

Submission on behalf of Wetlands International

To the Subsidiary Body for Scientific and Technological Advice (SBSTA)

28 February 2012

Concerning 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 (“REDD+”)

This submission is in response to the invitation in the draft conclusions proposed by the Chair (FCCC/SBSTA/2011/L.25, paragraph 5 dated 3 December 2011), for:

Views from Parties and accredited observers 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).

This submission focuses on a specific type of forests, namely peat swamp forests (forests on organic soils), which has some specific characteristics, and are therefore highlighted in this submission, with regard to:

- The drivers of emissions;
- Robust monitoring responding to paragraph 71(c) of 1.CP.16.

Furthermore, in relation to Appendix II of 1/CP.16 we take this opportunity to emphasise the mitigation potential of non-forested peat soils, in particular in relation to agriculture.

For some further background information about peat swamp forests and non-forested peat soils, see Annex I to this document, which also lists the drivers of emissions from peatlands in countries with highest peatland emissions.

In this annex we also list the countries for whom reporting for emissions from peatlands under REDD is relevant and the countries which we recommend to consider proposing NAMA's to reduce emissions from peatland degradation of non-forested peatland areas.

For more information

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Recommendations:

Modalities for measuring, reporting and verifying anthropogenic forest-related emissions

Input to Annex II (c):

Peat swamp forests store carbon above ground, but the majority of the carbon is stored *below ground*, in the peat soil (*IPCC carbon pool: soil organic matter*). SBSTA should ensure that stocks and emissions from peatsoils are adequately accounted for in REDD+. In its guidance for national forest monitoring systems SBSTA *should*:

- **Ensure that countries report and account all significant emissions and removals from forest-related categories and relevant pools**
 - For example including organic soils (= peat soils), where significant
- **Ensure that all emissions that occur after land use change are accounted. IPCC requires 20 years as a general default. However, once organic soils are drained the emissions may continue for decades, or even centuries until the drained area is effectively rewetted or the entire peat is depleted. Consistent to accounting rules under the Kyoto Protocol, the principle “once in, always in” should be applied (GPG 2003 chapter 4.1.2)**
 - The IPCC guidelines already practice applying a longer transition period, in GPG2003, LUCF sector, chapter 3.2, the IPCC Guidelines *allow 100 years if necessary to take account of long term carbon dynamics in biomass, soil and litter pools*, and in IPCC2006 Cropland chapter 5.3.1.3 under Tier 1, which for consistency with land area estimation overall allows land areas to remain in the conversion category for 20 years *or other periods reflecting national circumstances* following conversion.
 - Perverse incentives will result if all these emissions are not accounted for.
 - Therefore the following areas of peat soils should be monitored as part of REDD+: primary peat swamp forests, degraded peat swamp forests, secondary peat swamp forests, and deforested peat swamp areas (including agricultural areas, plantations and abandoned areas).
- **Ensure that emissions and stocks from all areas impacted by drainage of organic peat forest soils are accounted for; this may include indirectly drained still forested peat swamp areas outside the directly drained area.**
 - Peat swamp forests are sensitively balanced systems in which various parts are connected by water. A change in water level in one part of the peatland will therefore affect the eco-hydrological balance and may thus impact every other part of the peatland and its emission characteristics. This spatial eco-hydrological interdependency must be considered when developing a MRV system for peat swamp forests.
- **Ensure that the MRV system is able to detect the conversion of natural forests to plantations.**
 - For example by making use of FAO categories that countries are using for their 2010 Global Forest Resources Assessment (FRA).
- **Ensure that the MRV system allows for expansion to other ecosystems over time; we recommend that a MRV system should be based on land-based accounting with consistent representation of lands.**
 - SBSTA should in its work programme identify other ecosystems with high mitigation potential and benefits such as biodiversity conservation, water retention, climate change adaptation and disaster risk reduction, such as non-forested peatlands and other wetlands and develop and promote incentives for their conservation, restoration and better management.
 - In particular agriculture should be analysed in relation to drainage of peatlands; peatlands should be treated as hotspots for emissions reductions throughout AFOLU.

- **Ensure that the IPCC 2006 guidelines and its supplements are available for use for REDD+. Refer to the most recently adopted IPCC guidelines and any supplements or clarifications agreed or encouraged by the Conference of Parties to be used for reporting for REDD+.**
 - Current IPCC work, on request of SBSTA, on the “2013 Supplement of the IPCC 2006 Guidelines” related to “wetlands with focus on rewetting and restoration of peatlands” is based on important additional scientific information and will revisit, refine and complement emission factors that are in a number of occasions far from realistic.

- **Develop a practical, ready implementable MRV system for estimating anthropogenic forest-related GHG fluxes, carbon stocks and area changes. Such system should base on simple conservative algorithms and involve a balanced combination of remote sensing and ground-based forest carbon inventory approaches.**
 - For estimating greenhouse gas fluxes and carbon losses in peat soils, adequate techniques exist and various assessment methodologies are under development and being tested.
 - All activities and processes related to greenhouse gas fluxes and carbon losses from peat swamp forests (removal of (substantial) tree biomass from a peat swamp; increased drainage from the peatsoils and peat fires), can easily be monitored because they are associated with changes in crown cover of forests on peat soil and/or expansion or alteration (intensification) of drainage structures (canals/ditches) in peatlands. A simple yet meaningful system of monitoring peatlands at the national level can be based on (existing) maps or atlases, extended with higher resolution data. This information can be combined with
 - wall-to-wall remote sensing of land use and land cover change using high-resolution satellite imagery;
 - simple conservative algorithms for assessing the emission effects of land use change, and
 - default emission factors in the ‘2013 Supplement of the IPCC 2006 Guidelines: Wetlands’.
 - On a district and project level, this system could be refined further, e.g. by using (direct) water level and subsidence measurements to assess emission reductions and carbon removals related to rewetting and reforestation activities. Further refinement of the monitoring system should be encouraged using further knowledge gained over time.

- **Ensure that the expert review teams of inventories of emissions and removals are fully aware of the emissions behavior of peat soils.**
 - This is in particular relevant because of the fact that emission *continue after clearing and draining* until the drained area is effectively rewetted (reinstalling water level + revegetation) or the entire peat is depleted – i.e. emissions may continue for decades, or even centuries, after clearing and draining.

Drivers of deforestation - Input to Annex II

Forestry and agriculture

Emissions from peat organic soils are released to the atmosphere:

- when the peatland is drained (for forestry, agriculture, mining or other purposes);
- when the tree cover is (partly or totally) removed;
- when peat fires occur (mostly occurring in drained areas).

Peat swamp forests are in particular cleared and drained for pulpwood and oil palm. This means that an important element to addressing the drivers should be sought in modifying demand pressures both nationally and internationally.

Drivers of peat soil degradation and loss*	MtCO₂/a before 2008
Emissions from peatland drainage for agriculture, including conversion of forested peatsoils to plantations (incl. pulpwood, oil palm etc.) and agricultural land	1 086
Emissions from peatland drainage for forestry	129
Emissions from peatland drainage for peat extraction	21
Emissions from peatland drainage for other purposes	16

Source: Joosten, H. 2010. *The Global Peatland CO₂ Picture*. Wetlands International, Ede, 33 pp.

* See overview of drivers per region and for the countries with major emissions from organic peat soils in Annex I to this submission

For its guidance for addressing the drivers of deforestation and forest degradation in forests on organic soils, SBSTA should:

- **Request that Parties in their REDD+ strategies and national forest monitoring systems identify and address the drivers of emissions in *all carbon pools* relevant to deforestation and forest degradation.**
 - A strategy to address drivers of emissions from peat soils should not allow further drainage of peatsoils from the sectors responsible for this. When drained, deforested or degraded, peat swamp forests release the peat carbon much faster than it has been sequestered and emissions from drained peatswamps continue until the drained area is effectively rewetted (reinstalling water level + revegetation) or the entire peat is depleted – i.e. emissions may continue for decades, or even centuries, after clearing and draining.
 - This strategy should include pathways for sustainable livelihoods of local communities, which should be developed in a participatory way including all stakeholders. Stakeholder involvement is highly relevant for peat swamp forests, considering the significant impact of the industry and illegal drainage canals in peat soils.

- **Provide guidance on how Parties can take action to integrate REDD+ mitigation goals with land use policies across different sectors, such as agriculture, forestry and mining. While the measures differ per country, the following responses should be required:**
 - Parties must ensure that their laws and regulations fully support reducing pressures on forests including their peat soils.
 - Parties must ensure that all relevant stakeholders relevant to peatland management are involved in land use planning to reduce the pressures on peat forests.
 - To protect the largest share of relatively undisturbed peat forests, existing not-implemented concessions (for pulp wood and palm oil plantations) must be revoked.
 - Plantations that require drainage of peatsoils should be shifted to already degraded mineral soils (based on adequate definition of degraded land).

- **Ensure that Parties identify and address both the national and the international drivers of deforestation and forest degradation and that all Parties collectively address these drivers.**
We recommend that SBSTA:
 - Initiates an assessment of the footprint of drivers of deforestation and forest degradation including from peat swamp forests, and
 - Initiates a workshop on how collective action can be taken to address international drivers, including of peat swamp forest drainage; i.e. perverse incentives that drive drainage of peat soils should be removed, including:
 - That the UNFCCC must ensure that soil and biomass carbon losses associated with bio-energy crop production are accounted for either in the energy sector or in the AFOLU sector. Annex I Parties are under the Kyoto Protocol *not* accounting for emissions that are associated with biofuels production, while they *do* use the supposed emissions reductions from using biofuels to fulfill their emissions

reduction targets.

By decision of the CDM Board (Sept. 2010), plantations on peat soils are already no longer supported by the Clean Development Mechanism (CDM).

- Credible certification and subsidy schemes should ensure that GHG criteria are integrated in sustainability schemes and that palm oil and pulp wood supply chains and biofuels exclude products from drained peatlands. Each country that imports such products will have to review domestic policies for this.
- Emissions resulting from peat soil drainage should be embodied in trade of agriculture and forestry products

- **Ensure collective action to ensure that activities that currently drive deforestation and forest degradation do not simply shift to other ecosystems of high environmental and social importance.**
 - E.g. to non-forested peat soils or other types of wetlands.
 - This can be prevented by international monitoring and by shifting to full, wall-to-wall accounting of all land.
- **Prevent potential perversities with respect to the adjustment of baselines to factor in drivers of deforestation and forest degradation.**
- **Ensure regular monitoring and evaluation of the effectiveness of national and international strategies to address drivers of deforestation and forest degradation.**

Other land use, land-use change and forestry activities in developing countries with high mitigation potential - Input to Annex II

Across AFOLU, peatlands should be treated as “**hotspot**” or “**key category**” for climate change mitigation since they occupy a very small land area but have enormous mitigation potential (6 percent of total global anthropogenic CO₂ emissions result from drained peatsoils which occupy only 0.3 percent of the global land surface). Besides REDD+, other incentives should be created and encouraged for Parties to reduce emissions from peatsoil drainage, in particular from drainage for agriculture. Under the second commitment period of the Kyoto Protocol, this is already possible for Annex I Parties, where the new (although still voluntary) accounting activity ‘Wetland Drainage and Rewetting’ (adopted in COP17), is applicable to all land use categories (forest land, cropland, grassland, wetlands, settlements and other land).

We recommend that SBSTA in its work programme:

- **Identifies how to address emissions from non-forested ecosystems, such as non-forested peatlands, e.g. through its work on:**
 - Research and Systematic Observation (FCCC/SBSTA/2011/L.27, paragraphs 4 and 8), in which peatlands were already raised by Parties
 - NAMA's
 - A work programme for Agriculture

Appendix I: Background submission Wetlands International:

Alarming emissions from drainage of peat soils

Peatlands are ecosystems where - under conditions of permanent water saturation - dead and decaying plant material has accumulated to form a thick organic soil layer (peat).

They play a critical role in climate regulation. Peatlands contain 30 percent (550 GT carbon) of all soil carbon; this is equal to 75% of all atmospheric carbon, and twice the carbon stock in the forest biomass of the world. In natural peat swamp forests, the forest provides the plant material and facilitates the wet conditions for peat formation, carbon sequestration and carbon storage.

The majority of the carbon in peat swamp forests is stored below ground, in the peat soil. This carbon will be released to the atmosphere when the peatland is drained, when the tree cover is (partly or totally) removed, and when peat fires occur.

When drained, deforested or degraded, peat swamp forest release the peat carbon much faster than it has been sequestered (Couwenberg et al. 2010, Dommain et al. 2010, 2011). Emissions from drained peatsoils are disproportionately large. Drained peatlands, covering a mere 0.3 percent of the global land surface, are responsible for some 6 percent of total global anthropogenic CO₂ emissions (Joosten, 2010).

REDD+, NAMA and LULUCF activities in peatlands are those activities that reduce or avoid greenhouse gas emissions by:

- conservation of undrained peat soils and
- rewetting and revegetation of drained peat soils.

These activities are urgent, as peatlands are being drained and peat swamp forests are cut at an alarming rate.

Table 1: Some facts & figures:

Peat carbon stock 2008	445 691 MtC
Peatland area 2008	3 813 553 km ²
Forested peatland area 2008	695 617 km ²
Total degrading peatland area 2008	426 381 km ²
Total emissions from degrading peat 2008 (excl peat fires)*	1 298 MtCO ₂ /a
Total technically possible future emissions	1 468 105 MtCO ₂

* Total CO₂ emissions from the worldwide degraded peatlands may exceed 2 Gtons (incl emissions from peat fires).

Source: Joosten, H. 2010 *The Global Peatland CO₂ Picture*. Wetlands International, Ede, 33 pp.

Peatlands under REDD+ and NAMA's

Reducing emissions from peatlands is both urgent in forested and in non-forested countries.

REDD+

For REDD+, it is mandatory by the IPCC guidelines to report emissions and stocks for all carbon pools in case of deforestation and forest degradation. For organic soils such as peat this means that the (ongoing) emissions from peatsoils need to be reported.

For REDD+, this is in particular relevant to: Indonesia, Malaysia, Brazil, Papua New Guinea, Vietnam, Thailand and other peat swamp rich countries that have not yet been subject to large-scale peat swamp deforestation and degradation (see table 2 below)

Table 2: Developing countries arranged to area of forested peatland

1	Indonesia	17	Honduras
2	Brazil	18	Kenya
3	Peru	19	Cuba
4	Malaysia	20	Nicaragua
5	Congo	21	Gabon
6	Dem. Republic of the Congo (DRC)	22	French Guiana
7	Angola	23	Uganda
8	Colombia	24	Zambia
9	Guyana	25	Mozambique
10	Papua New Guinea	26	Myanmar
11	Suriname	27	Brunei
12	Venezuela	28	Madagascar
13	Cameroon	29	Nigeria
14	Ecuador	30	Vietnam
15	Mexico		
16	Panama		

NAMA's

We recommend countries to propose NAMA's to reduce emissions from peatland degradation on non-forested areas.

This is in particular relevant to: Indonesia, Malaysia, China, Mongolia, Myanmar, Angola, DRC, Guinea, Kenya, Madagascar, Mozambique, Sudan, Uganda, Zambia, Brazil, Cuba, Guyana, Honduras, Mexico, Venezuela, Bangladesh, North Korea, Thailand and Vietnam and others (see table 3 below):

Table 3: Developing countries arranged to area of non-forested peatland

1	Indonesia	28	Mozambique
2	Papua New Guinea	29	Guyana
3	China	30	Myanmar
4	Sudan	31	Colombia
5	Mongolia	32	Suriname
6	Zambia	33	Angola
7	Malaysia	34	Rwanda
8	Uganda	35	Uruguay
9	Chile	36	Malawi
10	Peru	37	Guinea
11	Mexico	38	Bangladesh
12	Brazil	39	India
13	Cuba	40	Ivory Coast
14	Congo	41	Honduras
15	Tanzania	42	Uzbekistan
16	Botswana	43	Thailand
17	Venezuela	44	Mali
18	Kenya	45	Panama
19	Argentina	46	Iran
20	Ethiopia	47	Zimbabwe
21	Iraq	48	Nigeria
22	Ecuador	49	Georgia
23	Dem. Republic of the Congo	50	South Africa
24	Nicaragua	51	Somalia
25	Vietnam	52	Pakistan
26	North Korea	53	Burundi
27	Madagascar		

Source: Joosten, H. 2010 *The Global Peatland CO2 Picture*. Wetlands International, Ede, 33 pp.

Drivers of emissions from peat soils worldwide

Below tables, which provide figures in the year 2008, show the drivers of emissions, first by region and secondly for the developing countries with the highest peatland emissions (MtCO₂/a), split by driver of emissions from peatlands.

Table 4: Drivers of emissions from peatlands per region

Region	Peat carbon stock (MtC)	Total peat area (km ²)	Total degraded peat area (km ²)	Forested peatland area (km ²)	Total emissions (MtC/a)	Main drivers			
						Forestry (MtC/a)	Agriculture (MtC/a)	Extraction (MtC/a)	Other purposes (MtC/a)
America	200 603	1 544 394	22 937	392 881	65	3	61	0.6	0
Africa	10 780	130 126	14 215	45 805	56	0	56	0.1	0
Europe	43 620	504 608	219 637	164 394	383	121	238	18	6
Asia	182 419	1 545 709	197 451	52 371	722	4	698	1.7	9
Australasia and Pacific Isles	6 733	72 845	8 261	40 166	30	0	30	0.2	0
Antarctic and the Subarctic Isles	1 535	15 871	1 032	0	1	0	0	0	1

Source: Joosten, H. 2010 *The Global Peatland CO₂ Picture*. Wetlands International, Ede, 33 pp.

Table 5: Drivers of emissions from peatlands in developing countries with highest peatland emissions

* Note: emissions from agriculture includes plantations including pulp wood and oil palm.

Country	Peat carbon stock (MtC)	Total peat area (km ²)	Forested peatland area (km ²)	Total degrading peat area (km ²)	Total emissions (MtC/a)	Main drivers			
						Forestry (MtC/a)	Agriculture (MtC/a) <i>* (incl. plantations such as pulp wood and oil palm)</i>	Extraction (MtC/a)	Other purposes (MtC/a)
Indonesia	54 016	209 882	124 720	90 396	500	0	500	0.4	0
China	33 499	3 224	500	27 120	77	0	67.5	0.03	9.3
Malaysia	5 431	26 685	14 000	12 000	48	0	48	0	0
Mongolia	751	26 291	10	15 100	45.3	0	45	0.3	0
Uganda	1 321	13 640	1 400	5 000	20	0	20	0	0
Papua New Guinea	5 983	59 922	40 000	5 000	20	0	20	0	0
Brazil	5 440	54 730	50 000	3 003	12	0	12	0.01	0
Vietnam	224	2 382	800	1 310	5	0	5.2	0.03	0
Zambia	780	15 410	1 000	1 200	5	0	4.8	0	0
Angola	980	9910	9000	1010	4	0	4	0.3	0
Sudan	1980	29910	0	1000	4	0	4	0.003	0
Guyana	780	7910	6900	1000	4	0	4	0	0
Kenya	490	4900	2000	1000	4	0	4	0	0
Myanmar	130	1910	900	1000	4	0	4	0	0
Venezuela	1984	7928	5000	901	3.7	1.6	2	0.003	0
Mexico	1483	9910	3000	1000	3.5	0	3.5	0	0
Iraq	200	2000	0	1100	3.3	0	0.3	0	3
Mozambique	185	1933	900	800	3.2	0	3.2	0	0
Cuba	637	6438	2000	710	2.8	1.6	1.2	0	0.04
North Korea	117	1209	50	1010	2.6	0.8	1.8	0.02	0
Madagascar	180	1854	800	610	2.4	0	2.4	0.03	0
DRC	1190	11955	10000	600	2.4	0.4	2	0	0
Thailand	57	631	280	540	2.2	0.8	1.4	0	0
Guinea	40	955	500	450	2	0	2	0	0
India	90	955	500	500	2	0	2	0	0
Honduras	594	2873	2500	375	1.5	0	1.5	0	0
Bangladesh	53	566	199	380	1.5	0	1.4	0.03	0.04
Ivory Coast	65	678	300	300	1.2	0	1.2	0	0
Malawi	64	673	100	300	1.2	0	1.2	0	0
Uzbekistan	15	368	10	355	1.1	0.1	1.1	0	0.02

Source: Joosten, H. 2010 *The Global Peatland CO₂ Picture*. Wetlands International, Ede, 33 pp.

Relevant paragraphs of 1/CP.16 to this submission

Paragraph 71

Requests developing country Parties aiming to undertake REDD+ activities as in paragraph 70, in the context of the provision of adequate and predictable support, including financial resources and technical and technological support to developing country Parties, in accordance with national circumstances and respective capabilities, to develop:

71 (c) A robust and transparent national forest monitoring system for the monitoring and reporting of the activities referred to in paragraph 70 above, with, if appropriate, subnational monitoring and reporting as an interim measure, 7 in accordance with national circumstances, and with the provisions contained in decision 4/CP.15, and with any further elaboration of those provisions agreed by the Conference of the Parties;

72. *Also requests* developing country Parties, when developing and implementing their national strategies or action plans, to address, inter alia, the drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations and the safeguards identified in paragraph 2 of appendix I to this decision, ensuring the full and effective participation of relevant stakeholders, inter alia indigenous peoples and local communities;

Appendix II:

In the development of its work programme, the Subsidiary Body for Scientific and Technological Advice is requested to:

(a) 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;

(b) Develop modalities relating to paragraphs 71 (b) and (c) and guidance relating to paragraph 71 (d) of this decision, for consideration by the COP at its seventeenth session;

(c) Develop, as necessary, 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 this decision, consistent with any guidance on measuring, reporting and verifying nationally appropriate mitigation actions by developing country Parties agreed by the COP, taking into account methodological guidance in accordance with decision 4/CP.15, for consideration by the COP at its seventeenth session.