\pm 4\%$ (95% confidence intervals).

New Zealand's permanent sample plots are used to measure above ground volumes of live and dead biomass, and then converted to carbon stocks per hectare using models, allometric functions and regression equations. A ratio of above to below ground biomass is applied to estimate below ground biomass. Additional plot data have been collected to meet other national and international reporting requirements, such as forest composition measurements and full vascular plant species lists.

(ii) Where possible, and if necessary, initial mapping should be undertaken prior to the operational design of a forest inventory, so as to provide the basis for selecting forest sample plots on a systematic grid (with a randomised starting point) .

General Comment

Not all plots need to be installed and measured immediately for a REDD+ NFMS, but developing a national framework ensures that where measurements are taken they will be able to be incorporated into a national system in a statistically valid manner. This is particularly important where Parties may be planning to use sub-national forest monitoring systems as an interim measure, or where particular areas are being targeted for measurement due to a high probability of land-use change³.

New Zealand experience

In New Zealand, the establishment of both ground and LIDAR sample plots for post-1989 plantation forests were installed without a map of the area. Forest plots were established at around the same time as the 1990 base mapping work was being carried out. This created a number of challenges as planted forest consultants were engaged to independently identify where the post-1989 forests occurred. As a result, a number of post-1989 forest plots were located in other land uses, and a number of additional plots have been identified that were missed in the first measurement round.

(iii) Permanent sample plots (PSPs) may be preferable to temporary plots, as a greater number of temporary plots are necessary to estimate change to the same level of accuracy and confidence. PSPs may be more expensive to establish and re-measure on a per plot basis, and have maintenance costs that temporary plots do not incur, but fewer are required; therefore, the higher per unit costs of PSPs may be offset by the lower number of plots required. In addition, the data collected from permanent plots is not subject to spatial variability that could mask real temporal changes.

³ Paragraph 71(c) of Decision 1/CP.16 permits REDD+ countries to use, 'if appropriate, sub-national monitoring and reporting as an interim measure, in accordance with national circumstances'.

In New Zealand's experience, with the objective of estimating national carbon stock change, the advantages of permanent sample plots outweigh their disadvantages and the extra costs per plot, as it was determined that more temporary plots (at a higher overall cost) would be needed to estimate the carbon stock change to the same level of uncertainty.

New Zealand notes that a statistical sampling approach applied to a national permanent sample plot network can significantly reduce costs. In taking such an approach the statistical design, stratification and plot design require careful consideration. Methodologically, the approach must avoid bias such that in extrapolating emission factors for instance, estimates are neither under-estimated nor over-estimated.

(iv) Existing data (carbon stock, forestry concession etc) may provide useful background, but NFMS should be designed on a first principles basis. A number of questions should be addressed prior to the use of existing plot data, including: was the sample randomly or selectively located, is the sample size adequate, are the data collected sufficient, and does the sample increase accuracy or confidence of the country's estimate.

In New Zealand, the National Vegetation Survey (NVS) databank stores vegetation data that have been collected over the last 50 years. Currently, it contains records from approximately 77,000 vegetation survey plots which include over 19,000 permanent plots. The types of plot data held include tree and shrub stem measurements of diameter at breast height (DBH). It also includes vegetation composition measurements, such as cover by height tier and seedling counts in sub-plots.

To assess the data's usefulness for estimating carbon stocks, plot data were selected from a subset of plots. DBH and indirect estimates of tree height were converted to above-ground biomass (AGB) using allometric equations based on previous destructive biomass studies and wood density data from a range of historical wood density surveys. An assessment of these plots identified a range of issues including: tree height had to be inferred from height tier data to enable estimates of AGB to be made; and none of the other carbon pools could be estimated from the data available in NVS. In addition, some forest types and regions were not sampled and others were poorly represented.

It was determined that despite the existence of these plots a systematic network of new permanent sample plots was necessary in order to measure forest carbon stock and stock change for New Zealand's natural forest.

(v) The use of trial inventories can greatly assist in finalising the inventory sample design, testing field measurement protocols, and providing improved cost estimates for the inventory. They can also be used to confirm that the inventory sample intensity is practical and sufficient.

New Zealand undertook two trial inventories in developing LUCAS. An East-West transect across the South Island was assessed for natural forest, while the Nelson-Marlborough region was assessed for planted production forests.

New Zealand's sample intensity for natural forests is quite sparse – 1 hectare measured for every 27,000 hectares of post-1989 forest, 107,000 hectares for pre-1990 forest and 160,000 hectares for natural forest. The sample inventories enabled these intensities to be analysed and confirmed prior to the roll-out of this approach nationwide.

Significantly, the use of trial inventories also demonstrated the principles of a large-scale, national inventory in a country more used to either project and/or catchment-based inventories for native vegetation.

Prior to the establishment of the trials, initial research was carried out to determine plot size and likely variability of carbon per hectare between plots (suggested as a co-efficient of variation for each of the populations). This research suggested that a plot area of around 0.04 hectares was the most efficient under New Zealand conditions.

In New Zealand's natural forest the data collection methodology applied at the plot level was developed from existing permanent plot measurement protocols. Two of New Zealand's major research organisations worked together to refine the methodology and build capacity for the level of activity required to carry out the inventory work to a high standard. Considerable efforts were made in the early stages to ensure the data collected were suitable for carbon stock calculations and that the large number of staff required to carry out the work were trained to a high standard. The field manual was trailed over the first two field seasons and then finalised for the remaining four field seasons of the establishment phase of the inventory. New Zealand's natural forests occupy a third of its land area (8.1M ha) and the plot network takes five years to carry out one full measurement cycle. Quality assurance work carried out in the early stages of the project ensured the methodology was being applied consistently amongst the field teams.

(vi) Remote sensing data are a valuable tool to determine forest area (or more specifically woody land use classes), and in conjunction with other data can detect land-use change, and assign land-use classification. It is possible to determine forest area and detect land-use change via ground-based sample plots, but the number of plots required could be cost prohibitive (as a large number of plots are necessary to achieve acceptable detection probability and sampling error) and such an approach is also vulnerable to fraud (as plots may be treated differently).

New Zealand uses as many sources of data as possible to assist in the process of classifying land use and confirming land-use change. Aerial photos are extremely valuable as are ground-based survey and plot data. Remote sensing on its own cannot confirm whether destocked areas are harvested before a land-use change event or are harvested areas that remain in forest land use and will be replanted. New Zealand therefore uses aerial photos to enable deforestation to be confirmed.

(vii) A combination of remote sensing and ground-based sample plots is recommended for an effective NFMS. This strategy offers the advantage of potentially improving the precision of data from each source.

General comment

New Zealand notes that guidance provided to Parties under Decision 4/CP.15 includes the 'use of a combination of remote sensing and ground-based forest carbon inventory approaches for

estimating, as appropriate, anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks, and forest area changes¹.

New Zealand notes that the relative importance ascribed to remote sensing and ground-based sample plots should be determined initially by the respective capabilities and national circumstances of developing country Parties, and recognise forest characteristics, land-use, and existing expertise and systems.

New Zealand experience

New Zealand has implemented a system for both planted production and natural forests that utilises a combination of remote sensing and permanent sample plots.

In New Zealand, remote sensing is used to supplement ground-based sample plots to improve the estimate of carbon stocks and reduce the level of uncertainty about this estimate (or equivalently, reduce the cost from that which would be incurred from using only ground plots – with an equivalent level of uncertainty). In New Zealand's experience there is also no substitute for on-the-ground field verification to ensure an effective NFMS.

New Zealand also uses airborne LiDAR (Light Detection and Ranging) in a double sampling scheme for New Zealand's post-1989 production forests (see text at the bottom of this section for additional information on the use of LiDAR in New Zealand). Research demonstrated that regression models using LiDAR metrics could predict both total and above-ground carbon stock with a high degree of certainty – R^2 in the order of 70 – 80%.

Use of LiDAR

Based on the use of LiDAR for post-1989 forest, it was clear that a more formal, innovative double sampling design using LiDAR would improve sampling efficiency for the next survey - that of the pre-1990 exotic forests. It was considered that this could be achieved by strip-flying across forests containing ground plots on an 8-km systematic grid, augmented by a high ratio of additional LiDAR plots on an embedded 8-km by 1-km grid. Although it was necessary to fly the length of the country (over 1600km), it was expected that the cost of the LiDAR plus ground plots would be reduced from that which would be incurred using ground plots alone, to achieve the same precision.

In the pre-1990 inventory, four times as many LiDAR plots were flown compared to 190 permanent plots measured on the ground. This enabled the uncertainty on the estimated total forest carbon (expressed a confidence interval at the 95% probability) to be reduced from $\pm 14\%$ without LiDAR to $\pm 11\%$ for the combined LiDAR and ground.

This is the first example of the use of LiDAR at a national scale to estimate biomass and carbon stocks and parallels the development of LiDAR sampling for standing stem volume at the county level in Norway.

New Zealand notes that LiDAR may be useful for developing countries developing NFMS. However, both the direct cost of LiDAR and access to the technology and expertise may limit its

application, especially in the short term. The relative lower cost of undertaking field inventories in developing countries is also a factor to consider.

(viii) A substantial, long-term investment is necessary for an effective NFMS. Data processing and analysis comprise a significant component of the necessary investment, and training and capacity building of field teams needs to be factored in.

A long-term commitment also ensures that the system is sustainable. For example, the annual re-measurement of a proportion of ground-based sample plots is not only more practical, but helps ensure that expertise is retained. Similarly, it is important that funding for mapping be constant, so that maps of consistent (or improving) quality can be compared.

General comments

New Zealand notes the findings of a UNFCCC technical paper on NFMS (FCCC/TP/2009/1). It states at paragraph 23 that 'although some remote sensing datasets are available 'free of charge', there are additional resources required to get the data ready for the interpretation and analysis of forest area change'. New Zealand notes the additional resources required can amount to a significant cost impost (including costs for specialist software, on-going licensing fees, and computer hardware).

A further cost associated with the use of remote sensing data is that trained professionals (preferably locally-based staff) are necessary to effectively use the data. Generally, to be proficient in satellite image analysis a university diploma or degree is required. In many countries only a small number of analysts are formally qualified in this area. A further complication is the ability of government departments to retain skilled staff.

New Zealand is aware of work underway internationally to address the need for pre-processed satellite data for developing country Parties. This work is important and should be encouraged.

New Zealand experience

A critical component of the LUCAS programme involved building and acquiring the necessary IT infrastructure, analytical tools and expertise. This was a major undertaking for New Zealand and required a significant amount of time, effort and investment.

In addition, considerable efforts were made in the early stages to build capacity for the level of activity required and to ensure that the large number of staff required to carry out plot establishment work were trained to a high standard.

(ix) Information sharing amongst Government agencies and other entities should be encouraged, and existing data, where suitable, should be used to enhance knowledge of the area in forest.

The accuracy of wall-to-wall mapping depends on the ability to distinguish land use classes. In New Zealand the release of GIS layers to other government departments provided much needed information, and acted as an important verification check. The Ministry of Agriculture and Forestry's incorporation of the land use maps with their own GIS system enabled regional officers to identify and correct mistakes in classification or delineation of boundaries. A co-benefit was improved information for regional planning. Partnering with the forest industry in New Zealand has similarly provided benefits for both the inventory system and the industry.

(x) Significant effort is required to accurately prepare forest maps for an historical base year, with a lack of existing data of sufficient precision the primary factor.

This is likely to be even more of an issue for REDD+ countries. Consideration should be given as to what is an appropriate base year, or time period necessary for historical data.

(xi) The development of a NFMS should be seen as a process. The goal should be continuous improvement. Advice from external sources is vital for improvement.

New Zealand uses the reporting and annual expert review process to refine and improve the system and quality of data for reporting. Reviewers' recommendations are prioritised for investigation and implementation above other possible improvements that could be worked on.

SUBMISSION BY NORWAY ON METHODOLOGICAL GUIDANCE FOR REDD (SBSTA) – FOREST MONITORING, MRV AND DRIVERS OF DEFORESTATION

1. Context

Norway appreciates this opportunity to submit its views on “*issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems*”.

2. Guidance on MRV and National Forest Monitoring systems for REDD+

Understanding of the terms

In Norway’s understanding, *measuring, reporting and verification (MRV)* for REDD+ means the measuring, reporting and verification of greenhouse gas (GHG) emissions/removals, based on the latest IPCC guidance and guidelines, in relation to REDD+ activities.

We understand *national forest monitoring systems* as being systems for the monitoring of additional forest-related variables that could be useful for parties when implementing and operationalizing REDD+. While we recognize that MRV and forest monitoring systems will normally be closely integrated, this conceptual separation is made for the sake of the clarity of this submission.

This submission will mainly concern the MRV of the estimated GHG emissions and removals from the forestry sector in countries seeking to implement REDD+. Some views on broader forest monitoring systems will also be presented.

Recalling past decisions

Decision 4/CP.15 and Decision 1/CP.16 provide key elements relevant for the establishment of MRV-systems and national forest monitoring systems. These decisions, combined with the CP.17 Decision on forest reference emission levels and forest reference levels (RELS/RLs), provide important elements for the establishment of MRV-systems and national forest monitoring systems for REDD+.

Principles

The GHG data reported with basis in the MRV-systems for REDD+ should follow the IPCC reporting principles of *transparency, completeness, consistency, comparability* and *accuracy*.

The latter principle, to our understanding, also implies that the *degree* of accuracy/uncertainty is assessed and reported.

Relation to RELs/RLs

MRV systems for REDD+ are inseparably linked to RELs/RLs. RELs/RLs will be developed on the basis of the existing capacity of the parties to estimate their historic and present emissions and removals, among other elements. Therefore, all activities (as referred to in paragraph 70 of Decision 1/CP.16) and pools that are included in a party's submitted REL/RL must also be included in the MRV-system.

However, as RELs/RLs should be updated to reflect new knowledge and increased capacity to estimate emissions and removals from pools and activities, parties should continuously seek to improve and expand their MRV systems. This is referred to as a "stepwise approach" in the CP.17 Decision on RELs/RLs.

The ability to improve existing RELs/RLs will ultimately depend on the level of accuracy possible of measured and reported emissions and removals. Increasing the accuracy of measurement and reporting over time is important, as more certain estimates of GHG-emissions will increase the credibility and robustness of the REDD+ mechanism.

Scope

MRV systems for REDD+ should be national in scope to allow for the tracking of potential displacement of emissions from one area to another. MRV systems for REDD+ should also be integrated with overall national arrangements for developing national GHG inventories. This will give a good basis for gradual improvement over time. However, sub-national systems may be appropriate for REDD+ for an interim period, as stated in Decision 1/CP.16. Parties that in an interim period plan to establish sub-national MRV systems should therefore present plans on how to scale up the systems to national coverage. Parties could also agree on a maximum duration of sub national systems, ensuring progress on upscaling. For the duration of any interim period, the displacement of emissions should be monitored, quantified and reported.

In order to generate data for a thorough GHG inventory for REDD+, all activities (as referred to in paragraph 70 of Decision 1/CP.16) and pools where significant emissions are expected should be encompassed by the MRV system. Particular attention is needed with regards to the highly significant carbon pools stored in organic peat soil. In addition, drained peatlands continue to emit carbon for many years after disturbance, a factor that must be incorporated into MRV-systems (and RELs/RLs).

However, also non-forested and deforested peatlands are important in this regard; especially since draining a forested peatland area will have effects also on surrounding non-forested peatlands. Norway therefore welcomes Appendix II (a) of Decision 1/CP16 and the related discussions on implications of REDD+ in a broader land use context. Norway would welcome further discussion on the issue of peatland emissions as soon as possible.

The Durban decision on RELs/RLs establishes that performance in implementing REDD+ activities should be measured in tonnes of CO₂ equivalents per year. While this implies that the MRV system

should provide an estimate for net emissions/removals, we suggest that parties should also, in their reports, provide quantified information on how the different REDD+ activities influenced the total emission/removal estimate.

A broader forest monitoring system could also monitor different forest types based on their ecology (e.g. distinguish natural forests from plantation forests), provide information on multiple benefits beyond carbon sequestration and storage, and other forest relevant aspects, such as land tenure, management regime, logging history, invasive species, information on drivers of deforestation etc.

Process

Reporting and verification of results under a REDD+ mechanism should be conducted frequently to enable countries to implement their REDD+ strategies in the best informed manner possible. However, we should also recognize that technical and economical factors place limitations on how frequent reporting and verification of REDD+ results is feasible. The frequency of result based payments will, however, be inextricably linked to the frequency of reporting and verification of results. As a general comment, we foresee that reporting of emissions and removals from REDD+ activities could be included in Parties' biennial reports on mitigation actions, and included in the national GHG inventory.

A verification mechanism for GHG inventories under REDD+ should be as rigorous as the existing regime used in reviewing annual GHG inventories of Annex I countries. Using this regime as a model has an important capacity building aspect too, by bringing experts from both developed and developing countries together through the review process. Furthermore, we believe the review process should be facilitated by a REDD+ MRV technical panel operating under the auspices of the UNFCCC-secretariat.

In all cases, independent verification of the data submitted is of key importance in relation to result-based payments for REDD+ activities.

3. Guidance on drivers of deforestation and forest degradation

The drivers of deforestation and forest degradation (hereafter "drivers") differ between regions and countries and operate at different scales from the sub-national to the global level. Acquiring a better understanding of the drivers and how they operate is a key prerequisite to identify policies and measures that can relieve the pressure on forests and support improved land management. Decision 1/CP.16, paragraph 68, encourages all Parties to address the drivers of deforestation and forest degradation. This is essential to strengthen the effectiveness of the REDD+ mechanism, and to ultimately reach the collective goal to slow, halt and sustainably reverse forest cover and carbon loss. Hence, all Parties should evaluate their roles in driving deforestation and forest degradation and adopt or adjust the necessary policies and measures to address these drivers. However, we must also recognize that drivers of deforestation and forest degradation often are key contributors to local and national economies. Hence, REDD+ policies and measures should ideally be integral parts of wider strategies for economic growth and social development, i.e. national Low Emission Development Strategies.

Given the wide range of drivers and the variability in scale over which they occur, efforts to identify and address drivers must start at the national level. Through national REDD+ strategies, drivers can be identified and actions to address drivers prioritized in a transparent and participatory manner. This would typically include the collaboration of multiple government agencies and not only those that are directly mandated to address forestry issues. Transparent and participatory land-use planning is another tool that can be usefully employed in the development of national REDD+ strategies, to help ensure of the long term viability of emission reductions. Addressing drivers comprehensively and effectively will in many countries also require improvements in forest governance. This could include the clarification of land use rights and responsibilities, effective enforcement of laws and empowerment of indigenous people and forest-dependent communities.

At the same time, consumer countries should identify and address ways to reduce the pressure on forests from commodities that contribute to deforestation and forest degradation. The EU Action Plan on Forest Law Enforcement, Governance and Trade (FLEGT) and the U.S. Lacey Act are important examples of government initiatives that address specific drivers by preventing the supply of illegal timber products and promoting the demand for sustainable forest products. Public procurement policies can also reduce the demand for illegally logged timber by requiring proof of legal production, as is already happening in several European countries. The adoption of policies and measures that prevent the supply and procurement of products that cause the illegal destruction of forests could also be considered for other sectors and/or commodities that drive deforestation and degradation of forests. Voluntary private sector initiatives such as labeling initiatives, commodities round tables and certification bodies could further be promoted for products that are legal but may nevertheless cause deforestation and degradation. Finally, investors should be encouraged to develop sustainable investment policies that incorporate the external costs associated with deforestation and degradation of forests in investment decisions.

Item No. 7:

Methodological guidelines for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation ,sustainable management of forests and enhancement of forest carbon stocks in Developing countries (SABSTA.)

Response:

1. Drivers of Deforestation and forest degradation

In Pakistan majority of natural forests is either privately owned or heavily burdened with legal rights of local people. historically local communities, particularly in Gilgit Baltistan and Khyber-Pakhtunkhwa provinces depends on Forests for livelihood and other forest products for sustaining their life. While addressing drivers of deforestation and degradation in Pakistan's perspective, direct correlations with poverty and sources of livelihood must be essentially established. some recent studies ,e.g. one conducted by Swiss NGO Inter- cooperation revealed that the wood extracted from deforestation hotspots was largely consumed as fuel .however detailed analysis are required on drivers of deforestation at National level are planned to be under taken in the readiness phase

2. Land tenure and governance

Legally, Pakistan has four categories of forests including Reserve Forests (RF), Protected Forests (PF), communal and private forests. The RFs are free of public rights and as such are under the least threat of deforestation and forest degradation. Whereas PF and communal forests are burdened with public rights as legally dictated. The legal right holders are unwilling to give-up their rights unless positive incentives are provided. The last category i.e. private forest is under severe threat of deforestation and degradation because the owners solely depend on these resources for livelihood. Forest governance issues are therefore essentially linked with the socio economics of forest communities.

3. Gender, Safeguards

As a policy matter Pakistan supports women empowerment and integrates gender in the programs of all economic sectors, however in REDD+ distribution of credits and benefits on the basis of gender is a complicated issue. Detailed studies are required in specific forest areas in conjunction with REDD+ project development cycle. Pakistan organized a national workshop on REDD+ safeguards which unanimously recommended implementation of all safeguards narrated in Appendix-I, in particular those regarding restricting conversion of natural forests, promotion of native species, involvement of local and indigenous communities in planning, implementing and monitoring of REDD+ activities.

4. Robust and Transparent national forest monitoring system as referred in paragraph 71 (c)

Presently, Pakistan has no centralized forest reporting system. However, provincial and local authorities have adopted monitoring systems of diverse specifications including field based surveying and remote

sensing based monitoring. Pakistan strongly recommends a harmonized and standardized forest monitoring system for the sake of transparency in REDD+ activities. The national forest monitoring system requires approved methodologies backed with technical resources and capacity building of stakeholders, with the support of bilateral and multilateral financing agencies.

Submission of Switzerland, Liechtenstein, and Monaco

Addressing drivers of deforestation and forest degradation and robust and transparent national forest monitoring systems

Feb. 28, 2012

With this submission Switzerland, Liechtenstein, who share similar land-use legislation, as well as Monaco, in close cooperation within the Environmental Integrity Group, share our common views on issues identified in 1/CP.16, paragraph 72 and appendix II, in particular on *how to address drivers of deforestation and forest degradation and on robust and transparent national forest monitoring systems* as referred to in its paragraph 71(c). As specified in the Cancun agreements, SBSTA is to report back on drivers to COP18. The linkage between drivers and monitoring systems is instrumental because the causes of forest destruction need to be identified, tracked and the potential of these land-use activities to mitigate climate change can be assessed.

With this submission we would like to share our views on the role of monitoring land-use activities related to drivers of deforestation and degradation and how these can contribute to addressing the drivers and eventually to the mitigation of climate change. We also interpret the topic of the submission to include more than monitoring of drivers, and expand our analysis to the actions necessary to tackle them.

From our perspective, drivers include circumstances, activities and national and international demand and supply chains that lead to deforestation and degradation of forests. Therefore, the link between addressing drivers and monitoring systems entails a combination of political will and guidance, increased and innovative financing, accessibility of monitoring technology and training, carbon sensitive national planning across sectors, rigorous verification standards, and international cooperation.

Identifying land-uses and land-use change related to drivers

In developing countries the main land-use activities that prevail after forests are converted are intensive and subsistence agriculture, ranching and pastureland, and logging. Large, commercial agriculture and logging activities are currently the primary agents of tropical deforestation. These land-use activities can be subdivided to include i.e. palm oil and soy production, commercial logging, illegal logging, mining, fuel wood and fodder collection, charcoal production, shifting cultivation, and infrastructure expansion such as urban and industrial areas and dams. The main land-use activities that cause tropical deforestation are distinct by region; prevailing activities in Asia and Africa are intensive and to a lesser degree subsistence agriculture and in Latin America are grazing and intensive agriculture.

Social and economic pressures may make deforestation inevitable; areas of what are today forests are being converted into other land uses¹. However, when resource use is well regulated and sustainable, the cycle of resource destruction can be turned around. In contexts of economic stability and growth, forests do not need to be plundered because their sustainable management is enabled through effective governance, forest tenure is secure, and trade in sustainable forest products is promoted.

The main drivers of deforestation are increasingly recognized to be economic and related to international markets.² The high value of food crops, soybeans, beef, palm oil, biomass for energy, and timber drives large-scale land-use change. Many drivers of **deforestation** originate outside of the forest sector.

¹ An alternative perspective, substantiated by WWF, envisions that on a global level it could also be possible to feed and fuel the world while limiting deforestation to close to zero: http://assets.wwf.ch/downloads/living_forests_chapter_3_final_26_11_11.pdf

² http://www.ucsusa.org/assets/documents/global_warming/UCS_RootoftheProblem_DriversofDeforestation_FullReport.pdf

In contrast to drivers of deforestation, drivers of **forest degradation** tend to be largely within the forest sector. Degraded forests have usually been logged for their most valuable timber species, and very often are the first step toward deforestation. A degraded forest is frequently used for i.e. firewood collection or charcoal production, or subsequently cleared for agriculture. An unsustainably managed forest sector can be considered a driver of forest degradation.

Monitoring and estimating emissions and removals from land-use activities related to drivers

Degradation is more difficult to monitor than deforestation, since both high-resolution imagery data and ground-truthing are needed. Degradation can mean loss of trees, shrubs, carbon, biodiversity, and soil nutrients. The flip side of degradation is monitoring and estimating removals from restoration, which includes such measures as protecting the degraded forest from future unsustainable extraction, taking actions to prevent fires, and replanting key species.

The role of developed country governments in addressing international drivers domestically and monitoring the trends of these drivers

- Monitor commodity flows, imports/consumption, and markets
- Foster responsible business conduct of their multinational companies operating abroad in activities related to deforestation and forest degradation (large-scale intensive agriculture, land-grabbing) through the promotion of i.e.:
 - OECD Guidelines for Multinational Corporations
 - UN Global Compact
 - ILO Guidelines for MNE
- Strengthen capacities and governance in developing countries through respective technical cooperation
- Monitor international leakage
- Reduce the negative footprint of national and international markets and trade through enforcement of laws and governance, developing and implementing sustainable and responsible procurement, and promoting credible certification;
- Address wasteful consumption
- Increase public awareness of companies and consumers buying and investing in food, fiber and fuel commodities and products to distinguish between them based upon their legality and sustainability, including their social, environmental and climate impacts or benefits
- Promote responsible finance, including consideration of taxes, subsidies, and investment.

Role of developing countries related to monitoring drivers

- Address drivers across sectors and land-use activities i.e. agriculture, grazing land management, mining, and biofuels
- Include addressing drivers in multi-sectoral low carbon development planning;
- Tackle problems of weak institutional capacity and coordination, accountability, transparency, and public participation through harmonizing land use policies across different sectors, including agriculture, mining, public infrastructure and forestry;
- Reform ineffective legal and governance frameworks, including establishing monitoring systems to track drivers and clarifying land use rights and responsibilities;
- Provide and regularize private and community land titling and then monitor these areas
- Dissemination of agricultural, ranching and sustainable forest management technologies that improve efficiency
- Governance and law enforcement regulating trade of timber, plants, and NTFP
- Improve national capacity to monitor and prevent national leakage as well as sub-national capacity to comply with national legislation, monitoring and reporting

Positive trends in the forest sector

There are fundamental transitions already underway in the forest sector and REDD+ resources and efforts must seek to contribute to these. To name a few:

- forest tenure by local communities and indigenous groups has increased 3 times in 12 years³ for example Mexican forests are 80% community-owned
- globally, 11% of total forest area has been designated for conservation of biological diversity
- strengthened forest policies and institutions and increased participatory decision-making on the rise
- improved access to state-owned forests for the rural poor
- changes in demand for and supply of forest products, for instance improved regulation of tropical timber markets
- certification of sustainable forest management and products
- growing value of forest ecosystem services
- increase in PES systems
- at national level: creation of protected areas, logging bans, PRS: access to land and markets for the poor
- improvement in networks to fight fires and bettering current management mechanisms

Toward more effectiveness in addressing drivers

Since drivers have many causes, they must be addressed and monitored in an integral way. It is not enough just to declare forests protected areas. According to recent forest science studies from CIFOR⁴, Mexico, and others, strict protected areas were less effective at maintaining forest cover than areas where locals were able to make their own economic decisions on land-use and participated in the sustainable use of their forests. The issues of tenure, social, and economic development must therefore also be confronted, and the argument for community or private stewardship is strong.

Agriculture is definitely the sector that is most closely associated with deforestation. Over 83% of new cropland areas in the tropical zone came at the expense of natural forests over the 1980-2000 period. The strategy of simply increasing agricultural production per hectare and believing this will lead to less deforestation is also incomplete. Simply using more fertilizers, capital and mechanization ignores the factor of productivity relative to inputs and does not account for ecosystem services of environmentally, socially and economically sustainable agricultural systems⁵. Finally, restoring fertility of degraded lands, which existing in most countries offers a preferable alternative to deforestation and land-use conversion.

The REDD+ mechanism, if financing is sufficient, could develop the capacity to bridge the sectoral gap between forestry and agriculture. Providing robust and transparent information on and monitoring the forest and agriculture sectors together is already a reality in some countries and it is one of the future goals of the convention.

Conclusions and Recommendations

- drivers of deforestation and forest degradation should be analyzed and addressed in an international context of demand and supply of commodities
- developing and developed countries have different roles with respect to drivers and cooperation is inevitable
- intensive, large-scale agriculture is a main driver of deforestation globally
- dissemination of agricultural, ranching and sustainable forest management technologies that improve efficiency is a cross-sectoral strategy to diminish drivers
- monitoring plays a key role in identifying and tracking drivers, as well as assessing the effectiveness of measures to address them

³ <http://www.hedon.info/docs/ImplicationsOfDeforestation.pdf>

⁴ http://www.worldgrowth.org/assets/files/WG_REDD_Indonesian_Case_Study_Report_3_11.pdf

⁵ http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/ID_1010_pirard%20treuyer_agri-deforestation-EN.pdf

- support is needed to reinforce national capacity to monitor and prevent national leakage as well as sub-national capacity to comply with national legislation, monitoring and reporting
- effective governance, regulation, law enforcement, certification, and incentive programs are part of a strategy to address drivers

Submission by the United States of America

Land use, land-use change and forestry activities in developing countries, in particular those that are linked to the drivers of deforestation and forest degradation

March 5, 2012

In decision 1/CP.16, the Convention of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) requested the Subsidiary Body for Scientific and Technical Advice (SBSTA) to “identify land use, land-use change and forestry activities in developing countries, in particular those that are linked to the drivers of deforestation and forest degradation, identify the associated methodological issues to estimate emissions and removals resulting from these activities, and assess the potential contribution of these activities to the mitigation of climate change, and report on the findings and outcomes of this work to the Conference of the Parties (COP) at its eighteenth session on the outcomes of the work referred to in this paragraph.” At its thirty-fifth session, the SBSTA further “ invited Parties and accredited observers to submit to the secretariat, by 28 February 2012, their views on issues identified in decision 1/CP.16, paragraph 72 and appendix II, in particular on how to address drivers of deforestation and forest degradation...”

The United States believes this program of work is critical to the eventual success of global efforts related to reducing emissions from deforestation and forest degradation, plus forest conservation, sustainable forest management, and enhancement of forest carbon stock (collectively known as REDD+). Emissions related to deforestation and degradation simply cannot be reduced effectively without addressing the root causes. At the same time, we are aware that a substantial amount of work is underway already in this realm, both by Parties and other stakeholders. We feel SBSTA should define its program of work to focus on the areas where it has authority and relative competence while avoiding duplication.

We believe the most important result of the workplan on land use, land-use change and forestry activities in developing countries, in particular those that are linked to the drivers of deforestation and forest degradation, would be to fully understand the linkage between drivers of forest emissions, investments in addressing those drivers, and the benefits of these investments. We have presented suggestions for a program of work with this objective *in italics* in the text below. The last section contains initial thoughts on recommendations the SBSTA might make to the COP based on this workplan.

Identify land use, land-use change and forestry activities in developing countries, in particular those that are linked to the drivers of deforestation and forest degradation

Given the depth and breadth of work that has gone into identifying the global drivers of deforestation, we do not feel SBSTA’s scarce resources are best employed on new primary research in this area. Many thorough analyses have been done on the general drivers of land use change, and especially drivers of deforestation (see annex for several citations). We do feel there would be a value to Parties in synthesizing, reviewing and internalizing the results of research by recognized experts in this field. To facilitate this, *SBSTA might request the Secretariat to work through the Collaborative Partnership on Forests to compile and synthesize expert work on the global drivers of deforestation.*

Many Parties have already invested substantial effort in identifying and analyzing the drivers of deforestation and forest degradation (and potentially forest conservation, sustainable forest management, and enhancement

of forest carbon stock) which are most relevant to their national or subnational contexts. In some cases this work has been linked to comprehensive low emissions development strategies, or to sustainable, “green” development strategies. Much of this work has been summarized in national REDD+ strategies or action plans, in documents such as Readiness Preparation Proposals (R-PPs), and in other publications. Again, this work should not be duplicated. Where it has not been done, *SBSTA should recommend the COP encourage developing country Parties to undertake a full analysis of relevant drivers at a national (and subnational, where appropriate) level.*

Finally, the private actors in sectors frequently referred to as “drivers” (agriculture, forestry, finance, etc) have also been engaged in understanding and reducing their impact on the world’s forests, forest carbon, and other related services. Examples include The Consumer Goods Forum’s Zero Net Deforestation commitment, REDD+-related work by the major commodity roundtables, and the Equator Principles (see annex for citations). To date these efforts have been largely separate from the public sector realm; we feel there is real value in creating links between public and private sector discussions as land use inextricably involved decisions made by both. *SBSTA could facilitate this by inviting relevant actors from the private sector to participate in workshops and other dialogues, and synthesize the results for the reference of national and private sector efforts.*

Identify the associated methodological issues to estimate emissions and removals resulting from these activities

While the drivers of deforestation and forest degradation (and potentially forest conservation, sustainable forest management, and enhancement of forest carbon stock) may be well known, not all opportunities to mitigate atmospheric greenhouse gasses associated with different land uses have been identified, and many are not fully implemented due to gaps in information or data. To name just a few:

- Refining allometric models for carbon in land-based systems, including both forest and non-forest uses, in order to better estimate carbon stock changes;
- Quantifying the net emission reduction opportunities related to implementing different land use, land use change, and forestry management practices compared to current techniques;
- Improving detection of deforestation and forest degradation, and attributing observations to the different drivers;
- Quantifying net emissions reduction opportunities related to carbon stock enhancement activities in different forest types;
- Evaluating the emissions associated with dynamic ecosystem processes such as wildland fire and other natural disturbances, and human activities that enhance or mitigate them;
- Understanding the relative net emission profiles of different agriculture, agroforestry, silvopastoral systems and settlement areas that frequently replace forest, including emissions from soil carbon;
- Tracking drivers, linking drivers to specific land areas, and quantifying emissions from specific changes to those land areas, through recognized methodologies;
- Examining opportunities to integrate data collection and information management systems related to forest harvesting and illegal logging;
- Ensuring that the definitions of forested land and estimates of emissions reductions or increases are consistent across spatial scales (national, provincial or state, and project);
- Developing methods for estimating dynamic baselines that allow credible assessments of “additional” emissions reductions;
- Determining whether definitions of deforestation and forest degradation can be identified that reflect consensus among parties for use in a REDD+ context under the UNFCCC, and that can be applied for quantitative assessments;
- Promoting the use of statistically rigorous sampling and estimation procedures and valid techniques for uncertainty assessment;

- Evaluating opportunities related to land tenure reform and clarification which may lead to enhanced forest conservation and reductions in emissions.

The United States suggests Parties could collectively identify what is known about these questions, and where research opportunities may exist to fill knowledge gaps and identify additional opportunities to mitigate greenhouse gas emissions associated with different land uses, including the drivers of deforestation and degradation. Where work is underway on these issues, for example through ongoing testing of different methodologies or techniques, *SBSTA might identify opportunities for Parties to engage in or otherwise support this work. Where little or no work is ongoing, opportunities to stimulate the resolution of these methodological challenges might be sought, perhaps through the Collaborative Partnership on Forests.*

Assess the potential contribution of these activities to the mitigation of climate change

As noted earlier, the most important result of this workplan is to fully understand the linkage between drivers of forest emissions, investments in addressing those drivers, and the benefits of these investments. This is important at a global scale, but especially critical at a national scale where action will be taken.

As with the identification of drivers, some good work has been done to date looking at the contribution of individual practices in specific locations (for example, no-till agriculture on Cerrado soils) to reducing emissions. Many Parties have identified options to mitigate the effects of identified drivers of deforestation and forest degradation in their national strategies and action plans. There are also analyses of the contribution of different sectors, like agriculture or transportation, to global and national emissions. We are less aware of comprehensive national scale assessments of the mitigation potential associated with all the major identified drivers of deforestation and degradation in REDD+ countries, and in particular the related costs of this mitigation. We also have seen few evaluations of whether and how emissions associated with other land use and land-use change activities in developing countries are captured in carbon accounting systems for REDD+. We would appreciate learning more about good examples of these assessments and evaluations.

SBSTA might request the Secretariat to collect national scale assessments of mitigation potential associated with land use and land use change, and evaluations of how such emissions are captured in carbon accounting systems where such analyses exist, and could encourage their execution where they do not. This would be a useful step in fully understanding the potential contribution of these activities to the mitigation of climate change. Such an effort might well be done in collaboration with other global REDD+ initiatives, for example the REDD+ Partnership, UN-REDD, or the Forest Carbon Partnership Facility. In the case of agriculture, it might also be linked to the SBSTA's consideration of issues related to this sector.

Report on the findings and outcomes of this work to the Conference of the Parties

If SBSTA were successful in implementing a program of work that allowed Parties to understand, globally and nationally, the linkage between land use, land-use change and forestry activities and what has been termed "REDD+," and to analyze the mitigation potential associated with these activities, useful recommendations might be presented to the COP at its 18th meeting. Some recommendations might address how Parties might reduce the impact of the drivers of deforestation and degradation on net emissions, while others might provide suggestions for how these emissions might be better incorporated in comprehensive monitoring and carbon accounting systems such as those being developed for REDD+.

Forest Monitoring

The United States presented its submission on forest monitoring in September 2011, as part of our broader submission to the SBSTA. Please find the link at:

http://unfccc.int/files/methods_science/redd/application/pdf/sbsta_submission_united_states_final_v2.pdf

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