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Roundtable on Sustainable Palm Oil

# PalmGHG: scientific peer review and action plan to roll out the RSPO GHG calculator

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# PalmGHG

## Progress since RT9

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# PalmGHG

## Palm products greenhouse gas accounting tool

- Developed by WS1 based on **Chase & Henson (2010)**
- Based on LCA approach (ISO 14044) and a review of guidelines/tools
- Goal & scope
  - To identify GHG emission **hotspots and reduction opportunities**
  - To **monitor progress** in reducing GHG emissions
  - To **report for certifications** (external *e.g.* RED, RSPO…)

➡ Focus: to account the **bulk of GHG** emissions and carbon sequestration

➡ Assessment at the mill level (i.e. **certification unit**)

➡ Need for **flexibility**:
  - Default data & field data as often as possible
  - Functional units: $tCO_2e$/ha, $tCO_2e$/Crude Palm Oil, *$tCO_2e$/MJ palm biodiesel*
  - Physical allocations & credits for exported biomaterial or energy savings

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## PalmGHG: benefits


- Efficiency in GHG reductions
- Reduce costs
- Robust communication and reporting
- Consistency of measurement
- Scientific leadership

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## PalmGHG development in 2012

- ❖ Update C stock values and peat emission factors from WS3
  - Peat updated; C stocks for 9 previous land uses; $CO_2$ and $N_2O$ emissions
- ✓ Incorporate biofuel calculations for compliance with RED
  - Biograce model incorporated; will need replacement
- ✓ Peer review of PalmGHG
  - Undertaken between July-October 2012
- ⇒ Refine POME emissions calculation

- ⇒ Post-review development - user friendly, manual

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## Main Challenges from Peer Review

- LCA (Life Cycle Assessment) specifics
  - Allocation rules
  - System boundaries
  - Sensitivity; uncertainty
- Land Use Change (LUC) and C fixation
  - Direct vs. Indirect LUC
  - C fixation in palms and Conservation areas
- Usability and Auditing
  - Default values used
  - Ensuring traceability of input data

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## Implementing PalmGHG

Suggested implementation by RSPO members

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# PalmGHG implementation steps

1. Identify Hotspots
2. Improvement Opportunities
3. GHG reduction targets
4. Monitor Progress
5. Report

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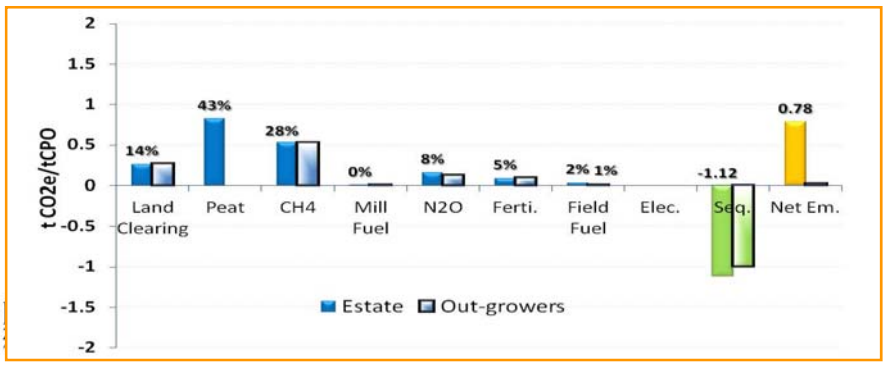
# PalmGHG Calculator Implementation

- GHG emission hotspots in the case of mill C1 (Previous land use: shrub/grassland, 25% peat soils in estate)
  - **Peat emissions, $CH_4$ from effluent, land clearing, fertilisers**
  - Main difference between estate and outgrowers: peat area

1. Identify Hotspots



# PalmGHG Calculator Implementation

2. Improvement Opportunities

- Opportunities to reduce peat emissions
  - Implement peat Best Management Practices: water table… (5-10%; 2-3 yr)
  - Select peat-free (and low C) areas to expand production
  - Progressively abandon and restore current plantation on peat (43%; 15 yr+)
- Addressing POME methane emissions
  - Capture and combustion with heat and electricity recovery…? (20-25%; 2-3yr)
- Increasing efficiency of mill, energy recovery…
- Fertilisers
  - Optimise fertilisers for yield increase and reduction of N2O
  - Yield increase tends to reduce overall impact as "fixed" emissions from clearing are divided over bigger output
- Address key knowledge gaps identified!
  - Land clearing history; data from out growers; biomass value for former land uses; etc.

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# PalmGHG Calculator Implementation

3. GHG reduction targets

- Technological opportunities balanced with GHG reduction opportunity; trade-offs (water quality? Soil quality?); cost; funding opportunities (CDM; Carbon trading schemes; REDD+?...)
- Plan project implementation pipeline
- Step-wise reduction targets
  - More stretchy reduction targets for higher emissions (more low hanging fruit)
  - OK to maintain emissions when GHG intensity is already very low
- Go public!

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# PalmGHG Calculator Implementation

4. Monitor Progress

- Updating PalmGHG with relevant new data is straightforward
  - Land clearing in current year
  - Fertiliser use and diesel use
  - Changes in POME technology?
  - …
- Then plot the annual variation in GHG emissions
  → progress against GHG reduction plan

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# PalmGHG Calculator Implementation

5. Report & Communicate

- Information can be used for company-based reporting
  - Sustainability reports
  - Carbon Disclosure Project?
  - Information requests from stakeholders: customers; regulators (e.g. RED; UK Government); investors (e.g. Stock Exchange; Banks) ; etc.
  - …
- … or shared within RSPO for RSPO communications:
  - GHG intensity of CSPO vs. non-certified oil?
  - Effects of certification on GHG emissions?

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# Outlook

## PalmGHG uptake and Next steps

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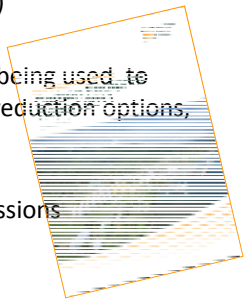
# Current PalmGHG Uptake

- 2011 pilot: 8 companies shared their information to test the tool
  - Results shared with the companies
- **New Britain Palm Oil** already used a precursor of PalmGHG to calculate and report their overall GHG footprint (February 2012)
  - Informing their commitment to 'zero net carbon emissions'
- **REA Holdings** (pilot participants): results of PalmGHG being used to quantify GHG emissions, assess effectiveness of GHG reduction options, and plan reporting of GHG emissions
  - Informing research needs (current study on land use history)
- **AgroAmerica** currently assessing its palm oil GHG emissions
  - Collaborating with key customer strategy (Wal-Mart)



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# Next Steps

- Training
  - 6-7th December 2012, Kuala Lumpur
  - Express your interest to Melissa.Chin@rspo.org
- Further development of PalmGHG user-friendliness
  - Downloadable vs. Web-based?
  - Reduce chances of error (e.g. checks in input data)
  - Improve consideration of technology options
- Continued development of PalmGHG
  - Update of previous land use values
  - Update default values
  - Mill values for POME generation
  - Consideration of C fixed in conservation areas (with RT-REDD project)

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# THANK YOU! Questions?

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