

## Minutes of Meeting

**Subject** : 4<sup>th</sup> Peatland Working Group 2 (PLWG-2) Meeting  
**Date** : January 22<sup>nd</sup> & 23<sup>rd</sup>, 2018  
**Venue** : ParkCity Everly, Miri, Sarawak

Name	Organisation	Status
Faizal Parish	GEC	Substantive
Joshua Mathews	Bumitama Gunajaya Agro	Substantive
Shahrakbah Yacob	Sime Darby	Substantive
Jason Foong	KLK	Substantive
Chin Kai Xiang	IOI Loders Croklaan	Substantive
Jason Hon	WWF	Substantive
Gotz Martin	Sinarmas-Agri	Substantive
Arina Schrier	Wetlands International	Alternate
Tey Seng Heng	AAR(KLK)	Alternate
Lim Sian Choo	Bumitama Gunajaya Agro	Alternate
Richard Kan	Golden Agri	Alternate
Sin Chuan Eng	KLK	Observer
Lew Siew Yen (replacing Julia Lo for this meeting)	GEC	Alternate
Javin Tan	RSPO Secretariat	Secretariat
Devaladevi Sivaceyon	RSPO Secretariat	Secretariat
Ong Shue Peng	RSPO Secretariat	Secretariat
Lee See Lung	RSPO Secretariat	Secretariat
<i>Absent with apologies:</i>		
<i>Julia Lo</i>	GEC	Alternate

No.	Item Descriptions	Main Discussion Points	Action Points	Progress Update
<b>January 22<sup>nd</sup> (afternoon onwards, Monday)</b>				
1.	Review of previous meeting's minutes and progress on actions	<p>A round of introduction of observer and RSPO Secretariat; with briefing of logistics of the hotel was done by Secretariat. Secretariat went through the progress update from the previous minutes of meeting.</p> <p>Co-Chair, Faizal, briefed the WG on RT 15,</p> <ol style="list-style-type: none"> <li>1. Prep cluster of RT15, of which one of the session was planned to be on peat management matter, was called-off due to the limited number of speakers arrived at the venue of the volcano eruption.</li> <li>2. Panel Discussion on the main day of RT15 went as schedule, where Faizal, as the co-chair of ERWG presented the analysis results based on GHG Assessment reports submissions for approved NPP for three years (2015-2017) over the Panel Session of RSPO Delivering No deforestation, no peat: Out of the total 109,000 ha proposed new development areas, 5,600 ha of peat is set aside. Only 2% was developed in degraded forest, 34% is set aside from the total proposed development. Significant changes have resulted from PalmGHG reports submissions where the new development resulted in net uptake of greenhouse gases.</li> <li>3. Peat Consultation Workshop – detail reporting would be presented over agenda item 3 of this meeting.</li> </ol> <p>Following which, Arina commented on the group composition. She raised the concerns over the representativeness of different stakeholder category of the WG. The Secretariat reiterate the challenges the WG faces from the very initial establishment of the group in getting enough supports from the respective stakeholders, especially the challenges in reaching out to fill the seat for Social NGOs.</p> <p>The Secretariat has been sending specific invitations to few Social NGOs (i.e Sawit Watch, Oxfam) and grower members for participation into the WG and asked for specific nomination from members of this</p>	<p>RSPO Secretariat to circulate RT 15 presentation to the group members.</p> <p>Secretariat to circulate vacant seat of the WG with ToR to all members.</p>	<p>RT15 presentation for Prep cluster 2 circulated together with minutes of 4<sup>th</sup> PLWG meeting</p> <p>Presentation for Panel Discussion 4 of RT15 can be accessed here, <a href="https://www.rt.rspo.org/c/rt15-presentation/">https://www.rt.rspo.org/c/rt15-presentation/</a></p> <p>List of WG vacant seats and ToR circulated via email dated Mar 14<sup>th</sup>, 2018.</p> <p>Almo Pradana (WRI) appointed as alternate for WI.</p>

		<p>WG; however, no positive respond received thus far.</p> <p>Representatives need:</p> <ul style="list-style-type: none"> <li>• 1 Grower (Malaysia)</li> <li>• 1 Grower (RoW)</li> <li>• 1 Social NGO (to support smallholder peat issues)</li> </ul> <p>Secretariat urges members to assist in reaching out and gauge interests in filling the vacant seats within the WG. PLWG is encouraged to send alternate replacement for substantive member for the meeting. Technical expert is allowed to join the meeting to talk about technical issues as long as the members agree.</p>	<p>Loders Croklaan, Wetlands International and WWF are to nominate an alternate respectively.</p>	<p>Vacant Soc. NGO seat: -Riza Harizajudin (SW) -Intim Gesvita (SW) -Ali Kaba (SDL)</p> <p>No response from Growers for RoW &amp; Msia seat to date.</p>
2.	<p>Minutes of RT side meeting of PLWG took place on the 27th November 2017 evening</p>	<p>A side meeting, PLWG meeting, took place on the evening of the peat consultation workshop at RT15, Bali, 27<sup>th</sup> November 2017. The calling of the side meeting was to discuss briefly on the feedback received and way forward on the development of Drainability Assessment guidance document. Refer Annex 2 for minutes of the side meeting</p> <p>Over the meeting, the group proposed for WI to come up with 3-tiers approach, from simple to more comprehensive assessment requirement for cost effectiveness and practicality reasons. Detail on drainability assessment is then further discussed on the next day of this meeting. Refer item 6 of this minutes.</p> <p>Alongside with the meeting, there were concerns raised again (including concerns and feedback received from members of ERWG on the proposed draft global peat definition). Hence, it is decided that further discussion needed and no announcement is to be made on this subject matter. The RSPO peat definition is discussed again over the evening of today meeting (refer item 5).</p>		<p>Minutes have been circulated in Annex 2</p>
3.	<p>RT15 Peat Workshop report back by GEC</p>	<p>GEC presented on feedback received from Peat Consultation Workshop held at Bali (RT 15) (Refer Annex 3 for the Powerpoint Presentation). 37 attended with good range of audiences consisting of growers, NOGs, academic institution, supply chain, banker and retailers.</p>	<p>RSPO Secretariat to share the summary report of Bali Peat Workshop with WG members</p>	<p>Summary report of Bali Peat Workshop circulated together with minutes of 4<sup>th</sup> PLWG meeting</p>

		<p>BMP for existing cultivation on Peat:  A need to update the peat definition as the previous version was from an average of Indonesia and Malaysia. Water management and drainability need to be incorporated with focus on water monitoring and compliance to new regulations. Subsidence section will be emphasized. Fertiliser and nutrients is outdated in the previous manual. New experience for the pest management. Re-compaction of peat on the existing plantation.  GHG problems can be addressed by ERWG published work.</p> <p>BMP for rehabilitation:  Further guidance on the paludiculture. Further guidance on species selection for natural regeneration versus planting. Species selection focused on Indonesia and Malaysia.</p> <p>Drainability assessment was discussed and concern raised by growers was that not all of them have the data for the drainability assessment. Sime darby, GAR (Sinarmas) and SOPB volunteered for the pilot test.</p> <p>Another session for the smallholder linking &amp; learning session particular on peat issues. A total of 28 participants mainly from Indonesia attended. A couples of issues had discussed:</p> <ul style="list-style-type: none"> <li>• Leaning palm tree (prevention and treatment option),</li> <li>• Difficult to get fertiliser supplies in Indonesia,</li> <li>• Herbicides application is promoted by salesperson,</li> <li>• Water management</li> </ul> <p>A copy of summary report of Bali Peat Workshop prepared by GEC.</p>		
4.	Peat related issues within the P&C (2013) Review	<p>Co-Chair provided update on P&amp;C Review process: the public consultation has gain a total of 1573 comments and P&amp;C Review TF members are expected to (accordingly to ISEAL Standards) and were addressing every single comment received for peat related matters, there was more than 180 individual comments. The next meeting for P&amp;C review is tentatively scheduled in the last week of February'18.</p> <p>2<sup>nd</sup> draft of P&amp;C review for public consultation after Bali task force meeting has been postponed to the end of February due to too many</p>		5 <sup>th</sup> P&C taskforce meeting scheduled for May 2018

		<p>feedbacks received; there is still a need for more information and clarification; as well as a suggestion for a restructuring of the whole documents, based on RSPO Theory of Change.</p> <p>The proposal from WG to split existing criteria for planting and management for oil palm cultivating on fragile soil (4.3 and 7.4) into two, to have specific emphasis on peat soil received positive feedback from the consultation process. The Two new criteria are added to the P&amp;C 2013:</p> <ol style="list-style-type: none"> <li>I. 4.3b Existing planting on peatlands are managed responsibly.</li> <li>II. 7.4b No New Planting on peat, regardless of depth.</li> </ol> <p>There was concern raised over P&amp;C Review meeting on a need to update the guidance for the auditor. Similar concern was highlighted over the Bali consultation meeting. Auditor did not utilize the existing audit checklist which create gaps and not standardized.</p> <p>There is a need for the guidance for the grower who has peat within their concession complying criteria 7.4 on no new planting on peat. Landscape approach issue is still on progress, potentially will be new criteria or indicator for it.</p> <p>Deforestation issue was raised as the biggest challenge on peat, mainly from the pressure of downstream sector.</p> <p>A formal document will be made available after the next P&amp;C meeting.</p>		
5.	Discussion Paper: Proposed wordings for RSPO Global Peat Definition	<p>WG Discussion Paper: RSPO Organic (Peat) Soil Classification (Annex 4a) was tabled for further discussion, listing existing RSPO definition on peat, previously discussed definition and new proposed definition from grower members. WG conveyed their concern as to how the specification of soil component will impact on the rehabilitation approach and most importantly not to over complicate the definition to a point it confuses the smallholders especially.</p> <p>WG strongly suggest to invite a soil scientist to advise on the definition.</p>	PLWG members are to share all relevant documents relating to peat soil classification and specific definition recorded for Indonesia and Malaysia by end of the day for further deliberation on the next day of WG meeting.	Done and refer minutes item 9 of this minutes

		<p>WG also suggested doing a short survey among WG members on the extensive and presence of muck soil to understand is the difference is peat soil and muck soil is crucial.</p> <p>Susan Page was contacted and from her experience, Africa regions fall largely under USDA to classify peat. According to her, harmonising the peat soil will be extremely difficult.</p> <p>To gain better feedback, Arina will be in contact with International Peat Society, Susan Page from University of and Simon Lewis from University of Leeds.</p> <p>Chair will write to Alexander of SPOM Dr. Alexandra Barthelmes.</p> <p>Suggestion from WG was to invite a soil scientist who works on the peat soil as there is no expert in the PLWG.</p>		
No.	Item Descriptions	Main Discussion Points	Action Points	Progress Update
<b>January 23<sup>rd</sup> (Tuesday)</b>				
6.	<p>Progress update on drainability assessment, by Wetland International (Update via call by Dipa Rais)</p> <ol style="list-style-type: none"> <li>a. Draft Guidance Document (Tier 1, Tier 2 and Tier 3)</li> <li>b. Next Step for Pilot Test</li> </ol>	<p>Based on the outcomes of the Bali Side meeting on this subject matter (refer item 2 of this minutes), Wetlands International presented the status and next step on the development of drainability assessment guidance document, containing the Tier 1, 2 and 3 approaches in brief (Annex 5a). Followed by a more in depth technical updates from Dipa on the Tier 1 approach for drainability assessment (Annex 5b).</p> <p>More positive feedback and acceptance from members of PLWG-2 observed on the proposed guidance. However, there are concerns raised over the assumption made for Tier 2 and Tier 3 on growers' responsibility on infrastructure development and/or maintenance required beyond concession boundary.</p> <p>In addition to that, FPIC would be another crucial and essential step dealing with local community around for water management and/or related management regime concerning the whole peatlands, which part of the whole peatland may fall outside of the company's concession. Collaboration and/or working with government is essential, however the process may be time consuming.</p>	<p>WI to update on the data requirement (preferably in a table form) for Tier 1,2,3 by the end of Jan and circulate among members.</p> <p>RSPO Secretariat to conduct the technical meeting with Wetlands International, starting with suggestion by the grower members (Sime Darby, Bumitama, Sinarmas) on individual participating.</p>	<p>Data requirement for the 3 tiers assessment, together with the Tier 1 guidance document attached (Annex 5b) are shared and discussed with participants of the technical meeting.</p> <p>The Drainability Assessment technical meeting took place on the 13<sup>th</sup> February at RSPO Indonesia Office, Jakarta. Refer the minutes of the meeting (separate document shared).</p>

		<p>Comments on the Tier 1 to 3:  It's not appropriate to make assumption that grower would have all the data required to conduct Tier 2 and 3.  WG members are more comfortable with the updated and much simplified Tier 1. There are still concerns over the availability data; practicality of the proposed assessment methodology; emphasis concern over the mapping of DTM/DEM; and resources and capacity of company carrying out the assessment; the WG suggest to have a separate technical meeting involving technical (GIS and hydrologist) specialist from company and/or external parties (especially relevant researches of Indonesia and Malaysia). Proposed date for the technical meeting 12<sup>th</sup> or 13<sup>th</sup> February, preferably at Jakarta.</p> <p>With the results of the technical meeting, pilot test could then commence with interested parties (Sime Darby, GAR). The Secretariat suggested not to restrict the pilot to just Tier 1, but all 3 tiers based on capacity and resources of interested party.</p> <p>Confirmed participation into technical meeting from WG members are:</p> <ul style="list-style-type: none"> <li>• Sime Darby</li> <li>• Bumitama</li> <li>• Sinarmas</li> </ul>		<p>The drainability assessment has been circulated to members through email on 16<sup>th</sup> March 2018. Docs include:</p> <ul style="list-style-type: none"> <li>-Base guidelines</li> <li>-Annex 1-4</li> <li>-Levelling template</li> </ul>
7.	Progress update of Peatland Mapping & gaps identified	<p>Secretariat presented on findings made from internal review process on peat mapping (refer Annex 6 of the PPT). The unavailability of data, specifically on the areas planted with oil palm is only up to year 2010, based on previous study conducted through GHG WG2. This found to be the biggest challenge and gaps in mapping the most recent possible of oil palm planted on peatland.</p> <p>From this exercise, the following gaps and challenges were identified:</p> <ul style="list-style-type: none"> <li>• Lack of digital information (shape file). Currently secretariat, do not have complete details (attributes) from each shape file as submission does not put a mandatory requirement for attributes details. This also makes identifying certified and non-certified area a challenge. The shape file received mainly contains only concession boundary. Additionally, identifying the year of oil palm planted is a challenge as the data is not</li> </ul>	RSPO to continue explore potential land cover data for mapping of oil palm on peatlands or conserved peatlands within RSPO members	Update will be provided in next WG meeting

		<p>directly available.</p> <ul style="list-style-type: none"> <li>• Secretariat do not have peat soil map for Papua New Guinea.</li> <li>• Secretariat also do not have the latest (after 2010) land cover map identifying areas planted with oil palm.</li> </ul> <p>Next proposed step is to explore potential existing land cover data through existing efforts of relevant organisations or initiatives, such as TFT and Starling. The mapping would break down into company level to monitor the extent of the company cultivation on peat.</p> <p>Another option for further details is by collating details on membership date to identify the expansion of OP on peatland by member versus OP cultivation on peatland by new joining members.</p>		
8.	Next Step Updates on BMPs revision by GEC	<p>GEC presented on latest updates and findings from 15 feedbacks received so far (refer Annex 7 of the PPT).</p> <p>The BMP for existing cultivation with most reported issues:</p> <ul style="list-style-type: none"> <li>i) Water management</li> <li>ii) Conservation</li> <li>iii) Fire prevention</li> </ul> <p>Priority issues:</p> <ul style="list-style-type: none"> <li>i) Water management</li> <li>ii) Replanting practices</li> <li>iii) Fire control</li> </ul> <p>The BMP for rehabilitation that needs prioritization:</p> <ul style="list-style-type: none"> <li>i) Water Management</li> <li>ii) Fire prevention and control</li> </ul> <p>More than 170 of articles/books/reports/presentation have been compiled for literature review. GEC urged for more feedback from PLWG members particularly in their specialised area. WG suggested to have the online feedback survey form translated into Bahasa Indonesia to solicit more feedback from Indonesian growers and relevant stakeholders.</p>	<p>GEC to translate the feedback form to Bahasa Indonesia for Indonesia growers.</p> <p>RSPO to send questionnaire on BMP on Peats to Indonesian growers.</p>	<p>Online feedback survey form translated and uploaded into RSPO website.</p>



		<p>Members of WG are to assigned specific session of the BMP for comments and updates accordingly (refer Annex 8 of the tasking list). The deadline for the feedback should be by 21<sup>st</sup> Feb.</p> <p>It is targeted to have the first draft of revised BMP by end of March (in time for next PLWG meeting), 2<sup>nd</sup> draft in June and final BMPs by late August.</p> <p>A total of 3 field visits are targeted before the final report can be produced. The first field visit is scheduled on Wednesday, right after this WG meeting, to Sg Balim Estate and Woodman Plantation, at Miri Sarawak. Suggested to have another field visit at Indonesia and one in conjunction with next WG meeting at Peninsular Malaysia. Suggested date would be early March for one field visit, and PLWG2 next meeting and filed visit by end of March or Early April. The suggested timeline is early March and end of March/early April with PLWG meeting.</p> <p>Suggested locations:</p> <ul style="list-style-type: none"> <li>• Ketapang, Indonesia</li> <li>• Tabung Haji Plantation, Sumatera</li> <li>• Kuala Selangor (rehabilitation area) Pekan Rompin (non-rspo member)</li> </ul>	<p>Secretariat to circulate the tasking lists and member to provide comments directly to GEC before agreed deadline.</p> <p>RSPO Secretariat to work with Dr. Shah and GEC on next field visit at Indonesia, and the following field visit cum WG meeting at April, respectively.</p> <p>Secretariat to send out doodle poll for dates.</p>	<p>Tasking list circulated via email dated February 9.</p> <p>Field visit to PT BNS, hosted by Minamas, conducted on the 7<sup>th</sup> March 2018.</p> <p>Next PLWG meeting is scheduled on 1<sup>st</sup> week of April 2018.</p>
9.	Peat Definition (continuation from first day)	<p>On discussion for peat definition, WG discussed and agreed to keep the definition on, as organic soil, while definition of peat can be further subdivided based on different soil classification and it may vary according to region and ecosystem type.</p> <p>After long discussion, the working group reached consensus on having regional definition on peat. The agreed definition of peat for South East Asia, as Annex 4b.</p> <p>The definition for Africa and Latin America are to be developed by April 2018. In that region, significant numbers of the peatlands are in lake or river basin which leads to a higher mineral content in the peat. Hence, the definition may be varied from the Southeast East Asia.</p>		<p>Refer to Annex 4B (SEA definition)</p> <p><b><u>Africa &amp; LatAm</u></b> Have received 3 replies on peat definition from: -ISRIC - Prof. Susan Page - CIFOR</p>

10.	Updates on Communication – Poster Series	Arina updated that in overall the peat poster (English) is completed and circulated among the members. The poster is also being used as communication materials during training and workshops. The Bahasa Indonesia version of the poster is in the process of revising by Wetlands International.		-WI have provided the translated poster, however to be sent back to WI due to some discrepancies.
11.	<p>Progress update on Online Training Modules, by Wetlands International</p> <p>a) Finalised scripts: BMPs on existing plantation</p> <p>b) Next Step: BMPs on rehabilitation and video production</p>	<p>Arina presented her update on online BMP modules for existing cultivation. The text/script for the modules are ready as well as the pictures from WG have been gathered.</p> <p>Most concerns have been solved with help from IOI and WWF with some gaps remaining but mostly depending on P&amp;C revision. For example, on landscape approach which need to be aligned with new P&amp;C, drainage limit and drainability assessment, alternative use of peatlands (paludiculture) and avoidance of off-site impact. Some modules that less likely will be affected by the new P&amp;C will be launched first.</p> <p>For now, the format of audio &amp; visualisation is being developed. The outline and look for the website is ready.</p> <p>On BMP for rehabilitation on Peat, the text is almost ready with comments received from GEC and IOI. Suggestion from RSPO is to first finish BMP for existing cultivation on peat. BMP for rehabilitation on peat will put on hold as most of the modules are affected by the new P&amp;C.</p> <p>In the Sustainability college website, WG suggest attaching feedback link in the online modules, more quizzes to seek feedback indirectly. However, these can be done after the online modules is out as the main concern right now is to upload all the short videos before going into details such as course curriculum.</p> <p>RSPO Secretariat has budgeted for 2 videos of 5 minutes by June'18.</p> <p>Suggestion for the videos:</p> <ul style="list-style-type: none"> <li>• Agronomic (eg. Fertiliser, pesticides etc)</li> <li>• Overview of RSPO BMP's Oil Palm Cultivation on Peatland</li> </ul>		<p>- WI have provided 13 scripts for the online training modules (existing plantation).</p> <p>- Sara from O&amp;E dept. to brief members on the Sustainability College.</p>

12.	Proposed next step on development of modules	<p>WG started to look into BMP modules for smallholder. Based on the workshop from RT 15, smallholders provided feedback on how they prefer to learn as below:</p> <ul style="list-style-type: none"> <li>• Leaflets/Posters/Booklets etc</li> <li>• Practical training with field experience</li> <li>• Peer-to-peer training</li> </ul> <p>An update from Secretariat is that the O&amp;E team is ready to do the linking with the smallholders. Dr Lee from Proctor and Gamble is keen to work with the PLWG for the smallholder's matter. Chair urged for a facilitator that is good in dealing with smallholders. In addition to that, RSPO has developed a smallholder hub which is available to everyone.</p> <p>WG also mentioned that outreaching and implementation need to be localised as the smallholders are very diverse. If RSPO want to proceed for the smallholder, TOR needs to be drafted.</p>	A need to find for a facilitator that really go to the ground to understand smallholders in terms of technical, challenges etc faced by the smallholders.	
13.	AOB	<p>Faizal briefed members on the logistics for field visit (next day) and peat consultation workshop the following day.</p> <p>Next Meeting: Last week of March / First week of April</p>		

Annex 1. Revised Meeting Agenda and attendance sheet

## 4<sup>th</sup> PLWG meeting

Venue: Parkcity Everly, Miri Sarawak

---

Day 1, 22<sup>nd</sup> January 2017 (Monday) – Half day

Time	Agenda
2.00pm – 2.15pm	1. Review of previous meeting's minutes and progress on actions
2.15pm – 2.45pm	2. Minutes of side meeting 27 November
2.45pm – 3.00pm	3. RT15 Peat Workshop report back by GEC
3.00pm – 3.30pm	4. Peat related issues within the P&C (2013) review
3.30pm – 4.00pm	Break
4.00pm – 5.00pm	5. Discussion Paper: Proposed wordings for RSPO Global Peat Definition

Day 2, 23<sup>rd</sup> January 2017 (Tuesday)

Time	Agenda
9.00am – 11.00am	6. Progress update on Drainability Assessment, by Wetlands International <ol style="list-style-type: none"><li>Draft Guidance Document (Tier 1, Tier 2 and Tier 3)</li><li>Next Step (pilot test)</li></ol>
11.00am – 11.30am	Break
11.30am – 1.00pm	7. WG Discussion: Interim measures/guidance on Drainability Assessment (compliance to Indicator 4.3.5 of P&C (2013))
1.00pm – 2.00pm	Lunch
2.00pm – 2.30pm	8. Progress update on peatlands mapping & gaps identified
2.30pm – 3.00pm	9. Next Step Updates on BMPs revision by GEC
3.00pm – 3.30pm	Break
3.30pm – 4.30pm	10. Updates on communication materials – Poster Series 11. Progress update on Online Training Modules, by Wetlands International <ol style="list-style-type: none"><li>Finalised Scripts: BMPs on existing plantation</li><li>Next step: BMPs on rehabilitation and video production</li></ol> 12. Proposed next step on development of materials and BMPs for SH
4.30pm – 5.00pm	13. AOB <ul style="list-style-type: none"><li>Date for next meeting</li></ul>

Day 3, 24<sup>th</sup> January 2017 (Wednesday)

Field Visit [Woodman Plantation and SOPB Plantation]

Day 4, 25<sup>th</sup> January 2017 (Thursday)

[Optional for non-speaker] \*Peat BMPs Consultation Workshop

4<sup>th</sup> PLWG Meeting,

22<sup>nd</sup> – 23<sup>rd</sup> January 2018, Peninjau Hall

Parkcity Everly Hotel, Miri, Sarawak

No	Name	Organisation	Signature	
			22nd Jan'18 (pm)	23rd Jan'18
1.	Faizal Parish (co-chair)	GEC		
2.	Joshua Mathew (co-chair)	Bumitama Gunajaya Agro		
3.	Shahrakbah Yacob	Sime Darby		
4.	Jason Foong	Kuala Lumpur Kepong Bhd (KLK)		
5.	Jason Hon	WWF		
6.	Chin Kai Xiang	IOI Loders Crokkaan		
7.	Gotz Martin	Sinarmas-Agri		
8.	Tey Seng Heng	AAR (KLK)		
9.	Arina Schrier	Wetland International		
10.	Lew Siow Yan (replacing Julia Lo only for this meeting)	GEC		
11.	Sian Choo Lim	Bumitama Gunajaya Agro		
12.	Richard Kan	Golden Agri		
13.	Sin Chuan Eng (observer)	Kuala Lumpur Kepong Bhd (KLK)		
14.	Javin Tan	RSPO Secretariat		
15.	Devaladevi Sivaceyon	RSPO Secretariat		
16.	Ong Sue Peng (observer)	RSPO Secretariat		
17.	Lee See Lung	RSPO Secretariat		

Annex 2. Minutes of Side Meeting over RT15 at Bali

27th November 2017

Bangli 1, Hotel Grand Hyatt, Bali, Indonesia

RT Side Discussion: Global Definition and Drainability Assessment Guidance

Name	Organisation	Status
Faizal Parish	GEC	Substantive
Shahrakbah Yacob	Sime Darby	Substantive
Jason Foong	KLK	Substantive
Chin Kai Xiang	IOI Loders Croklaan	Substantive
Richard Kan	GAR	Alternate
Julia Lo	GEC	Alternate
Lim Sian Choo	Bumitama Gunajaya Agro	Alternate
Arina Schrier	Wetlands International	Alternate
Dipa Rais	Wetlands International	
Javin Tan	RSPO Secretariat	Secretariat
Devaladevi Sivaceyon	RSPO Secretariat	Secretariat

Item	Discussion Points	Action Points	Progress Update
Update on peat definition	<p>Secretariat mentioned that, in view of the volcanic movement over RT15, announcement on peat definition will be postponed. Co-chair mentioned that there was concern raised from ERWG seeking confirmation if a new peat/soil map will be required upon announcement of peat definition. Question was should Malaysia and Indonesia follow the NIs or should a new soil map needed to accommodate to the new definition.</p> <p>Chair explained that the NI and the definition from FAO and USDA should also fall in the same range.</p>	<p>To check if the Malaysian and Indonesian definition for peat is similar, will the definition override NI or should NI follow this peat definition.</p> <p>To add in the announcement stating that the peat definition is effective beginning 1<sup>st</sup> January 2018. All new NPP submission beginning 1<sup>st</sup> June 2018 will be aligned to this definition.</p>	<p>Due to new suggestion via email, the definition is to be finalised in the 4<sup>th</sup> PLWG-2 meeting.</p>
Drainability Assessment	<p>Challenges identified from the peat workshop is the lacking for DEM data. Bigger companies have the capacity to do the drainage limit map compared to the smaller companies.</p> <p>Wetlands has developed several scenarios: Scenario 1: Every single grower does drainability assessment themselves.</p> <p>Scenarios 2: Group of growers does the drainage limit map and then the drainability assessment.</p> <p>Scenarios 3: RSPO provides the drainage limit map. Then grower overlay the drainage limit map and use it for drainability assessment. Challenges include if the company has the capacity/economy for this and will CB have the capacity to conduct the audit. WG raised concern if the drainability assessment needs to</p>	<p>Wetlands to come up with methodology based on grower that are doing the assessment and potentially to provide a different accuracy matrix for member to do the testing and present the outcome to the WG.</p>	<p>Wetlands will be presenting their draft guidance document in the 4<sup>th</sup> PLWG meeting for endorsement and discussion.</p>

	<p>be audited. Also looking at it pragmatically the land is fragmented and to do a comprehensive assessment it is close to impossible.</p> <p>WG mentions that they only need a methodology to do it, perhaps Wetlands can look into the current way of drainability assessment done by grower.</p> <p>Secretariat clarified that Option 3 is out of consideration. Also, suggestion to come up with the most practical method which may not be the most precise or accurate data but as long as there is a certain degree of confidence to it and can be tested out.</p>		
Next Step	<p>Planning is to have the next meeting along with a site visit. At the same time, come up with an idea for the plantation going for audit in the second cycle, what are the guidance to be given to them.</p>		

## Annex 3. Powerpoint Presentation on Summary Report on Peat Workshop, Bali

### Summary Report on the Workshop

**Progress and Challenges in Implementing RSPO BMP Manuals on Peatland Management**  
held on 27 November 2017 in Bali, Indonesia

**RSPO Peatland Working Group Physical Meeting**


Global Environment Centre

22 January 2018  
Miri, Sarawak, Malaysia



### Key Issues Discussed at the Workshop

- Will the options for replanting (or not) on peat be expanded in the revised manual?
- Past information or history of the site for replanting
- Drainability should not be the only factor for replanting on peat
- Module should be more pictorial and less wording – hard to read/remember
- RSPO members (big players) had pledged no development on peat, how about non-RSPO member?
- New Indonesia regulation on 40cm water table
- Biological control for pest and diseases versus chemical control
- Is it viable to ask local community to shift from oil palm to NTFP?



### Introduction


- Global Environment Centre (GEC) was appointed by RSPO to facilitate the revision and update of 2 RSPO Manuals
  - Best Management Practices (BMPs) for Existing Oil Palm Cultivation on Peat
  - Best Management Practices (BMPs) for Management and Rehabilitation of Natural Vegetation Associated with Oil Palm Cultivation on Peat
- Part of the process, to organise consultation workshops and field visits





### Conclusions from Presentations and Discussions

- BMPs for Cultivation of Oil Palm on Peat**
  - Nature and characteristics of tropical peat – update definition and background to give global coverage (for oil palm growing countries)
  - Water management – include updated guidance on Drainability and expand on water monitoring and compliance with new regulations
  - Subsidence – expand subsidence monitoring and control
  - Fertiliser and nutrient management – update based on recent experience and studies
  - Integrated peat management – update on recent experience and new approaches for peat and diseases (e.g. Ganoderma), give alternative chemicals for those that should be phased out
  - Compaction – include information on compaction in existing plantations
  - GHG – include more on GHG emission reduction options



### Workshop Participation at Bali


- Good responses
- 45 registered
- Turn-up – in total of 37 (despite 1 speaker and few registered participants not attending due to closure of the airport)
- Facilitated by Co-chair of RSPO PLWG, Mr. Faizal Parish
- Sectors represented include growers, NGOs, academic institutions and supply chain processors, banks and retailers





### Conclusions from Presentations and Discussions (cont'd)


- BMPs for Management and Rehabilitation of Natural Vegetation Associated with Oil Palm Cultivation in Peat**
  - Maintenance and rehabilitation of conservation areas on peat – update with experience of past 5 years, include more case studies
  - Rehabilitation and Paludiculture – options to consider if Drainability assessment indicates a need to consider alternatives to replanting oil palm
  - Further guidance on species selection and natural regeneration versus planting



### Summary Outcome


#### Presentations

- Review and update of existing RSPO Manuals in BMPs relating to Peat, by Faizal Parish, GEC
- Future Drainability in plantations on peat, by Arina Schrier and Dipa Rais, Wetlands International
- Water Management for Peat, by Shahrakbah Yacob, Sime Darby
- Oil Palm Agronomy in existing peats and its management, by Joshua Mathews, Bumitama Gunajaya Agro
- Addressing Best Management Practices on peat in the supply chain, by Kaixiang Chin, Loders Croklaan
- Integrated Peatland Rehabilitation in Ketapang District, Indonesia, by Gotz Martin, GAR
- Peat conservation and rehabilitation in Malaysia, by Julia Lo, GEC
- Potential on rehabilitation of peatland area using Paludiculture method, by Nicko Arywibowo, PT. SNA with introduction to Paludiculture by Bas Tinhout of Wetlands International



### Technical Briefing Session: Drainability Assessment

- Facilitated by Dr. Joshua Mathews, Co-chair of PLWG
- Briefed by Dipa Rais, Wetlands International
  - Digital Elevation Model (DEM) using Vegetation-adjusted Shuttle Radar Topography Mission (SRTM) data, Light Detection and Ranging (LiDAR) data, Water Hose Method
  - Peat depth
  - Drainage limit maps derived from: drain selection, division of drains into sub-units/points, river bed elevation measurement, distance from points of scope to closest water body, Kriging and interpolation
  - Other issues: delineation of peat base above and below drainage limit; distance of peat soil surface to drainage limit for case of peat base below drainage limit; time to reach drainage limit based on soil subsidence rate for each grid-point in area of scope; delineation of peat areas outside RSPO allowed range for replanting (less than 2 crop cycles away, based on subsidence rate, DEM and drainage limit maps)





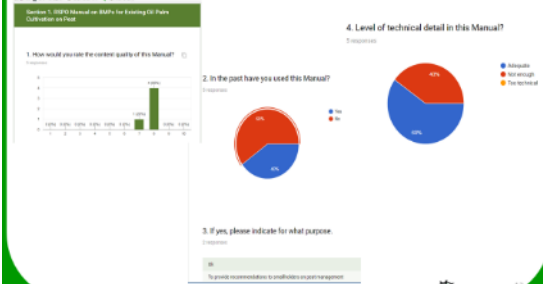
## Technical Briefing Session: Drainability Assessment (cont'd)

- **Discussion:**
  - “how to create a DEM” – concern about reliability of using SRTM for DEM
  - Feasibility of companies doing this exercise
  - Complexity
  - Next steps for development of Drainability Assessment Guidelines
  - Wetlands International/RSPO requires testers on proposed approaches – GAR, Sime Darby and Sarawak Oil Palms Berhad volunteered
- **Action Points:**
  - PLWG to discuss concerns raised and agree on next steps
  - If agreement from PLWG, continue with testing of current draft method
  - Volunteers to test
  - Select “most efficient way of testing” – one peat dome? More growers on one peat dome?



## Online Feedback Form

- Prior to the workshop, 5 responses were received

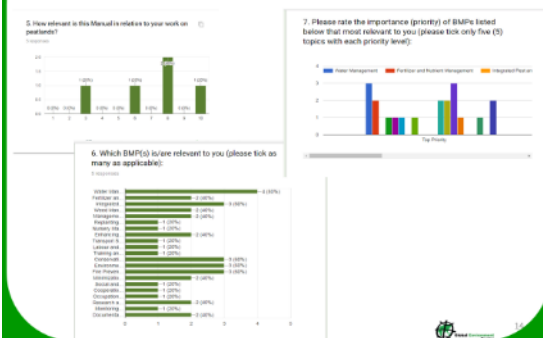


## Smallholder Linking & Learning Session

- Facilitated by Mr. Faizal Parish, Co-chair of PLWG
- Presentations by Faizal Parish and Dr. Lee Kuan-Chun of Procter & Gamble (P&G)
- 28 participants, mainly smallholders from Indonesia, some from Thailand – 4 indicated have oil palm planted on peat, others aware of challenges
- Presentations:
  - Faizal: challenges (e.g. good and bad practices) for oil palm cultivation on peat
  - Dr. Lee: challenges for smallholder oil palm on peat through P&G smallholder program with a pilot area in Southwest Peninsula Malaysia. He recommended landscape level control on disease & capacity building program for smallholders on BMPs including fire prevention and water management



## Online Feedback Form (cont'd)



## Smallholder Linking & Learning Session (cont'd)

- **Priority issues identified where smallholders need clear guidance**
  - Leaning and fallen palms
  - Fertiliser regime
  - Best practice for herbicide application
  - Water management – difficult to manage 40cm level (new regulations in Indonesia)
  - Challenge in identifying peat soil and how to cooperate with other smallholders outside planting boundary
  - Challenge in preventing peatland and forest fire with minimal resources
- **Ideas on best way to share information on BMPs**
  - Booklet/pamphlets
  - Field training with theoretical and practical lessons
  - Exchange visits



## THANK YOU



## Event Feedback Forms

- Almost 92% indicated they are either satisfied or very satisfied with the workshop
- Almost 92% indicated that the workshop is relevant and very much helpful with their job
- Majority indicated that session is either very relevant or relevant
- Majority satisfy with the session content, On the logistics, most were satisfied,



## Annex 4a: WG Discussion Paper: RSPO Organic (Peat) Soil Classification

Definitions developed and/or proposed are:

### ***Existing RSPO Definition, PLWG1 (2012):***

**Tropical peat soils (Histosols) are defined as organic soils with 65% or more organic matter and a depth of 50 cm or more.**

### *PLWG-2 (Nov 2017):*

Organic soils with **cumulatively** more than half (50cm) of the upper 100cm of soil with **a range of proportion organic Carbon from 12% to 18% containing clay mineral fractions from 0% to 60% or more respectively, with less than 35% of Ash Content.**

### *PLWG-2 (email exchanges, Dec 2017):*

Organic soils with **cumulatively** more than half (50cm) of the upper 100cm of soil with **a range of proportion organic Carbon from 12% to 18% or more, containing clay mineral fractions from 0% to 60% or more; and with the loss of ignition of more than 35% by dry weight.**

### *Growers (PLWG-2, Jan 2018):*

Peat is an organic soil where more than half (50 cm) of the upper 100 cm of soil or the depth to bedrocks is **organic material having more than 65% loss of ignition (LOI) or less than 35% ash content.**

This definition is for use in all palm oil producing countries globally. This classification has been derived from the global definition of Food and Agriculture Organisation of the United Nations (FAO) and is in line with the United States Department of Agriculture (USDA) definition. **In countries which have a RSPO National Interpretation (NI) process they may adopt a nationally accepted definition provided that it is consistent<sup>1</sup> with the above definition.**

The implementation of this definition of peat will come into force on the **1<sup>st</sup> December 2017** (with a 6 (six) months grace period). That means existing assessments between 1<sup>st</sup> December 2017 and 1<sup>st</sup> June 2018 can apply the earlier definition of tropical peat. RSPO producer members, certification bodies (CBs), assessors and other affected stakeholders are strongly encouraged to start implementing this revised global definition of peat as it will be made compulsory by 1st June 2018.

---

<sup>1</sup> As with all RSPO National interpretations – any modified definition proposed by a national interpretation will need to be approved by RSPO in line with its normal procedures which may involve reference to a relevant RSPO Working Group or to appropriate expert(s)

## RSPO Organic (Peat) Soil Classification

For the purpose of the RSPO, tropical peat soils (Histosols) are defined as organic soils with 65% or more organic matter and a depth of 50 cm or more.

### Definition of organic soil (Histosols):

Organic soils are soil containing materials of more than 35% in organic matter (more than 35% Loss of Ignition) or less than 18% organic carbon.

### Definition of organic soil (Histosols) (email exchange, March'18)

Organic soils are soil containing materials of more **and equal to** 35% in organic matter (more **and equal to** 35% Loss of Ignition) or **more** or equal to 18% organic carbon

### Differentiation by ecosystem types:

Organic soil may be further subdivided but the classification may vary according to region and ecosystem type.

#### South East Asia

In South East Asia, the prevailing definition of sub type of organic soil is as follows:

	Muck	Peat
Loss of ignition	> 35% - 65%	more than 65%

(Note: This is primarily for bog or dome type peat with limited mineral inputs)

#### Africa and Latin America

In this region, significant number of the peatland are in lake or river basin which leads to a higher mineral content in the peat. So, the definition may vary from South East Asia. To be developed by April 2018.

This definition is for use in all palm oil producing countries globally. This classification has been derived from the global definition of Food and Agriculture Organisation of the United Nations (FAO) and is in line with the United States Department of Agriculture (USDA) definition.

In countries which have a RSPO National Interpretation (NI) process they may adopt a nationally accepted definition provided that it is consistent<sup>2</sup> with the above definition.

---

<sup>2</sup> As with all RSPO National interpretations – any modified definition proposed by a national interpretation will need to be approved by RSPO in line with its normal procedures which may involve reference to a relevant RSPO Working Group or to appropriate expert(s)



# Annex 5a. Status and Next Step for Drainability Assessment (Powerpoint Presentation)

## Status Drainability Assessment Guideline

About the Insight in Future Drainability

### Status TIER 1 – TIER 3

- Concept version TIER 3 (main document) shared with the group earlier
- Concept version TIER 1 shared with the group last week
- Comments received from GEC on the earlier shared document:
  - Default soil subsidence
  - DEM
  - Tidal and seasonal fluctuations
  - Black water rivers

### What is required for the assessment

• Peat delineation	• Assumed available
• Peat depth	• Assumed available
• Soil subsidence rate	• Assumed available
• DEM/DTM/LEM	• Assumed available
• Natural drainage limit/drainage base	• Not available -> proposal WI
• Depth to drainage base	• To be calculated based on above

### NEXT STEPS

- PLWG agreement on YES/NO and which default soil subsidence rate (share background doc)
- Update & advice P&C Taskforce on (progress) TIER1
- **(company) expert meeting asap**
- **Testing TIER 1**
- Continue with the TIER 2 and TIER 3 approach if agreed on TIER 1 by PLWG, RSPO and the experts
- Finish TIER 1
- Integrate the drainability issue in the BMP??

### Discussion on Scenario's for Natural drainage limit/drainage base maps

	Scenario 1*	Scenario 2*	Scenario 3	Scenario 4
Provision of map	By RSPO	By RSPO	By groups of RSPO growers	By individual growers
	for Peat domes where current RSPO growers on peat are located	for all major peat areas, including locations of current and potential growers	for 'their' peat dome	for them selves

WI recommended scenario 1 or 2:

- Least total costs, most effective
- Least vulnerable to mistakes/uncertainties/corruption/different calculation on approaches/data sources/different interpretations
- Least burden for growers, very user friendly

Conclusion discussion during RT15 (evening session): Scenario 4

### (Company) expert meeting & Testing TIER 1

- Cross-check with (company) experts (Hydrology and GIS) on
  1. Robustness of the approach (scientifically)
  2. Present/availability of required data
  3. Feedback on constraints/concerns on methods
- Test with company's real data
  1. Applicability (on the ground)
  2. Accuracy

2018	PLWG meeting	P&C taskforce meeting	Expert Meeting TIER 1	Testing TIER 1
	Jan	Feb	March	April

### Discussion on complexity and urgency of quick release of method


- Qualitative Guidelines (ppt) are not suitable for compliancy to P&C 4.3 -> not use it for a quick release of Guidelines, this might confuse
- TIER 1 – TIER 3 idea: Quick release of TIER 1 (conservative) method, while keep working on testing and development of TIER 2 and TIER 3.

Conclusion discussion during RT15 (side-meeting RSPO): TIER 1–2 and 3 approach; to be proposed by WI

### Future Drainability Assessment Levels

- Tier 1
  - Lumped
  - (Must Be) Conservative
  - Assumption 1: Growers are not able/responsible for maintaining drainage facilities beyond their own concession boundaries
  - Assumption 2: Relevant authorities (Public Works, DID, etc) are not guaranteed for maintaining drainage facilities
  - Using default/conservative/site-specific historical subsidence
- Tier 2
  - Spatially Distributed (at planting block units)
  - Trade off between : Accuracy – Conservativeness
  - Assumption 1: Growers/Group of Growers are able/responsible for maintaining drainage facilities beyond their own concession boundaries, and/or
  - Assumption 2: Relevant authorities (Public Works, DID, etc) are responsible for maintaining drainage facilities
  - Using default/conservative/site-specific historical subsidence
- Tier 3
  - Spatially Distributed (at cells finer than planting block units)
  - Dynamic (Temporarily Distributed)
  - Prioritizing accuracy
  - Assumption 1: Growers/Group of Growers are able/responsible for maintaining drainage facilities beyond their own concession boundaries, and/or
  - Assumption 2: Relevant authorities (Public Works, DID, etc) are responsible for maintaining drainage facilities
  - Growers are permitted to forecast/plan improved water management for the future (must be justified)
  - Growers are permitted to use projected (reduced) subsidence associated with better water management, instead of historical/default

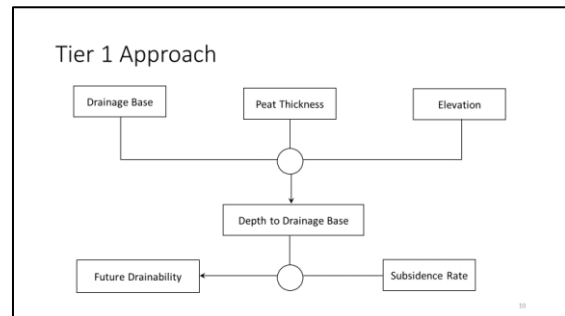
### TIER 1



- Take average values per peat-unit to calculate the 'time-left', based on the 2-crop-cycle threshold; Y/N replanting.

Peatland Area	Average peat thickness [D <sub>0</sub> ] (meters)	Depth to Drainage Base [D <sub>1</sub> ] (meters)	Average Subsidence Rate [S] (cm/year)	Drainage Limit Time [DLT] (years)
A	4.3	2.7	5	54
B	5.2	3.34	5	66.8
C	1.7	1.43	5	34
D	3.8	1.3	5	26

The approach for TIER 1 – TIER 3 is equal, but the level of accuracy is lowest in TIER 1, and highest in TIER 3



## Drainage Base Calculation

- Calculate centroid (point) of replanting peatland area
- Identify the nearest natural water body, find the nearest position (point) on the nearest natural water body, calculate distance between the 2 points ( $\Delta X_{NWB}$ )
- Calculate annual average water level elevation at the nearest natural water body ( $Z_{NWB}$ )
- Calculate drainage base ( $Z_{DB}$ )

$$Z_{DB} = Z_{NWB} + 0.0002 \times \Delta X_{NWB}$$

11

## Determine Subsidence Rate

- Default : 5 cm/y
- Default : Back-calculate based on Carbon emissions, Bulk Density and Carbon Content of site-specific peat soil(s) of replanting area
- Historical (with sufficient record, well distributed measurement)

15

## Calculate Average Peat Thickness

- Provide Peat Thickness Map
  - Polygon, or
  - Raster
- Calculate Average Peat Thickness
  - Polygon: Use Area(strata)-Weighted Average
  - Raster: Use Pixel-Based Histogram Average

12

## Calculate Future Drainability

- Drainage Limit Time

$$\text{If } D_p \geq D_{DB} : DLT = \frac{D_{DB}}{S} \quad \text{If } D_p < D_{DB} : DLT = \frac{D_p}{S}$$

Where

$DLT$  : Drainage Limit Time (year)  
 $D_{DB}$  : Depth to Drainage Base, found in 2.1 (m)  
 $D_p$  : Peat Thickness, found in 2.2 (m)  
 $S$  : Subsidence Rate (5 cm/y)

- Two Crop Cycle Threshold (TCCT)

$$TCCT = DLT - 40$$

Where

If  $TCCT = \text{Positive}$  : Replanting is OK  
 If  $TCCT = \text{Negative}$  : Replanting is NOT OK

16

## Calculate Average Elevation

- Provide DEM or LEM
  - LEM: Polygon, or
  - DEM: Raster
- Calculate Average Elevation
  - Polygon: Use Area(strata)-Weighted Average
  - Raster: Use Pixel-Based Histogram Average

13

## Calculate Depth to Drainage Base

- Provide Drainage Base ( $Z_{DB}$ )
- Provide Average Elevation ( $Z_s$ )
- Calculate Depth To Drainage Base ( $D_{DB}$ )

$$D_{DB} = Z_s - Z_{DB}$$

14

## **DRAINABILITY LIMIT ASSESSMENT METHOD FOR OIL PALM PLANTATION – TIER 1**

Dipa Rais & Arina Schrier

### I. Procedure Summary

---

This document is an integral part of the main Drainability Assessment document and is intended as a step by step guidance in Future Drainability Limit Assessment and reporting of oil palm plantations on peatland. Main principles of the assessment have been given in the main document and will not be reintroduced in this guidance.

The Future Drainability Assessment Tier 1 procedure can be summarized into 6 major steps (see also Figure A1), that are further described in the following chapters:

1. Calculation of average drainage base of replanting peatland area
2. Calculation of average peat thickness of replanting peatland area
3. Calculation of average elevation of replanting peatland area
4. Calculation of depth to drainage base of replanting peatland area
5. Assignment of average (default) subsidence rate
6. Projection of future drainability of replanting peatland area

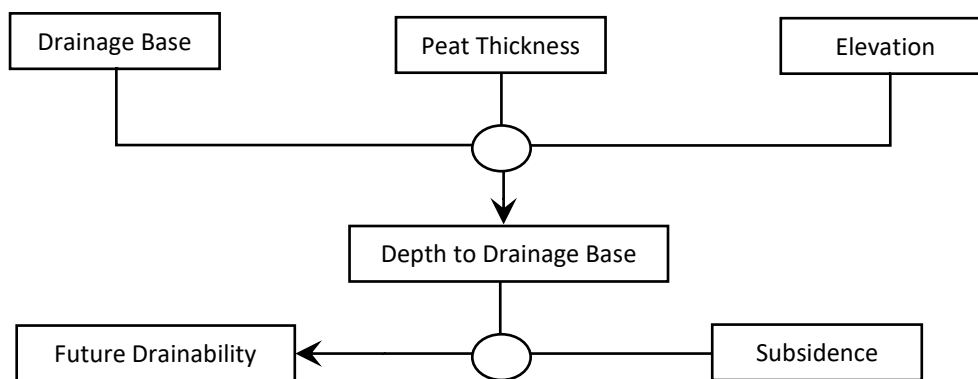


Figure A1. Future Drainability Assessment Flow Chart for Tier 1 Method

As summarized in Figure A1, drainage base, elevation and peat thickness are required to calculate depth to drainage base. Subsequently, subsidence rate is used as a factor in calculating future drainability:

1. Drainage Limit Time (DLT), i.e. the time required, with continuing subsidence, for the land surface to subside to the position of the Drainage Base, and
2. Where the Two-Crop Cycle Threshold (TCCT), i.e. condition (Yes or No) of the DLT is reached. Thus, the identification of location(s) or position(s) in the site, where at the time of assessment the two-crop cycle (40 years) threshold is being exceeded.

### II. Assessment Procedure

---

#### 2.1. Calculation of the Drainage Base

##### **Step 1. Calculate centroid(s) of replanting peatland area**

Boundary of replanting peatland area must be clearly defined (delineated). If the replanting area comprises of several parts/individual peatlands (for example as given in Figure A2) each part must be delineated as single

entity. Centroid coordinate(s) of the replanting peatland area(s) is calculated as average longitude (X) and Latitude (Y) of boundary(s) vertices.

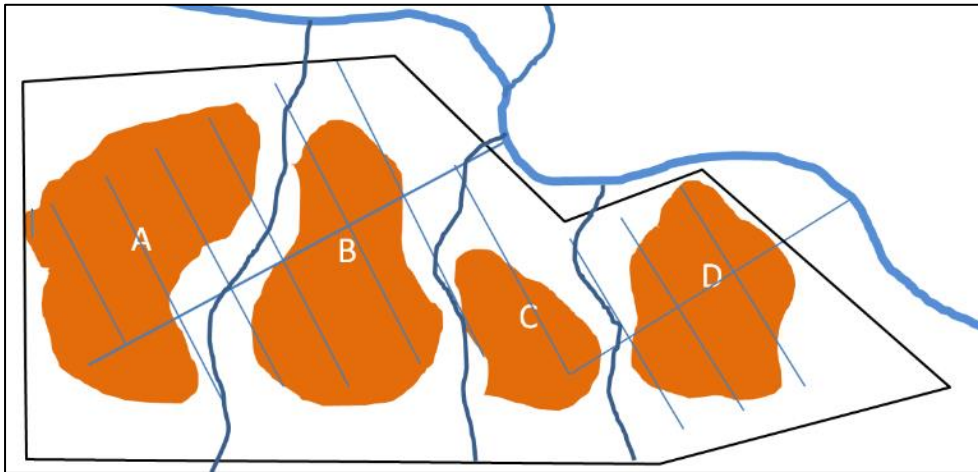


Figure A2. Illustration of an Oil Palm concession consisting of 4 separate peatland areas

When using ArcGIS, centroid coordinate can be calculated by using Calculate Geometry in Attribute Table Contextual Operation (Right Click).

**Step 2.** Identify and calculate distance to the nearest natural water body

On the map, identify all-natural water bodies within the vicinity of the replanting peatland area. By using the centroid(s) found in step 1, find the shortest straight line (distance) between natural water body to the centroid(s). Find the coordinate(s) at the point of intersection of the water body and the straight line.

**Step 3.** Calculate water level elevation at the nearest natural water body

Using point coordinate(s) of the water body found in step 2, estimate annual mean water level elevation at the point. The elevation must be referred to standard datum, i.e. mean sea level. The source of data for water elevation must be credible, such as official record, remote sensing imagery, etc. The user can also estimate the water elevation by using scientific methods, for example based on river-slope, etc.

**Step 4.** Calculate the Drainage Base

Calculate the Drainage Base by using the following formula

$$Z_{DB} = Z_{NWB} + 0.0002 \times \Delta X_{NWB}$$

Where

$Z_{DB}$  : Drainage Base (m-msl)

$Z_{NWB}$  : Annual mean water level elevation at nearest natural water body (step 3) (m-msl)

$\Delta X_{NWB}$  : Distance to the nearest natural water body (step 2) (meters)

2.2. Calculation of the average peat thickness

**Step 1.** Provide the peat thickness map

Provide the peat thickness map of the replanting area. If the replanting area comprises of several parts/individual peatlands, each part must be presented as single entity. The map must be as accurate as possible, with 10 cm vertical resolution or finer. If a peat thickness map is available in raster format, its horizontal resolution must be 100 meters or finer

**Step 2.** Calculate the average peat thickness

Average peat thickness must be calculated based on class-weighted values. If the peat thickness map is in raster format average value must be calculated based on individual pixel values.



### 2.3. Calculation of the average elevation of the replanting peatland area

#### Step 1. Provide Land Elevation Map or Digital Elevation Model

Provide a Land Elevation Map (LEM) or Digital Elevation Model (DEM) for the replanting peatland area(s). If the replanting area comprises of several parts/individual peatlands, then each part must be presented as a single entity. The LEM or DEM must be referenced to standard datum (mean sea level) and can be obtained and/or processed from various sources such as: LIDAR, photogrammetry, IfSAR, or (previous) direct land survey(s). If new land survey(s) must be conducted, the drainage outlet can be used as initial (starting point) for the elevation measurement. In turn, the drainage outlet point must be referenced to standard datum (mean sea level) by using official benchmark(s) or known pixel elevation(s) on remote sensing image(s) (LIDAR, IfSAR, etc).

#### Step 2. Calculate the average elevation of the replanting peatland area

Average land elevation of the replanting peatland area must be calculated based on class-weighted values derived from LEM. If using DEM (raster format), average value must be calculated based on individual pixel values.

### 2.4. Calculation of the Depth to Drainage Base

**Step 1.** Provide the drainage base(s) representative for the replanting peatland area(s) (resulted in 2.1)

**Step 2.** Provide the average elevation(s) representative for the replanting peatland area(s) (resulted in 2.3)

**Step 3.** Calculate the depth to the drainage base representative for the replanting peatland area(s) by using the following formula

$$D_{DB} = Z_s - Z_{DB}$$

Where

$D_{DB}$  : Depth to Drainage Base (m)

$Z_s$  : Average land elevation, found in 2.3 (m-msl)

$Z_{DB}$  : Drainage Base, found in 2.1 (m-msl)

### 2.5. Subsidence rate for replanting peatland area

For the Tier 1 method, a default subsidence rate of 5 cm/y could be used as average subsidence rate representing the replanting peatland area if own data is not available. If own site data is available, then the average subsidence rate shall be calculated based on at least 2 years of monthly soil subsidence data.

### 2.6. Projection of site's future drainability

#### 2.6.1. Drainage limit time

**Step 1.** Provide the average Peat Thickness as resulted in 2.2.

**Step 2.** Provide the Depth to Drainage Base as resulted in 2.4.

**Step 3.** Use (default) subsidence rate value as defined in 2.5.

**Step 4.** Evaluate the average peat thickness as found in Step 1 against the representative depth to the drainage base as found in Step 2. The smallest of these two values shall be used in calculating the Drainage Limit Time. For example, if the average peat thickness is 2.3 meters, while the representative depth to the drainage base is 3.1 meters, then choose 2.3 meters to be used in Step 5.

**Step 5.** Calculate the drainage limit time ( $DLT$ ) by using the following formula

$$\text{If } D_P \geq D_{DB} : DLT = \frac{D_{DB}}{S}$$

$$\text{If } D_P < D_{DB} : DLT = \frac{D_P}{S}$$

Where

- $DLT$  : Drainage Limit Time (year)
- $D_{DB}$  : Depth to Drainage Base, found in 2.1 (m)
- $D_p$  : Peat Thickness, found in 2.2 (m)
- $S$  : Subsidence Rate (5 cm/y)

For example: In Figure A2 and Table A1, the  $DLTs$  of four peatland areas were calculated. For peatlands A, B and D the  $DLTs$  were calculated based on  $D_{DB}$ ; while for peatland C, the  $DLT$  was calculated using  $D_p$ .

Table A1. Table of illustrative data for Figure A2 containing information on average peat thickness, representative depth to drainage base, average subsidence and calculated drainage limit time of a oil palm concession containing 4 separate peatland areas.

Peatland Area	Average peat thickness ( $D_p$ ) (meters)	Depth to Drainage Base ( $D_{DB}$ ) (meters)	Average Subsidence Rate ( $S$ ) (cm/year)	Drainage Limit Time ( $DLT$ ) (years)
A	4.5	2.7	5	54
B	5.2	3.34	5	66.8
C	1.7	3.43	5	34
D	3.8	1.3	5	26

### 2.6.2. Two-crop cycle threshold

For the TIER 1 method, the resulting table (such as Table A1) can be used to determine whether or not a replanting peatland area exceeds the two-crop-cycle threshold (TCCT) at the time of the assessment.

The TCCT value can be evaluated by simply subtracting  $DLT$  value(s) by 2 crop cycle period (40 years)

$$TCCT = DLT - 40$$

If  $TCCT > 0$ , threshold has not yet been reached. If  $TCCT$  returns zero or a negative number means that the  $TCCT$  is reached or exceeded.

Example: In Figure A2 and Table A1, it is apparent that  $TCCT$  has been reached in peatland areas C and D, because the calculated  $DLTs$  are less than two-crop cycle (40 years).

## III. Reporting

---

For Tier 1 reporting a Summary Table for the following information must be submitted:

1. Depth to drainage base (in meters)
2. Drainage limit time (in years)
3. Two-crop cycle threshold (OK if  $DLT > 40$ , or N if  $DL \leq 40$ )

Table A2. Summary Table for Tier 1 Drainability Limit Assessment Report Summary

Peatland Area	Depth to Drainage Base (Meters)	Drainage Limit Time (Years)	Two-Crop Cycle Threshold (OK or N)
A			
B			
C			
etc			

Description of detailed calculation and data must be submitted in separate Report Document

## Annex 6. Peat Mapping Exercise (PowerPoint Presentation)

# PEAT MAPPING EXERCISE

INITIAL FINDINGS FOR DISCUSSION

### BRIEF FINDINGS

	2016 Total Oil Palm allocated (ha)	Total RSPO members <sup>1</sup> (ha)	RSPO <sup>2</sup> Total OP areas (ha)	Total areas on peat soil <sup>3</sup> (ha)	Areas of RSPO Members on peat soil	Peatlands outside RSPO members concessions
Indonesia	11,800,000 <sup>4</sup>	1,929,842	36%	20,831,048	498,285	20,332,763
Malaysia	5,737,985 <sup>4</sup>	3,935,148	69%	2,149,064	33,065	2,115,999
Papua New Guinea	n/a	479,184	n/a	n/a	n/a	n/a
<b>Total</b>	<b>17,537,985</b>	<b>6,344,174</b>	<b>33%</b>	<b>22,980,112</b>	<b>531,350</b>	<b>22,448,762</b>

<sup>1</sup> Based on member boundary map submission  
<sup>2</sup> Based on RSPO GHG WG2 Technical paper 2023  
<sup>3</sup> Indonesia Palm Oil Producers Association (SPO) & Indonesian Ministry of Agriculture, extracted from [SPO/RSPO Database](#)  
<sup>4</sup> FAO/RSPO 2016

### OBJECTIVES:

- To provide an update on the overall trend of oil palm cultivation on peat compared to the 2010 baseline (by GHG WG2) in Indonesia, Malaysia and Papua New Guinea
- To map the area of peatlands within the operating unit (including estate or group of estate/ land title/ concession) of RSPO member companies which either has been planted or set-aside/conserved

### Peat Planted With Palm Oil and RSPO Member Concession Map (Indonesia and Malaysia)

Source: RSPO GHG Working Group 2 - GHG WG2

### SOURCES OF DIGITAL MAP:

- Members concession boundaries submitted (Year 2017)
- GHG WG2 Technical Papers (Malaysia & Indonesia)
  - Peat soil layer (year 2010)
  - Land use layer (Oil Palm) (year 2010)

### BRIEF FINDINGS (CONT'D):

	INDONESIA			MALAYSIA			TOTAL		
TOTAL PEAT SOIL (ha)	20,831,048			2,149,064			22,980,112		
TOTAL PLANTED ON PEAT (ha)	2005	2010	A/P%	2005	2010	A/P%	2005	2010	A/P%
	1,049,605	1,702,263	62%	325,713	569,796	75%	1,375,318	2,272,059	65%
RSPO PLANTED ON PEAT (ha)	114,435	237,743	107%	20,494	23,424	14%	134,929	261,167	94%
RSPO PEAT NOT PLANTED (ha)	383,850	260,543	32%	12,571	9,641	23%	396,421	270,184	32%

Based on member boundary submission map & GHG WG2 Technical Paper Land Cover Map (Oil Palm) for year 2005 and 2010.

### RSPO Member Concession and Peat Soil Map (Indonesia & Malaysia)

Source: RSPO GHG Working Group 2 - GHG WG2

### CHALLENGES:

- Lack of digital data
  - Certified versus non-certified
  - PNG peat soil layer
  - Latest oil palm planted
  - Planted year
- Further analysis needed
  - Membership join date

### NEXT STEP:


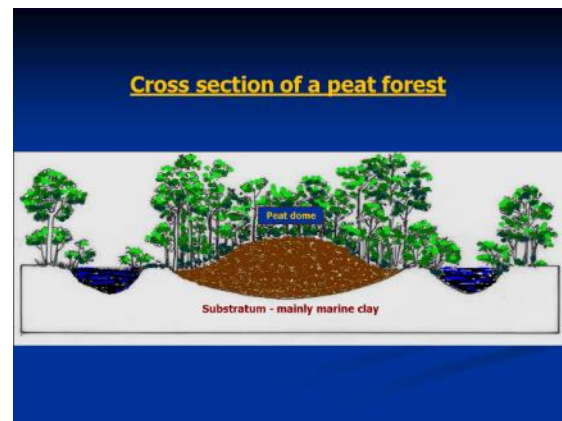
- Oil Palm planted on year 2015 and 2017 (secondary data?)
- Certified areas?



Annex 7. Review and Update of BMPs (PowerPoint Presentation)

## Review and Update of existing RSPO Manuals on BMPs relating to Peat

By  
**FAIZAL PARISH**, Co-Chair RSPO  
 Peatland Working Group  
 25<sup>th</sup> January 2018 Miri, Sarawak

## Presentation

- Peatlands
- RSPO BMP manuals
- Review of manuals
- Feedback

### STAGES OF PEAT DECOMPOSITION


Sapric < 33 % woody fibre Most fertile	
Hemic 33-66 % woody fibre Intermediate fertility	
Fibric > 66 % woody fibre Least fertile	

### Challenges of oil palm cultivation on peat

- Challenges for oil palm production on peat
  - Subsidence/palm leaning
  - Water management
  - Fertility, Agronomy
  - Peat and diseases
  - Fire prevention
  - Minimising Environmental and social Impacts
  - GHG emissions

### RSPO Manuals on BMPs

- Existing Oil Palm Cultivation on Peat;
- Management and Rehabilitation of Natural Vegetation associated with Oil Palm Cultivation on Peat



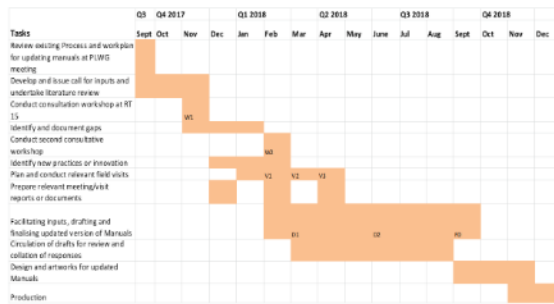
Increasing oil palm cultivated on peat (2.7-3 Million ha – 25% Malaysia/75% Indonesia) = 25% of Oil palm area



### BMP manuals

- Published in 2012,
- Need to update for laws and regulations and draw on experiences and lesson learned over the past 5 years
- Global Environment Centre (GEC) has been engaged as the facilitator of the review process
- The review and comment process 1 Nov 2017 to 28 February 2018- Online feedback form, sharing of case studies, etc

## Timeline



## TOC

### ➤ 7.0 OIL PALM CULTIVATION BY SMALLHOLDERS ON PEATLAND

#### ➤ — REFERENCES

- Annex 1 Glossary & Abbreviations
- Annex 2 Resolution Adopted at 6th RSPO General Assembly (2009)
- Annex 3 Peatland Working Group (PLWG)
- Annex 4 Distribution of Peatlands in South East Asia
- Annex 5 Potential Impacts of Oil Palm Cultivation on Peatland
- Annex 6 Relevant RSPO Principles & Criteria and National Interpretations
- Annex 7 Relevant Indonesian and Malaysian Regulations
- Annex 8 Fire Prevention and Control



## TOC Cultivation

- 1.0 INTRODUCTION
  - 1.1 Initiation of RSPO Manual for Best Management Practices
  - 1.2 Purpose of BMP Manual and Benefits of Adoption
  - 1.3 Background of Oil Palm Cultivation on Peatland
  - 1.4 Potential Impacts of Oil Palm Cultivation on Peatland
  - 1.5 Regulations and Guidelines Related to Oil Palm Cultivation on Peatland
  - 1.6 Contents of the Manual
- 2.0 NATURE AND CHARACTERISTICS OF TROPICAL PEAT
  - 2.1 Definition, Formation, Distribution and Classification of Peat
  - 2.2 Peat Depth, Horizons and Topography
  - 2.3 Physicochemical Properties and Fertility of Drained Peat
  - 2.4 Peat Subsidence
  - 2.5 Constraints of Oil Palm Cultivation on Peatland



## WATER MANAGEMENT PRACTICES

- Site specific, influenced by topography and **local rainfall condition**.
- **Good water management is the prerequisite for the implementation of other BMPs.**
- **Maintain water at 40-60 cm from peat surface or 50-70 cm in the collection drain.**
- **Avoid flooding and over-drainage by a controlled drainage system.**

## TOC

- 3.0 BEST MANAGEMENT PRACTICES (BMPs) – OIL PALM CULTIVATION ON PEATLAND
  - 3.1 Water Management
  - 3.2 Fertilizer and Nutrient Management
  - 3.3 Integrated Pest and Disease Management
  - 3.4 Weed Management
  - 3.5 Management of Leaning and Fallen Palms
  - 3.6 Replanting Practices
  - 3.7 Nursery Management
- 4.0 BEST MANAGEMENT PRACTICES (BMPs) – OPERATIONAL ISSUES
  - 4.1 Enhancing Yield
  - 4.2 Transport Systems
  - 4.3 Labour and Mechanization
  - 4.4 Training and Field Supervision



**To minimize peat subsidence and GHG emission, maintain a natural vegetative cover (lower temperature higher moisture level) and keep water level at 30-40 cm from peat surface ( years 1-3).**



## TOC

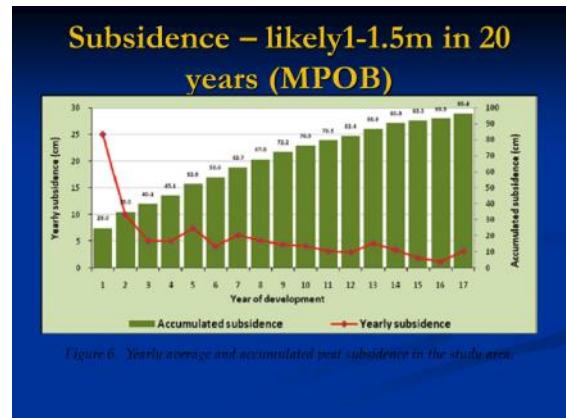
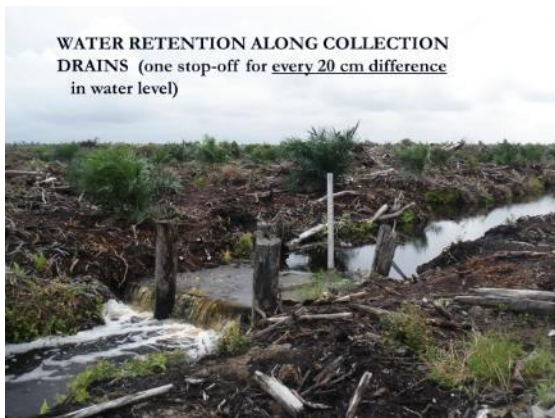
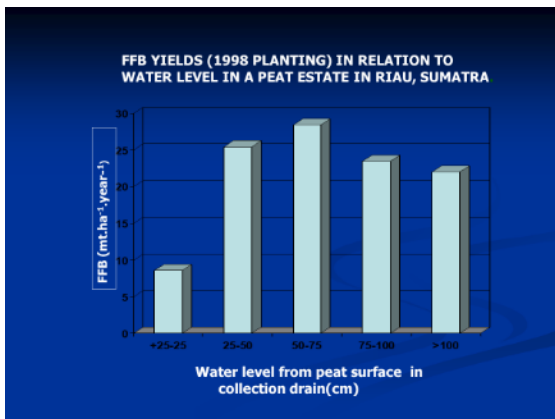
- 5.0 BEST MANAGEMENT PRACTICES (BMPs) – ENVIRONMENTAL AND SOCIAL ISSUES
  - 5.1 Conservation, Maintenance and Rehabilitation
  - 5.2 Environment Management
  - 5.3 Fire Prevention and Control
  - 5.4 Minimization of Green House Gas (GHG) Emissions from Oil Palm Plantations
  - 5.5 Social and Cultural Issues
  - 5.6 Cooperation with Local Communities
  - 5.7 Occupational Health and Safety Issues
- 6.0 BEST MANAGEMENT PRACTICES (BMPs) – R&D, MONITORING AND DOCUMENTATION
  - 6.1 Research and Development
  - 6.2 Monitoring and Reporting
  - 6.3 Documentation of Operating Procedures



**Good Water Management is the key to high peat productivity**







**Long term drainage impacts – replanting**

**Natural situation:**

- Water table close to surface
- Peat accumulation from vegetation over thousands of years

**Drainage:**

- Water tables lowered
- Peat surface subsidence and CO<sub>2</sub> emission starts

**Continued drainage:**

- Decomposition of dry peat: CO<sub>2</sub> emission
- High fire risk in dry peat: CO<sub>2</sub> emission
- Peat surface subsidence due to decomposition and shrinkage

**End stage:**

- Most peat carbon above drainage limit released to the atmosphere within decades, unless conservation / mitigation measures are taken

Page et al., 2011

- With current drainage many coastal sites may become undrainable within 25-75 years.
- Pre-replanting assessment to determine optimal plan
- Possible switch to alternative crops eg wet agroforestry



## Leaning Palms



## Planting beneficial plants for biological control



## Pest and Diseases

### ■ Rat-fruit damage



## BMP Manual TOC

- 1.0 INTRODUCTION
  - 1.1 Initiation of RSPO Manual for Best Management Practices
  - 1.2 Purpose of BMP Manual and Benefits of Adoption
  - 1.3 Reasons for Management and Rehabilitation of Peat Swamp Forests
  - 1.4 Regulations and Guidelines Related to Management and Rehabilitation
- 2.0 PEAT SWAMP FOREST ECOSYSTEMS
  - 2.1 Peat Swamp Forests and Their Importance
  - 2.2 Characteristics of soils in Peat Swamp Forests
  - 2.3 Formation and Role of Water in Peat Swamp Forests
  - 2.4 Plant Communities in Peat Swamp Forests
  - 2.5 Animals in Peat Swamp Forests
  - 2.6 Zonation of Peat Swamp Forest Ecosystems
  - 2.7 Carbon Storage in Peat Swamp Forests
  - 2.8 Degradation of Peat Swamp Forests



## Pest and Diseases

- Ganoderma
  - No cure
  - Up to 70% infection in some areas



## TOC

- 3.0 MANAGEMENT OF EXISTING PEAT SWAMP FOREST AREAS
  - 3.1 Management of Natural Hydrological Regime
  - 3.2 Prevention and Control of Fire
  - 3.3 Management of Extractive Uses
  - 3.4 Avoiding Fragmentation
- 4.0 REHABILITATION OF PEAT SWAMP FORESTS IN DEGRADED SITES
  - 4.1 Addressing the Root Cause of Degradation
  - 4.2 Guiding Principles for Rehabilitation
  - 4.3 Planning for Peat Swamp Forest Rehabilitation Projects
  - 4.4 Establishment of an Appropriate Hydrological Regime
  - 4.5 Identification of Suitable Species for Rehabilitation
  - 4.6 Encouraging Natural Regeneration
  - 4.7 Enrichment Planting/Replanting



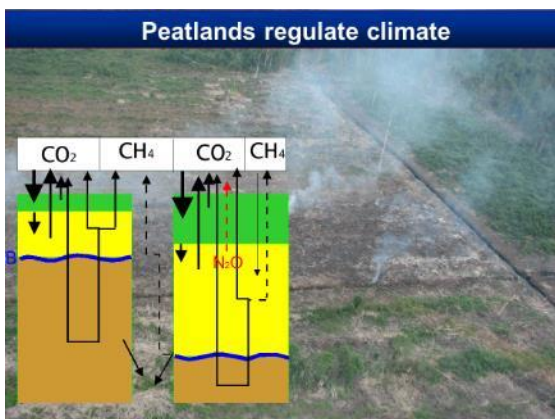
## Termite infestation on peat



## TOC

- 5.0 IMPLEMENTING PEAT SWAMP FOREST REHABILITATION
  - 5.1 Seed Stock Collection and Development of Nurseries for Peat Swamp Seedlings
  - 5.2 Preparation of Cultivation Plots and Planting of Seedlings
  - 5.3 Maintaining of Plants
  - 5.4 Evaluation of Rehabilitated Areas and the Setting up of Vegetation Growth Study Plots
- 6.0 RESEARCH AND DEVELOPMENT NEEDS
- 7.0 PARTNERSHIP MECHANISMS
- — REFERENCES
  - Annex 1 Glossary
  - Annex 2 Peatland Working Group (PLWG)





### Conclusions from Indonesian Consultation workshop (Nov 17)

- BMPs for Cultivation of Oil Palm on Peat**
  - Nature and characteristics of tropical peat** – update definition and background to give global coverage (for oil palm growing countries)
  - Water management** – include updated guidance on Drainability and expand on water monitoring and compliance with new regulations
  - Subsidence** – expand subsidence monitoring and control
  - Fertiliser and nutrient management** – update based on recent experience and studies
  - Integrated peat management** – update on recent experience and new approaches for peat and diseases (e.g. Ganoderma), give alternative chemicals for those that should be phased out
  - Compaction** – include information on compaction in existing plantations
  - GHG** – include more on GHG emission reduction options

### Conclusions workshop (cont'd)

- BMPs for Management and Rehabilitation of Natural Vegetation Associated with Oil Palm Cultivation in Peat**
  - Maintenance and rehabilitation of conservation areas on peat** – update with experience of past 5 years, include more case studies
  - Rehabilitation and Paludiculture** – options to consider if Drainability assessment indicates a need to consider alternatives to replanting oil palm
  - Further guidance** on species selection and natural regeneration versus planting

### Online Feedback Form

- As of 22 January 2018, 15 responses were received

Category

15 responses

Category	Count	Percentage
Oil Palm Grower	4	26.7%
Environmental N.	1	6.7%
Social NGO	0	0%
Supply Chain	1	6.7%
Research Institu.	7	46.7%
Government	0	0%
Donor	0	0%
Auditor	0	0%
Consulting Com.	1	6.7%
Product Manufs.	1	6.7%

### Online Feedback Form (cont'd)

Section 1: BSR Manual on BMPs for Existing Oil Palm Cultivation on Peat

2. In the past have you used this Manual?

11 responses

Response	Percentage
Yes	55%
No	45%

3. How would you rate the content quality of this Manual?

11 responses

Rating	Percentage
1	0%
2	0%
3	0%
4	0%
5	100%

4. Level of technical detail in this Manual?

13 responses

Response	Percentage
Adequate	69%
Not enough	23%
Too verbose	8%

3. If yes, please indicate for what purpose.

7 responses

Purpose	Percentage
Oil	14%
To provide recommendations to smallholders on peat management	14%
Communicating BMPs to the supply chain for uptake	14%
BMP for oil palm cultivation of peat for local community or smallholders	14%
Research on sustainable peat practices	14%
Reference	14%
Water management, peat and disease, yield improvement	14%

### Online Feedback Form (cont'd)

6. Which BMP(s) is/are relevant to you (please tick as many as applicable):

14 responses

BMP	Count	Percentage
Water Storage	12	85.7%
Integrated Peat	11	78.6%
Peat Manage	8	57.1%
Management	8	57.1%
Replanting Peat	4	28.6%
Nutrient Manage	2	14.3%
Watering Peat	2	14.3%
Peat Soil	2	14.3%
Labour and Ma	1	7.1%
Management	1	7.1%
Conservation	1	7.1%
Fire Peat/Peat	1	7.1%
Cooperation w	1	7.1%
Documentation	1	7.1%
Research and	1	7.1%
Monitoring and	1	7.1%
Documentation	1	7.1%

5. How relevant is this Manual's relation to your work on peatlands?

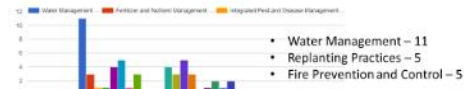
14 responses

Relevance	Percentage
1	0%
2	0%
3	0%
4	0%
5	100%

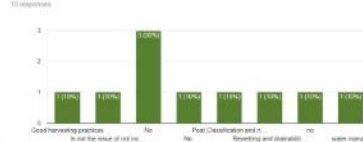


## Online Feedback Form (cont'd)

7. Please rate the importance (priority) of BMPs listed below that most relevant to you (please tick only five (5) topics with each priority level):



8. Are there any BMP topics not included in the above list?

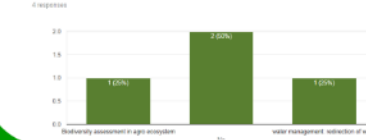


## Online Feedback Form (cont'd)

7. Please rate the importance (priority) of BMPs listed below that most relevant to you (please tick only five (5) topics with each priority level):



8. Are there any BMP topics not included in the above list?



## Online Feedback Form (cont'd)

Section 2: BMP Manual on BMPs for Management and Rehabilitation of Natural Vegetation Associated with Oil Palm Cultivation on Peat

2. In the past have you used this Manual?

1. How would you rate the content quality of this Manual?

3. If yes, please indicate for what purpose.

Communicating BMPs to supply chain for uptake  
rehabilitation of degraded peat land forest

4. Level of technical detail in this Manual?

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00% 4.00%

## Issues in workshop today

- Overview of Oil palm on peat in Malaysia
- Agronomic management for peat
- Case studies SOPB and Sime Darby
- Supply chain issues on peat
- Conservation and Rehabilitation
- Paludiculture
- Discussion and feedback from participants

## Online Feedback Form (cont'd)

5. How relevant to this Manual in relation to your work on peatlands?

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00% 1.00%

Thank you



## Annex 8. Tasking list for BMP revision

### 1. BMP for Existing Cultivation on Oil Palm

No	Section	Word Count/ Duration	Working Title/Content
1	Section 1.1	Sian Choo	Introduction: Oil Palm Cultivation on Peatland
	Section 1.2	Sian Choo	RSPO P&C (2013) and Guidance in relation to Peatland
2	Section 2.1	Arina/ Tey/Julia/ Jason Foong/ Dr. Shah	What is Peat: Nature and Characteristics of Tropical Peat
	Section 2.2	Arina/Tey/Julia/ Jason Foong/ Dr. Shah	Key Monitoring and Management Elements: Cultivating on Peatlands
3	Section 3.1	N/A	Overview of RSPO BMPs: Oil Palm Cultivation on Peatland
	Section 3.2	Arina/Dr.Shah Dr. Gotz	Effective Water Management
	Section 3.3	Dr. Joshua/ Dr. Gotz/Tey	Adequate and Balanced Fertilization
	Section 3.4	Dr. Joshua/Dr.Gotz/Tey	Cost-effective and Environment-friendly Integrated Pest and Disease Management
	Section 3.5	Dr. Joshua/Dr.Gotz/Dr.Shah	Effective Management of Leaning and Fallen Palms, and Weed
	Section 3.6	Dr.Gotz/Dr.Shah	Replanting Practices
	Section 3.7	Dr.Gotz/Richard	Operational Considerations
	Section 3.8	Arina (Env)/ Jason Hon/Sian Choo	Environmental and Social Considerations
	Section 3.9	Kai Xiang/Dr.Joshua	Fire Prevention and Control
		Jason Foong/ Arina/Dr.Shah	Good practices for Research & Development, monitoring and reporting

### 2. BMP for rehabilitation and management of peatland

1.	Introduction	Person In Charge
2.	Peat swamp forest and ecosystem	Arina/Jason Hon/Faizal
3.	Management of existing peat swamp forest area	Kai Xiang/Arina/Jason Hon/Faizal
4.	Rehabilitation of peat swamp forest	Dr.Gotz/Faizal
5.	Paludiculture and alternate use	Arina/Sian Choo/Faizal