GHG emissions from palm oil production

Recommendations from the Working Group on GHG to the RSPO Executive Board

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1 Introduction

This document summarises the recommendations from the RSPO Working Group on Greenhouse Gases (GHG-WG) to the RSPO Executive Board. The recommendations were agreed and formulated during the 2nd meeting of the Working Group, on 10 and 11 September 2009 in Kuala Lumpur.

In summary, the GHG-WG recommends to:
1. Develop a standard for the (maximum allowable) carbon intensity of RSPO certified palm oil production (Section 2);
2. Amend a number of RSPO Criteria and/or related Indicators and/or Guidance, to better include various aspects of GHG emissions (reduction) (Section 3);
3. Further study a number of other aspects which impact upon (standards for) GHG emissions from palm oil production, such as indirect land use change and yield increases (Section 4);
4. Extend the mandate of the GHG-WG and subsequently establish an Expert Group (Section 5).

The recommendations outlined in this document supersede the draft recommendations outlined in the document ‘Greenhouse gas emissions from palm oil production – literature review and proposals for amendment of RSPO Principles & Criteria’, dated 6 July 2009. Section 5 elaborates how this document relates to the input from the public consultation period, which was held from 10 July until 10 September 2009, and then extended until 30 September 2009.
2 Development of a standard for the carbon intensity of palm oil production

2.1 Conclusions from literature review

2.1.1 General
The literature review summarized in the public consultation document of 6 July 2009, has categorised GHG emissions from palm oil production as follows:

1. GHG emissions arising from operations during palm oil growing and FFB processing, or more precisely:
   1a. Emissions related to the use of fossil fuels for plantation internal transport and machinery;
   1b. Emissions related to the use of fertilisers;
   1c. Emissions related to the use of fuels in the palm oil mill, and the use of palm oil mill by-products;
   1d. Emissions from Palm Oil Mill Effluent (POME).
2. GHG emissions arising from changes in carbon stock during the development of new plantings;
3. GHG emissions from peat (only when plantings are on peat).

The GHG-WG has agreed with the literature study findings in relation to GHG emissions from plantation and mill operations (category 1), but has not unanimously agreed with the literature study findings in relation to carbon stocks and peat (category 2 and 3). In short, producers’ representatives felt that more data collection is required before (quantitative) standards can be set, while non-producers’ representatives felt that sufficient evidence was available for the development of (quantitative) standards.

The literature study findings on carbon stocks and peat, as well as views from the stakeholder groups in the GHG-WG, have been summarised below.

2.1.2 Literature study findings on carbon stocks (excluding peat)
The literature review has indicated that the development of new plantings will lead to a change in carbon stocks, depending on the previous land cover. Development of oil palm on grasslands (with mineral soils) will generally lead to an increase of carbon stocks (i.e. net CO\textsubscript{2} sequestration) whereas conversion of a primary forest to oil palm will lead to a reduction of carbon stock (i.e. a net CO\textsubscript{2} emission). Whether conversion of secondary or degraded forests to oil palm will lead to an increase or a decrease in carbon stocks, depends on the exact carbon stocks of those forests, and the assumed carbon stocks in the oil palm planting.

The literature study has concluded that the time averaged carbon stock in an oil palm plantation is approximately 35 tonnes carbon/ha, calculated over a 25-30 years standing period. It has also
concluded that, with multiple planting cycles, the time averaged standing stock is expected to remain close to 35 tonnes/ha, as biomass is removed prior to replanting.

The Working Group has not come to a unanimous conclusion as regards the literature review findings on carbon stocks, and potentially necessary amendments of the RSPO P&C.

The non-producers’ representatives in the GHG-WG have concluded that the development of new plantings shall not lead to a reduction in carbon stocks and that, based on the literature study, new plantings shall only be developed on land which has a time averaged carbon stock in the order of 35 tonnes/ha (exact figure to be determined, taking into account underground biomass, precautionary principle, potential compensation mechanisms etc.).

The producers’ representatives in the GHG-WG have doubted the time average carbon stock figure of 35 tonnes/ha, and argued that the time averaged carbon stock of oil palm plantings is highly variable and may strongly depend on local conditions. A thesis by Syahrinudin (2005) suggesting a carbon stock of 100 tonnes/ha after 30 years has been submitted to illustrate the variation. The producers’ representatives in the GHG-WG strongly felt that more data need to be collected before a quantitative threshold for carbon stocks could be defined.

2.1.3 Literature study findings on peat
In relation to peat, the literature review has concluded the following:
   a. In their natural state, tropical peatlands sequester carbon by accumulation in peat and biomass. Drainage and degradation of peat forests results in carbon losses mainly through increased decomposition of the peat. Conversion of peatlands to oil palm plantations requires drainage of 60-80 cm below soil surface which thus enhances peat decomposition. CO₂-emissions increase with drainage depth;
   b. There is a large variety of quantitative data on CO₂-emissions from drained peatlands, while not all measurement methods applied are reliable in terms of quantifying emission from peat oxidation. Literature data vary between 18-73 tonnes CO₂/ha*yr;
   c. Carbon sequestration and emission fluxes in natural peat swamps are some orders of magnitude smaller than the carbon losses from oxidation of drained peat soils. Methane and N₂O emissions from both natural peatlands and from oil palm plantations on peat, are limited;
   d. Various authors have indicated the need to further detail data on GHG fluxes in both undisturbed and drained peatlands. However this research is not expected to change conclusions a-c above, but rather refine and narrow down the data ranges.

The GHG-WG has not come to a unanimous conclusion as regards the literature study findings on GHG emissions from peat, and potentially necessary amendments to the RSPO P&C. Producers’ representatives in the GHG-WG have doubted the literature study findings, suggesting the review was incomplete and biased, and that more data collection is required before (quantitative) conclusions could be drawn on GHG emissions from peat. The non-producers’ representatives in the GHG-WG have supported the literature study findings, stating that sufficient references have been made available, and have suggested that new developments on peat from 2009 onwards shall not be certifiable under RSPO.

2.2 Developing a standard for the carbon intensity of palm oil
Once it appeared that there were strongly divided views on both the quality of available quantitative data and on potential decisions on carbon stocks and peat, the GHG-WG has taken a more qualitative approach. It has concentrated on developing (qualitative) principles for setting carbon standards. Conclusions and recommendations have been summarized below.
The GHG-WG has concluded that, in order to ensure increased credibility of the RSPO standard, overall GHG emissions from the production of RSPO certified palm oil shall be bound to a maximum.

The GHG-WG recommends that RSPO develops a carbon intensity standard, which specifies allowable GHG emissions from RSPO certified palm oil production. The carbon intensity standard shall be expressed as tonnes CO$_2$/tonne CPO, and shall take account of all (potentially) relevant sources of GHG emissions, including in particular emissions from land use change, emissions from peat degradation (if applicable), emissions from POME, etc.

Palm oil producers shall work towards achieving the carbon intensity standard through a time bound plan. The time bound plan shall be based upon a baseline assessment of the palm oil producer’s carbon intensity. The development and implementation of the time bound plan shall follow ISO 14064 procedures.

The unit of measurement for both the baseline and the standard shall be the holding level of the company.

The GHG-WG has not yet decided on a quantitative figure for the carbon intensity standards, neither on the methodology to calculate the carbon intensity of individual producers. The GHG-WG recommends that methodological issues, and issues for which additional data collection is required, shall be solved through an expert group, as a matter of high priority.

The GHG-WG recommends that RSPO develops a mechanism for RSPO internal carbon trading. Under such mechanism, producers which’ carbon intensity is below the standard can sell carbon credits to producers which’ carbon intensity is above the standard. The GHG-WG believes that such a mechanism will contribute to the cost effective reduction of overall GHG emissions from RSPO certified producers.

In addition, the GHG-WG recommends that mechanisms be developed which provide incentives/compensation for producers to move away from high carbon stock areas.

The GHG-WG has discussed the possibility to set a moratorium for certification of new developments on peat, until the required additional data collection and detailing of methodological issues have been executed. The GHG-WG has not come to a consensus as regards the desirability of such a moratorium. Non-producers’ representatives in the GHG-WG have supported the moratorium option as a means to put pressure on the development of the carbon intensity standard; whereas producers’ representatives have opposed the idea as being too restrictive for already ongoing and planned developments.
In addition to the recommendations related to the development of a carbon intensity standard (Refer to Section 2.), the GHG-WG has formulated a number of recommendations for specific amendments to a number of RSPO Criteria, Indicators and related Guidance. In this Chapter, each of the proposed amendments is outlined in detail, i.e.:

- Plans to reduce GHG emissions (3.1);
- Fossil fuel use (3.2);
- Fertiliser use (3.3);
- Palm oil mill residues (3.4);
- Water management on plantations on peat (3.5).

### 3.1 Plans to reduce GHG emissions

Under Principle 5 (‘Environmental responsibility and conservation of natural resources and biodiversity’) Criterion 5.6 specifies: ‘Plans to reduce pollution and emissions, including greenhouse gases, are developed, implemented and monitored’.

The GHG-WG believes that GHG emission reduction should get a more prominent position under Principle 5, and proposes to add a new Criterion 5.7 specifically in relation to GHG emission calculation and reduction.

It is proposed to re-phrase Criterion 5.6 as follows: ‘Plans to reduce pollution and emissions are developed, implemented and monitored’.

And phrase a new Criterion 5.7 as follows: ‘Specific plans to reduce greenhouse gas emissions are developed, implemented and monitored’.

It is proposed to add under Criterion 5.7 the following Indicator 5.7.1: ‘Significant sources of GHG emissions are identified and plans to reduce them implemented’, with the following Guidance: ‘Significant sources of GHG emissions may include emissions resulting from carbon stock changes, treatment/re-use of mill residues (POME, EFB), fertilizers and fossil fuels. A system for the assessment, monitoring and reduction of GHG emissions should be developed based on ISO 14064’

Furthermore, the GHG-WG recommends to add to this Criterion specific Indicators in relation to the carbon intensity standard and the carbon intensity baseline assessments, once the methodological issues have been solved (Refer to Section 2.1).

### 3.2 Fossil fuel use

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Criterion 5.4 specifies: ‘Efficiency of energy use and use of renewable energy is maximised’

The National Interpretation for Malaysia specifies the following Indicators under Criterion 5.4:

‘5.4.1 Monitoring of renewable energy per tonne of CPO or palm product in the mill

5.4.2 Monitoring of direct fossil fuel use per tonne of CPO or kW per tonne palm product in the mill (or FFB where the grower has no mill).’

The National Interpretation for Indonesia specifies the following Indicators under Criterion 5.4:

‘5.4.1. Records of monitoring renewable energy use and its efficiency analysis (energy/ton CPO, or energy/ton palm product).

5.4.2 Records of monitoring of fossil fuels use for operational reason and its efficiency analysis.’

The National Interpretation for PNG specifies the following indicators under Criterion 5.4:

‘5.4.1 Monitoring Kilowatt hour per tonne of palm product in the mill from renewable energy sources. Kilogram steam per tonne of FFB. Monitoring trend for the preceding 5 years.

5.4.2 Monitoring Kilowatt hour per tonne of palm product from non renewable energy resources. Monitoring trend for the preceding 5 years.’

The GHG-WG concludes that reporting on fossil fuel use is sufficiently covered by the Indicators in the respective national interpretations. The GHG-WG recommends to add to the guidance under Criterion 5.4 that ‘Use of sustainable biofuel on plantations should be considered as an alternative to the use of fossil fuel’

3.3 Fertiliser use

Criterion 4.2 specifies: ‘Practices maintain soil fertility at, or where possible improve soil fertility to, a level that ensures optimal and sustained yield’.

The National Interpretation for Malaysia specifies the following Indicator 4.2.1: ‘Monitoring of fertilizer inputs through annual fertilizer recommendations’.

The National Interpretation for Indonesia specifies the following Indicator 4.2.2: ‘Records of efforts to maintain and increase soil fertility (e.g. the use of fertilizer, legume cover crops, compost, and land applications of POME or EFB) based on the results of analysis carried out as in Point 1 above)’.

The National Interpretation for PNG specifies the following Indicator 4.2.1: ‘Records of fertilizer inputs are maintained’.

All three National Interpretations refer specifically to the monitoring of fertilizer inputs. For the purpose of quantifying GHG emissions, it will be necessary to monitor specifically the type of fertilizers used, and the annual quantities used per tonne of CPO or per tonne of FFB. The GHG-WG recommends to add the following to the existing Indicators:

‘Types of organic, inorganic and artificial fertilizers applied shall be monitored. Quantities of fertilizers per tonne CPO or per tonne of FFB shall be calculated’.

3.4 Palm oil mill residues

Relevant references in current set of P&Cs
Criterion 5.3 specifies: ‘Waste is reduced, recycled, re-used and disposed of in an environmentally and socially responsible manner’.

The National Interpretation for Malaysia specifies the following Indicator 5.3.3 ‘Evidence that crop residues/biomass are recycled (Cross reference Criterion 4.2)’, with Specific Guidance referring to the discharge of POME only (i.e. no reference of EFB).

The National Interpretations for Indonesia and PNG do not provide a specific Indicator in relation to the recycling of palm oil mill residues (under Criterion 5.3). The PNG Guidance under Criterion 5.3 specifies that ‘Improving the efficiency of resource utilization and recycling potential wastes as nutrients or converting them into value added products (e.g. through animal feeding programmes)’.

Criterion 4.2 specifies: ‘Practices maintain soil fertility at, or where possible improve soil fertility to, a level that ensures optimal and sustained yield’.

The National Interpretation for Malaysia specifies the following Indicator 4.2.3 ‘Monitor the area on which EFB, POME and zero-burning planting is applied’.

The National Interpretation for Indonesia specifies the following Indicator 4.2.2: ‘Records of efforts to maintain and increase soil fertility (e.g. the use of fertilizer, legume cover crops, compost, and land applications of POME or EFB) based on the results of analysis carried out as in Point 1 above’.

The National Interpretation for PNG specifies Indicator 4.2.3: ‘A nutrient recycling strategy should be in place’, with the Guidance including the following: ‘The nutrient recycling strategy should include EFB, POME, other mill-by products, palm residues after replanting and any use of biomass for by-products or energy production’.

Rationale behind proposed amendments
Literature data provide little quantitative data on the GHG effects from potential disposal/recycling routes for (solid) palm oil mill by-products, in particular EFB. However, it appears that landfilling of EFB has a worse GHG score that other options, due to the generation of methane emissions.

Current Principles & Criteria stimulate EFB recycling as part of a nutrient management/soil improvement plan. However, landfilling of EFB is not explicitly discouraged. The GHG-WG believes that this shall be done.

Proposal for amendments
It is proposed that under Criterion 5.3, the following indicator is added under the respective National Interpretations:
‘Landfilling of EFB and other palm oil mill residues shall be avoided’.

3.5 POME
The GHG-WG has concluded that the conventional method of POME treatment, i.e. including anaerobic open lagoons, is a significant source of GHG emissions, in particular methane. Several technologies are available for effective methane emission reduction from POME, including biogas capture, decanters, co-composting with EFB, and denitrification technologies.
Biogas capture technologies have been well documented in literature, including data on efficiencies, also in the framework of CDM reporting requirements of those projects. For the other technologies, no quantitative data have been found on methane reduction efficiencies.

The GHG-WG have identified and discussed three main options for setting a standard to reduce methane emissions from POME:

a. Mandatory biogas capture for mills above a certain treatment capacity (threshold capacity to be specified).

b. Not prescribing a single technology, but instead defining a methane reduction target (% from a certain baseline) or setting a maximum emission (m³ CH₄/tonne POME).

c. Neither prescribing a single technology nor setting a quantitative methane reduction target, but instead requesting that ‘the feasibility is studied of reducing methane emissions through the application of certain measures or technologies’. This requirement resembles the current Indicator under Criterion 5.4.

The GHG-WG has not come to a conclusion as regards the preferred option. Instead, the GHG-WG has concluded that emission reduction from POME shall be dealt with under the umbrella of an overall carbon intensity standard (see Chapter 2).

3.6 Water management on plantations on peat

The current National Interpretations have some specific requirements set in relation to existing plantations on peat (in particular under Criterion 4.3).

Criterion 4.3 specifies: ‘Practices minimize and control erosion and degradation of soils’

The National Interpretations for Malaysia and Indonesia specify the following Indicator 4.3.4: ‘Subsidence of peat soils should be minimized through an effective and documented water management program’ [minor compliance issue], and Guidance: ‘For existing plantings on peat, water table should be maintained at a mean of 60 cm (within a range of 50-75cm) below ground surface through a network of appropriate water control structures e.g. weirs, sandbags, etc. in fields, and water gates at the discharge points of main drains’

In the national interpretation for PNG, there is no specific reference to a water management program for plantations on peat soils.

In relation to existing plantings on peat, the GHG-WG recommends the following:

1. That the following Indicator under Criterion 4.3 is added to the National Interpretation for PNG: ‘Subsidence of peat soils should be minimized through an effective and documented water management program’, with the Guidance including: ‘For existing plantings on peat, water table should be maintained at a mean of 60 cm (within a range of 50-75cm) below ground surface through a network of appropriate water control structures e.g. weirs, sandbags, etc. in fields, and water gates at the discharge points of main drains’;

2. That the status of this Indicator is amended from ‘minor compliance issue’ to ‘major compliance issue’, in all National Interpretations, such as to strengthen the importance of this requirement.
4 Other conclusions & recommendations

Further to the (specific) recommendations outlined in Chapter 2 and 3, the GHG-WG has formulated a number of more generic recommendations in relation to indirect land use change, yield increases, reduction of fires, development of a CSPO market, and biofuel standards in the EU. These recommendations have been summarised in this Chapter.

GHG emissions from indirect land use change
GHG emissions from indirect land use change are regularly debated in the public domain, particularly in relation to biofuels (refer to Box 1 below). The GHG-WG has acknowledged the relevance of this category of GHG emissions, but has concluded that there is still scientific lack of clarity how GHG emissions from indirect land use change can be quantified, and how it can be dealt with in the framework of a biomass sustainability certification scheme such as RSPO. As the focus here is on emissions which can directly be attributed to the RSPO unit of verification, GHG emissions from indirect land use have not been studied in detail.

The GHG-WG recommends that RSPO will closely follow developments in science and policies towards measuring and attributing GHG emissions from indirect land use change, and reconsider the issue once conclusions have been reached.

Box 1 GHG emissions from indirect land use change
Indirect land use change occurs if the use of palm oil from an established plantation for biofuel purposes leads to an establishment of new plantations on agricultural land. The crops cultivated on that land are ‘outcompeted’ and subsequently displaced to other areas, i.e. ‘leaking’ from agricultural land into natural forests, for example. This indirect land use change may result in significant GHG emissions, as a result of changes in carbon stocks.

Policy makers are investigating possibilities to quantify GHG emissions from indirect land use change, and how these shall be included in carbon balance/LCA methodologies. For example, the EU in Article 19.5 of the Renewable Energy Directive [12] states that: ‘The Commission shall, by 31 December 2010, submit a report to the European Parliament and to the Council reviewing the impact of indirect land-use change on greenhouse gas emissions and addressing ways to minimize that impact. The report shall, if appropriate, be accompanied by a proposal, based on the best available scientific evidence, containing a concrete methodology for emissions from carbon stock changes caused by indirect land-use changes, ensuring compliance with this Directive, in particular Article 17 (2).’

Yield increases
The GHG-WG has concluded that increasing yields has the potential to significantly reduce the overall carbon footprint of palm oil production, as it reduces the need for expansions and carbon stock conversion, and lowers the average GHG emissions per tonne CPO/FFB produced. This relates in particular to smallholders, who on average have a much lower yield than large scale producers.

The GHG-WG recommends that RSPO studies and implements mechanisms which facilitate significant yield increases, in particular from smallholders.

Fires
Intended and accidental fires related to the clearance of land for palm oil, are a significant source of GHG emissions, in particular when occurring on drained peatlands. The GHG-WG recommends that RSPO studies which further measures are required, within or outside the framework of RSPO, to reduce occurrence of fires.

**Development of CSPO market**
The GHG-WG has concluded that the development of a significant and fair CSPO market is a financial incentive for further steps towards decreasing the carbon intensity of palm oil production. The GHG-WG calls upon RSPO members buying palm oil to contribute to the development of this market.

**Qualification of CSPO on EU biofuel market**
The GHG-WG has concluded that its agreed recommendations are insufficient to allow CSPO to meet the sustainability requirements of the EU Renewable Energy Directive, as summarised in Box 2 below. The GHG-WG recommends that the methodology for the carbon intensity standard shall be developed such, that producers have the possibility to prove their compliance with the Directive.

**Box 2 Summary of relevant sustainability requirements in EU Renewable Energy Directive**

Art. 17.2 The greenhouse gas emission saving from the use of biofuels and bioliquids taken into account for the purposes shall be at least 35% (and target increases step-wise)

Art. 17.4 Biofuels and bioliquids shall not be made from raw material obtained from land with high carbon stock, namely land that had one of the following statuses in January 2008 and no longer has that status:
(a) wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year;
(b) continuously forested areas, namely land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30%, or trees able to reach those thresholds in situ;
© land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10% and 30%, or trees able to reach those thresholds in situ, unless evidence is provided that the carbon stock of the area is such that, when the methodology laid down in part C of Annex V is applied, the emission saving reductions are fulfilled.

Art. 17.5 Biofuels and bioliquids shall not be made from raw material obtained from land that was peatland in January 2008, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.

Art. 19.6 The European Commission shall, by 31 december 2010, submit a report reviewing the impact of indirect land-use change on greenhouse gas emissions and addressing ways to minimise that impact.
5 Procedural aspects

5.1 Procedure followed by the Working Group on Greenhouse Gases

The issue of greenhouse gases was raised by a number of stakeholders in the Principles & Criteria review process in 2007. However, the RSPO Criteria Working Group (CWG) was not able to finalize revised wording to incorporate GHG issues into the revised P&C presented to the General Assembly (GA4) in November 2007. Instead the CWG in October 2007 made an urgent recommendation to the RSPO Executive Board for the establishment of a Greenhouse Gas Working Group. The Executive Board in its meeting in November 2008 recognized the concern and called for the development of a Terms of Reference (ToR) to guide a decision on the establishment of the group. The Terms of Reference for the GHG Working Group has been attaches as Appendix I.

The GHG Working Group was established in March 2009, comprising some 20 representatives from the constituencies in RSPO. Brinkmann Consultancy was appointed as independent facilitator for the Working Group.

Between March and May 2009, Brinkmann Consultancy executed a literature study on GHG emissions from palm oil production. Working Group members provided input to this study.

In May 2009 the Working Group held its first meeting. For practical reasons this meeting was split in two parallel sessions: on 8 May a meeting was held in Amsterdam, while on 15-16 May a meeting was held in Kuala Lumpur. During these meetings, conclusions arising from the literature review were discussed, and preliminary recommendations for amendments of RSPO Principles & Criteria were formulated. On the basis of the first Working Group meeting and further e-mail discussions in the Working Group, Brinkmann Consultancy prepared a report ‘Greenhouse gas emissions from palm oil production – literature review and recommendations for amendment of RSPO Principles & Criteria’, dated 6 July 2009. This document was published on the RSPO website on 10 July 2009 for a consultation period of 60 days.

During the 60 days consultation period, a number of stakeholders—both RSPO members and non-RSPO members—presented their views through written submissions. In addition, two well-attended stakeholder meetings were held in Jakarta (7 September 2009) and Sibu, Sarawak (9 September 2009). The inputs received during the public consultation were reviewed by the Working Group during its second meeting on 10 and 11 May 2009.

During its second meeting, the Working Group discussed and agreed its final recommendations to the Executive Board. These recommendations have been summarized in this document, which supersedes the (preliminary) recommendations summarized in the public consultation document of 6 July 2009.

After the public consultation meeting in Jakarta, Indonesian producers felt that their ability to respond to the public consultation document had been seriously hindered by the absence of a translated version, and also because translation had not been available during (the first part of) the consultation meeting.

The president of the Executive Board then decided to extend the consultation period with a period of 20 days, until 30 September. Within this extended period, all stakeholders may submit
comments to the public consultation document of 6 July 2009, as well as to the underlying document. Views submitted during the extended period of public consultation will not be reviewed by the Working Group within its current mandate, but will directly be submitted to the Executive Board as an appendix to the Working Group’s final recommendations. The Executive Board, on the basis of the Working Group’s recommendations and the additional submissions to the public consultation, will decide what proposals shall be brought forward to the RSPO General Assembly.

5.2 Recommendations for follow-up
To allow an effective follow-up of the recommendations outlined in the previous sections, the GHG-WG proposes the following:

1. That the mandate of this Working Group will be extended until 31 December 2009. This will allow the Working Group to review the input from the extended public consultation period and – on the basis of Executive Board and/or General Assembly decisions – to detail the Terms of Reference for the development of the carbon intensity standard.

2. On the basis of the conclusions reached under 1 above, establish an Expert Group to solve methodological issues related to the carbon intensity standard, baseline assessment, and carbon trading.
Appendix 1

Terms of Reference for Working Group on GHG
Terms of Reference
RSPO Greenhouse Gas Working Group (GHGWG)

These Terms of Reference outline the scope of work, expected outputs and timeframe of the RSPO GHG Working Group.

Background

There is rising worldwide concern about global climate change driven by increasing greenhouse gas (GHG) emissions. Climate change is now accepted as one of the top issues of the environment and sustainable development agenda with all sectors of society needing to identify ways to reduce GHG emissions. Biofuels offer the potential for reducing GHG emissions and palm oil provides one pathway to producing biofuels because of its high productivity and the high energy use ratio in its production and processing. At the same time, the reduction of deforestation is considered to be one of the cost-effective GHG abatement measures available over the short term, because it represents more than 20% of all GHG emission, of which 80% of the global total are estimated to come from the Amazon and Southeast Asia, two regions with the largest potential for expansion of oil palm cultivation. If the perceived conflicts between oil palm cultivation, deforestation, and GHG emissions are resolved, the future potential for palm oil as a biofuel feedstock will be significantly enhanced.

Although there are different views by diverse stakeholders as to the scale of emissions from palm oil production – it is generally agreed that emission sources from the palm oil sector include those from the clearance of forests and peatlands for plantation development, use of fossil fuels for operating, processing and transport, fertiliser use, and methane emissions from wastewater treatment ponds. Accepted mitigation measures include establishing new plantations on low biomass landscapes, increased energy efficiency, reforestation of degraded landscapes, maintenance of optimal water levels in peatlands, and methane capture and bio-energy production. A number of palm oil companies have addressed these issues and are already generating revenues by certifying reductions in GHG emissions via the Clean Development Mechanism (CDM), but other companies have yet to access such resources.

The reduction of GHG emissions and the avoidance of deforestation in the establishment of new plantations are increasingly being recognized in the RSPO as an emerging and critical issue that requires further investigation and adjustments to the existing RSPO Principles and Criteria (P&C), which were adopted in November 2005. The issue was raised by a number of stakeholders in the review process, but the RSPO Criteria Working Group (CWG) was not able to finalize revised wording to incorporate GHG issues into the revised P&C presented to the GA4 in November 2007. In October 2007, the CWG therefore made an urgent recommendation to the RSPO.

Appendix 1 (Continuation 17)

Executive Board for the establishment of GHG Working Group. The Executive Board in its meeting in November 2008 recognized the concern and called for the development of a draft Terms of Reference (ToR) to guide a decision on the establishment of the group.

The GHG Working Group is envisaged to be a short-term, multi-stakeholder expert panel established to review the current P&C in relation to GHG emissions in the production of palm oil and to advise the Executive Board on options for adjustment of the RSPO P&C. The GHG Working Group is not envisaged to develop a separate certification or auditing scheme, nor should it develop a comprehensive methodology for assessment and monitoring of biomass and GHG emissions from palm oil operations. Rather, the GHG Working Group will incorporate key features into the existing P&C framework to provide credible proxy measures for GHG emissions,\(^5\) including those originating from above and below-ground carbon pools from natural and anthropogenic land cover types that are converted to oil palm plantations.\(^6\) The proposed changes to the RSPO P&C will enable managers and certifiers to assess GHG emissions associated with the establishment of new plantations, ongoing operations in plantations and processing facilities, as well as identify lands where new oil palm plantations are inappropriate. While doing so, it will strive to align and coordinate the RSPO P&C for palm oil production with complimentary standards to promote the use of biomass for fuel applications and sustainable forest management.

2. Objectives

The proposed objectives of the GHG Working Group are to:

- 2.1 Review and synthesize relevant information on palm oil production and GHG emissions, particularly related to the development of plantations, but also including plantation operations, industrial processing and the transport of palm oil,

- 2.2 Identify options for avoiding or mitigating GHG emissions at all stages of the production chain.

- 2.3 Provide technical guidance and recommendations on how to address GHG emissions from palm oil production and processing within the RSPO P&C.

- 2.4 Provide specific recommendations for modifying of the existing RSPO P&C terminology, in order to establish auditable and achievable indicators for units of certification

- 2.5 Coordination with similar certification schemes under development in forestry, agro forestry and biofuels industries.

- 2.6 Provide objective information from peer-reviewed sources to guide communication related to the sustainability of palm oil in the context of biofuels and bioenergy.

\(^5\) Note: Proxy measures for biomass estimates of land-cover types are typically based on changes in vegetation cover derived from remote sensing technologies.

\(^6\) Note: Oil palm plantations established in pasture or other low biomass vegetation types are very effective carbon sinks and can be used to offset GHG emissions from other components of an enterprises’ activities or potentially be eligible for carbon-based subsidies in future voluntary or compliance markets.
Appendix 1 (Continuation 18)

3. Proposed Activities

The initial timeframe of the GHG Working Group’s timeframe is proposed to be 9 months starting in January 2009. Within this period the following activities are proposed:

3.1 Conduct a literature review of key issues regarding GHG emissions and the oil palm industry in order to inform future discussions pertaining to the evolution of the RSPO P&C framework:

3.1.1 Life Cycle Analyses for Oil Palm and other relevant information to identify the main sources of GHG emissions from palm oil production (including land development, drainage, fertilization, plantation operation, processing, and the transport of palm oil).

3.1.2 The social dimensions of carbon accounting including “leakage” (i.e. displacement of land use) and “permanence” (i.e. long term vs. short term land use impacts), market-driven crop displacement, impact on food prices and other social implications, as well as the potential role of smallholders in oil palm production.

3.1.3 The availability, accuracy, and cost of existing and new technologies that can be used to estimate carbon stocks on landscapes prior to and following the establishment of oil palm plantations (i.e., satellite and airborne platforms using L-band RADAR and LIDAR technologies).7

3.1.4 Existing methodologies and approaches for calculation of GHG emission from oil palm plantations and processing and options of use of proxy indicators (e.g. energy, fertilizer use, previous land use). With a view to develop a “Carbon Score Card” that can aid reporting on the dimensions of total GHG emissions related to palm oil production.

3.2 Identify measures that will allow producers to avoid GHG emissions originating from the establishment of new plantations:

3.2.1 Site selection criteria that will avoid GHG emissions by ensuring that all new plantations are established on low biomass landscapes.

3.2.2 Special recommendations and measures that can assist smallholders to reduce GHG emissions (i.e., raising yields and reducing the use of pesticides), either individually, via producer cooperatives, or in partnership with processors.

3.3 Review the current RSPO P&C and recommend adjustments to incorporate GHG issues, if possible focusing on indicators and systems that are auditable and achievable in order to facilitate the certification process and which produce real and meaningful reduction in GHG emissions.

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7 Note: The most common remote sensing technologies are based on optical sensors (LANDSAT, SPOT, CBRS), which can be of limited use in high rainfall areas due to frequent cloud cover and infrequent data acquisition protocols; new RADAR satellites and LIDAR sensors (an infrared laser instrument) provide cost effective alternatives that not only document forest cover but provide direct measurements that can be used as proxies for above ground biomass.
Appendix 1 (Continuation 19)

- Recommend further work required to refine guidance or assist in its implementation.

4. Proposed Outputs

The GHG Working Group will develop:

4.1 A document that summarizes the scientific literature on GHG emissions and palm oil.

4.2 Clear standards on site selection to avoid GHG emissions on new oil palm plantations.

4.3 Auditable and achievable amendments to the current RSPO P&C guidance and indicators based on this review process.

4.4 Recommendations for coordinating mechanisms and communication strategies.

5. Proposed Operational Arrangements

GHG Working Group Participants

To ensure a representative mix of stakeholders and expertise, it is envisaged that the Working Group would comprise 12 members

Members:

It is proposed that members of the group come from the following sub-groups:

i. Representatives from the Criteria Working Group or Executive Board (to ensure a strong understanding of RSPO processes and the current P&C) - 4 members with a range of different backgrounds including palm oil/biofuel industry, environmental NGO, social NGO)

ii. Experts on Greenhouse Gases and climate change – 4 members with a range of different experiences including carbon stocks in forest and peatlands, palm oil life cycle analysis and GHG emission/mitigation options.

iii. Other members – 4 members from industry, NGOs, government or research institutes with practical experience in implementing measures to assess or mitigate GHG emissions from palm oil production and processing.

Chair:

The working group should be chaired by an independent expert in GHG emission, who will also be contracted to facilitate the work of the Working Group.

He/she will be responsible for leading the working group, organising and coordinating the contributions of the different members of the working group to ensure that the mandate is fulfilled, all the outputs are adequately addressed, and that the outcome is
Appendix 1 (Continuation 20)

of high quality and correctly reflects the collective and individual positions of the working group members.

Consultant/Facilitator:

The working group should be supported by an independent consultant/facilitator with appropriate experience on GHG life cycle assessment from palm oil/land use change and understanding of appropriate certification schemes. The consultant will prepare the meetings (agenda, invitations, distribution of documents, minutes) and Chair them, act as a moderator at stakeholder meetings, collate public comments and draft the inception, interim and final reports, coordinating and synthesising the inputs of the members of the group. The consultant will also carry out some appropriate desk research/analysis as may be required by the working group.

Proposed Timetable

The working group will meet two times during 2009 (two days per meeting), although the number of meetings can be adapted as necessary. One public consultation meeting should be organized before submitting the text for adoption by the Executive Board of the RSOP. Participants will need to assume responsibilities and commit time between meetings to deliver the objectives. Meetings are tentatively proposed in April/June 2009 with public consultation in May/June to enable a recommendation to be considered by the Executive Board in September 2009.