RSPO Carbon Assessment Tool - An Overview

RSPO
Roundtable on Sustainable Palm Oil

RT12 2014 Kuala Lumpur MALAYSIA
AN EVENT BY RSPO

SUSTAINABILITY
WHAT'S NEXT?

Presented by:
Melissa Chin
RSPO Secretariat
18th November 2014

CERTIFIED SUSTAINABLE PALM OIL ™ RSPO

Criterion 7.8

- New addition in P&C 2013
- 7.8.1: The carbon stock of the proposed development area and major potential sources of emissions that may result directly from the development shall be identified and estimated.
- 7.8.2: There shall be a plan to minimise net GHG emissions which takes into account avoidance of land areas with high carbon stocks and/or sequestration options.

Criterion 7.8

Main points in guidance:

- GHG identification and estimates can be integrated into existing processes such as HCV and soil assessments.
- Criterion covers plantations, mill operations, roads and other infrastructure
- Growers strongly encouraged to establish new plantings on mineral soils, LCS areas and cultivated areas
- Millers are encouraged to adopt low-emission management practices
- Public reporting remains voluntary until the end of the implementation period. Until then, reporting is to the ERWG

Criterion 7.8

Main points in guidance:

- The RSPO carbon assessment tool for new plantings will be available to identify and estimate the carbon stocks. However, other tools and methodologies currently in use will be included in the ERWG review process.
- The RSPO PalmGHG tool or an RSPO-endorsed equivalent will be used to estimate future GHG emissions from new developments using, amongst others, the data from the RSPO carbon assessment tool for new plantings.

Important message

- In order to facilitate the implementation of new elements introduced in Principle 7 of the RSPO P&C 2013, the RSPO secretariat announced that the requirements under Criterion 7.8 shall be reported as of **1st August 2014**.
- After due consideration of the concerns raised, a deferred timing has been allowed. For new plantings where the NPP was submitted from **1st Jan 2015** onwards, compliance to C7.8 will be mandatory. Evidence of compliance will be proof of submission of report related to C7.8 at the same time as the NPP report.

Introduction

end 2012	2013	2014	2015–2016
• Carbon assessment tool developed as per request of P&C review taskforce	• Carbon assessment tool made publicly available on the RSPO website • ERWG established	• Revision and update of the carbon assessment tool (GHG Assessment Procedure) based on feedback received	• Periodic reviews as needed based on case studies, experience from companies and best available science • Communication and outreach to auditors and growers

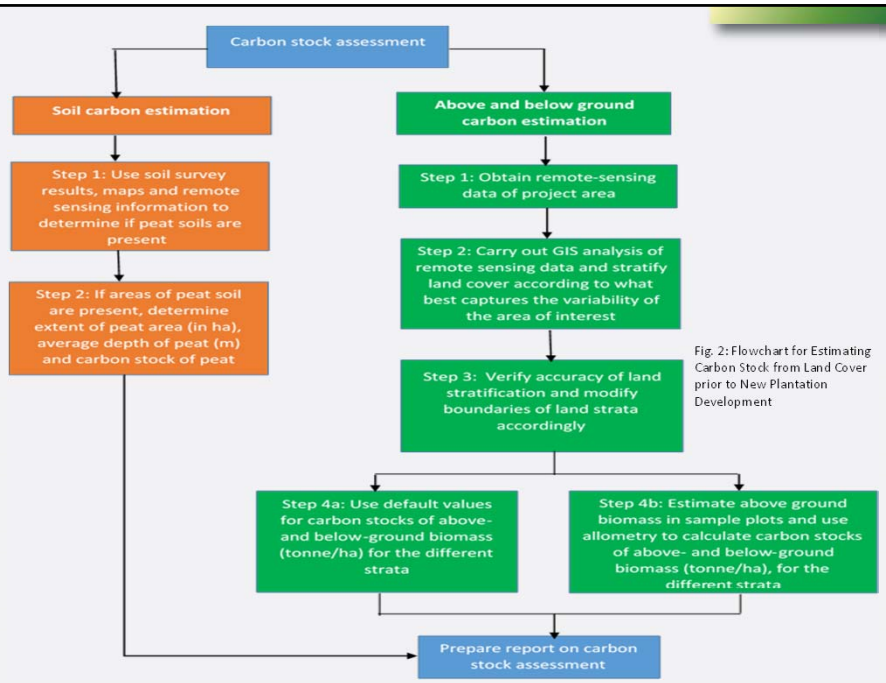


Fig. 2: Flowchart for Estimating Carbon Stock from Land Cover prior to New Plantation Development

Steps in the GHG-assessment guidance

Step 1: Use soil survey results, maps and remote sensing information to determine if peat soils are present

- For the delineation of peat and non-peat available maps, field observations, remote sensing data and other official documentation may be used.
- The creation of a new map based on field or remote sensing data can be used and the mapping can be carried out in combination with a peat depth map to allow for soil carbon stock calculations.

→ Area of peat (ha)

Steps in the GHG-assessment guidance

Step 2: If areas of peat soil are present, determine extent of peat area (in ha), average depth of peat (m) and carbon stock of peat

- There are two options for Step 2, Step 2a using defaults and Step 2b using field assessments

Step 2a: Determination of peat carbon stock using default values

- Key Steps:

Obtain data of the proposed area for development (may be part of the soil suitability survey)	Carry out ground truthing of maps (may be part of the soil suitability survey)	Estimate peat carbon stock (tonne/ha) using default values Area x default (assume bulk density 0.15 kg/m3, carbon content of 50% and peat depth of 3m, which equates to 2,250 tC/ha)

Steps in the GHG-assessment guidance

Step 2: If areas of peat soil are present, determine extent of peat area (in ha), average depth of peat (m) and carbon stock of peat

Step 2b: Determination of peat carbon stock using field assessments

- Key Steps:

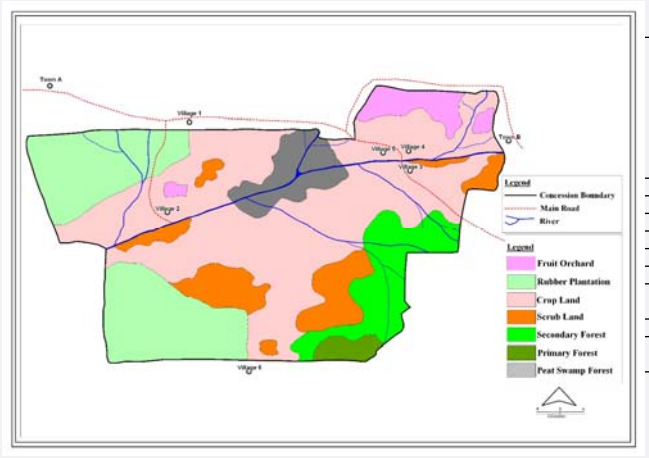
Obtain data of the proposed area for development (may be part of the soil suitability survey)	Carry out ground truthing of maps (may be part of the soil suitability survey) including field sampling to obtain the area and the average peat depth	Multiply area by average depth and by the default bulk density and carbon content. Alternatively, use actual field data for carbon content of the peat and peat bulk density to calculate the actual C-stock (tC/ha) of the peat.

Steps in the GHG-assessment guidance

Step 3: Calculate the GHG emission resulting from peat drainage upon development by using PalmGHG

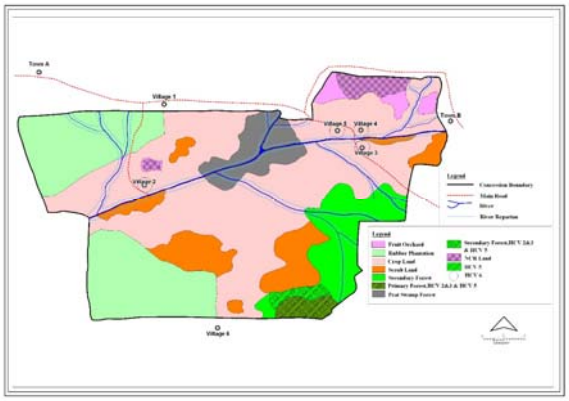
GHG emission = 0,91 * water table depth (cm)

Preparation of carbon stock map



Vegetation type (on mineral soil otherwise specified)	Area (ha)	Assessed carbon above- and below-ground vegetation stocks (tC/ha)
Fruit Orchard	33	70
Rubber Plantation	201	62
Crop land	550	8.5
Scrub land	56	46
Secondary Forest	91	128
Primary Forest	19	268
Swamp forest (on peat soil)	39	128
Settlements	11	0
Total concession area		1000 ha

Spatial map integrating results from carbon stock assessment, HCV assessment and community assessment



	Area (ha)
HCV 2,3 & 5	50
Riparian zone	12
HCV 6 and village settlements	11
NCR (native customary right) land	25
Total	98

Developing a GHG emission management and mitigation plan

Step 1: Using PalmGHG to estimate potential GHG emissions associated with new plantation development

Objective: to estimate the potential GHG emissions for the proposed new oil palm development using the carbon stock values from different land cover strata prior to conversion to oil palm

Key steps:

Develop alternate scenarios based on spatial map developed

Enter the carbon stock values, and planned drainage depth for peat areas (if applicable) into PalmGHG

➡

Enter other projected agronomic and mill data as required in the PalmGHG and determine the net GHG balance for the whole palm oil production cycle

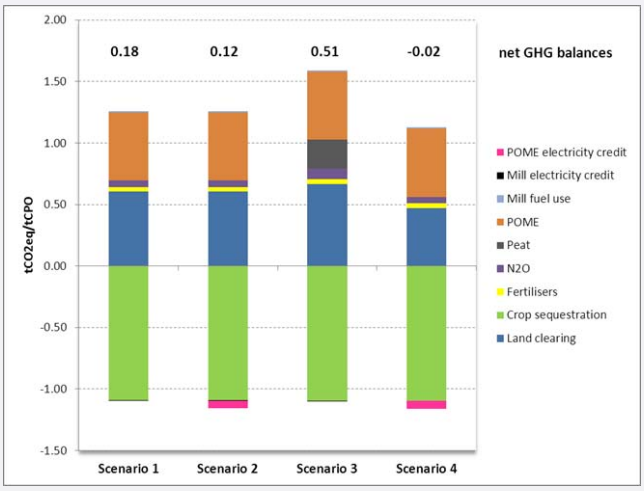
➡

Use scenarios within Palm GHG to formulate management strategies to reduce GHG emission and maximise sequestration opportunities from the new development

Scenario development

		Scenario 1	Scenario 2	Scenario 3	Scenario 4
Area cleared	Fruit Orchard	5 ha	5 ha	5 ha	5 ha
	Rubber Plantation	201 ha	201 ha	201 ha	201 ha
	Cropland	550 ha	550 ha	550 ha	550 ha
	Scrub land	56 ha	56 ha	56 ha	56 ha
	Secondary Forest	60 ha	60 ha	60 ha	-
	Peatswamp forest	-	-	30 ha	-
	Total planted (%total concession area)	872 ha (87.2%)	872 ha (87.2%)	902 ha (90.2%)	812 ha (81.2%)
POME treatment	Conventional treatment	Y	-	Y	-
	Methane capture (electricity generation)		Y	-	Y
GHG balance (CO2eq/tCPO)		0.18	0.12	0.51	-0.02

Scenario development



Developing a GHG emission management and mitigation plan

- **Step 2: Selecting optimal development scenario**

Key steps:

Analyse the results from STEP 1 and identify hot spots for GHG emissions from the new plantation development	→	Justify based on the outcomes of the calculation of C-stock changes and associated GHG emissions between before- and after development (for above ground, below ground and peat), which areas will be developed for new plantings and which areas not.

→ Avoid land areas with high carbon stock and/or potential high GHG emissions (if developed), and increase options for the sequestration of carbon (conservation areas, river buffer zones, etc.). Also avoid HCV areas and take into consideration practical management measures such as access and connectivity, socio-economic issues, etc.

Developing a GHG emission management and mitigation plan

Step 3: Preparation of management and mitigation plan

Objective: Develop a plan based on decisions on where to proceed with development and where to maintain/conserve as set aside areas as well as emission reduction measures

Key steps:

(i) Develop a map that shows the proposed new area of developments and the actual new area of developments. This map will show which areas have been avoided for development and thus which areas will be set-aside (maintenance of sequestration).

(ii) Develop a management and mitigation plan for the actual new development to minimise net carbon losses and GHG emissions taking into account where relevant,

- Increasing sequestration (i.e. conservation areas, river buffer zones, etc.)
- Management of the peat soils to minimise subsidence and oxidation (see RSPO criterion 4.3)
- Adoption low emissions management practices such as POME management, efficient use of fossil fuels, fertiliser regimes, etc.

The management and mitigation plan shall also include a process for monitoring the implementation of the plan.

Recommended format for reporting to the ERWG

Assessment process and procedures
- Assessors and their credentials
- Methods and procedures used for conducting carbon stock and GHG assessments
- Team responsible for developing mitigation plan

Summary of carbon stock assessment
- Location maps indicating area of new plantings at landscape level and property level
- Land cover stratification (including maps and results of verification using existing ground survey data (eg. Participative survey data and HCV data) or ground-truthing and estimated carbon stock (tC/ha) for each land cover stratum
- Map and description of all areas of significant carbon stocks including areas of peat soils

Summary of GHG emissions
- All likely significant sources of GHG emissions and sequestration related to the proposed development

References
- List of references used in the assessment

Recommended format for reporting to the ERWG (cont'd)

Summary of Management and Mitigation Plans (Carbon stocks and GHG emissions)
- A plan of the new development which indicates the carbon stock and presence of peat soil within the area to be developed and the area to be conserved (please insert relevant maps)
- Present results of scenario testing showing GHG emissions (with relevant tables, charts, etc.)
- Provide explanation for the selection of optimal scenario with relevant spatial map
- Explain measures taken to maintain and enhance carbon stocks within the new development areas.
- Explain measures that will be taken to mitigate net GHG emissions associated with oil palm cultivation & processing in the new development (e.g. methane capture at the palm oil mill, local sourcing of fertilisers, reducing usage of inorganic fertilisers, reducing fuel consumption, etc.)
- Plan for monitoring the implementation of selected scenario for new development including measures for enhancing carbon stock and minimising GHG emissions

Internal responsibility
- Formal signing off by assessors and company
- Statement of acceptance of responsibility for assessments.
- Formal signing off of management and mitigation plans.
- Organisational information and contact persons.
- Personnel involved in planning and implementation

Thank you