

- **Meeting 8, Summary Report** -

**Time/Location:** Nov 28 – Dec 1, 2017 – Pangkalan Kerinci, Indonesia

**Participants**

**IPEWG:** Prof. Dr. Supiandi Sabiham, Prof. Ari Lauren, Prof. Susan Page, Prof. Chris Evans, Prof. Vincent Gauci and Dr. Ruth Nussbaum, Joe Lawson (SAC Chair)

**APRIL:** Praveen Singhavi, Lucita Jasmin, Dr. Ibrahim Hasan, Rob Pallett, Dr. Mukesh Sharma, Mark Werren, Dr. John Bathgate, Craig Tribolet, Wong Fui Khiong, Yogi Suardiwerianto, Chandra Deshmukh, Chandra Ghimire, Branislav Zoric, Budi Riyanto

**Secretariat:** Tim Fenton (APRIL)

**Guest Visitors:** Denny Irawan - University of Indonesia

Jenny Williamson – Centre for Ecology and Hydrology (UK)

**Introduction**

This meeting marked the end of the initial two-year period of the IPEWG. Therefore, in addition to the workplan items discussed in detail below, a significant part of the meeting was spent discussing IPEWG's progress to date and the future of IPEWG.

The review concluded that considerable progress has been made in building a stronger understanding of peatland management and in developing a clear peatland roadmap agreed with and endorsed by APRIL, but also confirmed that though a good start has been made, there is still much to do to translate this into changes on the ground. Furthermore, rapid developments in the regulatory framework over the last year mean that there is also a lot of work to do in supporting the implementation of practical approaches to meet these evolving requirements at scale. Therefore, there was agreement between IPEWG members and APRIL senior management that IPEWG should continue for a second phase of two years with a focus on the practical implementation of best practices aligned with emerging regulations.

Below is a brief summary of Phase 1 progress against each of the IPEWG Roadmap elements, together with recommendations for Phase 2. This is followed by a summary of discussions on relevant components of the workplan which will be continued into phase 2.

A more detailed review of the progress made during the first phase, with specific reference to the original IPEWG ToRs, is being developed and will be finalized by the end of January 2018.

**Roadmap Component 1 – Building Understanding**

**Key outcomes:** Building a better understanding of the current situation and the implications of different strategies for the future has been the central focus of the IPEWG in Phase I. This has included analysis, advice and support on key topics including:

1. Analysis of subsidence data and preparation of publications;
2. Analysis of GHG emission measurements and discussions on publications;
3. Modeling relationships between water table and other factors influencing plantation production and establishment of high water table trials;
4. Building a better overview of natural forest condition;
5. Accelerating understanding of alternative native species for high water table plantations;

6. Understanding the most important factors in fire prevention;
7. Discussing the LiDAR strategy; and
8. Review and feedback to APRIL on key peatland-related reports - Wetlands International, Winrock International and Fauna & Flora International.

**Recommendation:** APRIL continues the strong scientific work program it has built to support better operational practices (Component 2) and improved peatland management at the landscape scale (Component 3).

**IPEWG objective for phase 2:** IPEWG's objective will be to continue to provide support for analysis and interpretation of the results from the research program with particular emphasis on publication and dissemination of findings; and translating improved knowledge into improved practices.

### Roadmap Component 2 – Responsible Peatland Operations

**Key outcomes:** Construction of a peatland model; extensive review and discussions of current practices; initial consideration of alternative management options and outcome scenarios for production areas; and support for proactive management of all conservation areas.

**Recommendation:** APRIL should develop and rapidly implement a time bound plan for adapting operational practices that support delivery of Indonesia's peatland policy and regulations and provide a balance between environmental, social and economic objectives.

**IPEWG objective for phase 2:** Support accelerated progress of operational planning and decision-making by: a) translating best available science from the data analysis and modeling scenarios (Component 1); b) collaboration on best management practices through regular and systematic discussions with operational teams; and c) monitoring of the impacts of the changes.

### Roadmap Component 3 – Vision

**Key outcomes:** The Peatland Roadmap agreed with APRIL includes the need for a long-term vision that would optimize peatland management in the long term. APRIL committed to developing and implementing a long term vision for peatlands with inputs from IPEWG and other stakeholders.

**Recommendation:** APRIL should work collaboratively with government and other stakeholders within their production landscapes to develop and implement management that delivers national sustainable development goals and policies, maintains economic viability and protects peatlands at the landscape scale.

**IPEWG objective for phase 2:** Support APRIL, its partners and other key actors by providing science-based inputs to address challenges in developing responsible, long term peatland management at the landscape scale through participating in a systematically collaborative approach.

### Discussions on progress with the IPEWG Workplan

Topic	Discussion Overview Notes	Workplan Ref.
<b>Component 1 – Building Science-based Understanding and Minimizing Impacts</b>		
<b>D1. Subsidence and carbon balance</b>	<b>Action D1.1a, b, c - Analysis of existing subsidence data:</b> Progress reports were provided by the University of Indonesia and the IPEWG on analysis of the subsidence data using two different statistical methods. The similarity of results obtained using the two independent methods suggest that the results can be considered robust. Some further data requirements (e.g. time since original plantation development) and data queries (e.g. correct definition of land-cover based on LANDSAT data rather than land-use in areas where encroachment has occurred) were identified, and addressed by APRIL staff during the course of	<b>Output D1.1</b> Analysis of patterns of subsidence in APRIL plantations on peat for internal discussion and

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	<p>the meeting.</p> <p>Draft research paper outlines were reviewed, and it was agreed that a first paper should focus on reporting average rates of subsidence, along with the factors causing spatial variation in these rates. A second paper will examine temporal variations in subsidence in greater detail.</p> <p><b>Action:</b> It was agreed by the team to target submission of the first paper to a suitable peer-review research journal by January 2018 with the second paper within the following couple of months.</p>	<p>subsequently for further dissemination</p>
<p><b>D1. Subsidence and carbon balance</b></p>	<p><b>Action D1.3 a, b, c - GHG flux data:</b> Preliminary data trends for the 3 Eddy Co-variance Flux Towers were reviewed, noting the diurnal flux patterns and the trend towards increasing carbon uptake into tree biomass at the 7 month old Acacia plantations and the emerging differences between the 3 ecosystem types i.e. plantations, conservation areas/natural forests, mixed landscape.</p> <p>The review included the differing soil microbial respiration emission relationships over time (different plantation rotations). This trend requires qualifying the peat soil characteristics and continued thorough analysis.</p> <p><b>IPEWG recommends</b> for APRIL to consider publishing a series of short research papers on the flux data trends starting in 2018, rather than waiting for the full 5 year plantation rotation period.</p>	<p><b>Output D1.3</b> Support for optimal data collection and analysis from APRIL's 3 Flux Towers</p>
<p><b>D2. Water table management and hydrology</b></p>	<p><b>Action D2.2a:</b> The Water Table (WT) trial project team has agreed to establish a 30-50-70cm Water Table trial in a peatland plantation area, for a 5 year period. Discussions of logistics were held at the proposed trial site, so that all involved could inspect current peatland plantation conditions. The water management control structure plan surrounding the site in order to maintain the 3 target WT levels was reviewed. Soil pits and plantation inventory yield plots have been established prior to plantation harvest, to provide background information. Once the site is established by mid-2018, the trial areas are large enough to allow for additional (differing) trials to also be established.</p> <p><b>IPEWG recommends</b> that APRIL should aim for 30, 50 and 70 cm as the target mean water table depths. Since the water level treatments cannot be replicated at the plantation scale, this should not be the sole focus of the trial; consideration should be given to setting up embedded, replicated experiments to test the effects of measures aimed at maintaining yields at higher water levels, such as nutrient amendments to maintain growth, and changes in stand density/management to reduce mortality.</p>	<p><b>Output D2.2</b> Improved understanding of options for and impacts of managing water tables</p>
<p><b>D2. Water table management and hydrology</b></p>	<p><b>Action 2.3:</b> The Lysimeter Trial location was shown during the field visit. This trial is considered to be complementary research to the Water Table trial described above and will be closely observed by the IPEWG.</p> <p><b>IPEWG recommends</b> that APRIL seeks to encourage collaborative research to make use of this innovative experimental facility, e.g. on GHG flux measurements, and that it develops a policy on data sharing to support these collaborations.</p>	<p><b>Output D2.3</b> Improved understanding of Ground Water Table on Tree Water Use and Growth Rates</p>

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<p><b>D3. Growing Trees on Wetter Peat</b></p>	<p><b>Action D3.2:</b> R&amp;D hosted a visit to the Native Species Nursery in Pelalawan and introduced the consulting dendrologist who has spent the past few months cataloguing the existing native species within the nursery and helping with the expanding collection of additional tree species from natural forest areas.</p> <p>The Alternate Species Project objective is to determine alternative species to Acacia, that are most adaptable for good growth in peatland conditions and to develop appropriate propagation and silviculture techniques. Selections are to be tested as potential alternatives to Acacia for plantations on wetter peat and also as candidates for restoration and rehabilitation areas.</p> <p>Number of identified candidate species: 50</p> <p>Species currently being propagated in Nurseries: 36</p> <p>Current stock of native species in APRIL Nurseries: 251,000 plants</p> <p>Species Selection Trials:</p> <ol style="list-style-type: none"> <li>a. &lt;1 year old: 2 trials of 12 species (4 replications, high water table)</li> <li>b. 5 years old: 1 trial of 17 species (4 replications, current water table)</li> <li>c. 9 years old: 1 trial of 4 species (4 replications, current water table)</li> </ol> <p>IPEWGW noted the need for standardized data collection and growth performance information collection, monitoring and analysis.</p> <p><b>IPEWGW recommends</b> the inclusion of a workstream on alternative species in phase 2 which will focus on supporting acceleration of the program with a view to establishing larger-scale high WT field trials in conjunction with assessment of wood pulping properties. Protocols for restoration/rehabilitation activities will be developed including synergy with RER activities.</p>	<p><b>Output D3.2</b> Plan for establishment of a large R&amp;D program on water-tolerant species</p>
<p><b>D4. Fire</b></p>	<p><b>Activity D4.1 – review existing data on water table and hotspots</b></p> <p>Key findings for this work stream were reported previously by APRIL – in summary, there does not appear to be any strong correlation between water table depth and fire. Limited evidence discussed suggests the main correlation is with soil moisture rather than simple water table depth, and that rapid response to fire is an equally important factor. This clearly has crucial implications for reducing fire, a high priority for the Indonesian government as well as APRIL. Therefore, it would be useful to collect more evidence and discuss more widely.</p> <p><b>IPEWGW recommends:</b> APRIL to consider a workshop to combine and share the data and analysis with a wider range of stakeholders; and to publish a public summary of the findings.</p>	<p><b>Output D4.1</b> Preliminary analysis showing degree of correlation between fire indicators and water table in APRIL concessions</p>
<p><b>D6. Natural forest condition and management</b></p>	<p><b>Activity D6.2a,b</b> APRIL provided a brief update on the Conservation Forest Management program including the introduction to their new Landscape Manager who is responsible for the rollout of the management framework to field staff over the next 6 months. The methodology and the approach to practical implementation were discussed; IPEWGW members were impressed with the progress made and the systematic approach to engaging field staff and ensuring local ownership of the conservation approach.</p> <p><b>IPEWGW recommends:</b> APRIL establish priorities for rollout, noting APRIL's</p>	<p><b>Output D6.2</b> Effective management of remaining natural forest</p>

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	intention to apply this initiative to suppliers, based on adjoining forested peatland areas; and requests APRIL to share information on the program with the wider stakeholder community during deployment.	
<b>1.2 Resource Mapping</b>	<p><b>1.2.1b</b> – Develop DEMs and other outputs The current data acquisition strategy prioritizes LiDAR by the proportion of area of Peat Dome within a defined watershed. APRIL learned from the 2017 PPD LiDAR project that the precision provided by LiDAR-acquired data is only required for the Digital Terrain Models within a hydrological model. Areas without the immediate need for modeling can utilize satellite and land survey data sources at significantly lower costs.</p> <p>As a result, APRIL’s approach to LiDAR is under review, and with changing technology, opportunities for utilizing UAV’s to map critical areas, rather than landscape areas, may provide the most benefit.</p> <p><b>1.2.2a</b> – Review of LiDAR outputs The quality control verification of the LiDAR survey is complete, confirming the contract standards were met by the vendor.</p> <p>The technical team continues developing DEMs from the collected LiDAR data for use within specific projects.</p> <p><b>IPEWGW recommends</b> sharing the data with external parties within Indonesia, i.e. BRG, Universities, etc. and reiterates the importance of sharing APRIL’s growing expertise and learning on LiDAR with Indonesian practitioners</p>	<p><b>Output 1.2.1</b> Build understanding of peat and forest resources</p> <p><b>Output 1.2.2</b> Develop greater capacity among practitioners and users of resource mapping information</p>
<b>1.4 Clear Communication</b>	<p><b>1.4.1</b> – IPEWGW to work with APRIL to help ensure clear understanding of the science underpinning responsible peatland management and to improve communication of the work of IPEWGW and APRIL on peatland management</p> <p><b>Action:</b> IPEWGW is currently working on a separate report, reviewing the results of its first 2-year period working with APRIL, and where focus is required going forward into 2018. This report will be made available by the end of January, 2018.</p>	<p><b>Output 1.4.1</b> Communication on the Roadmap; challenges of peatland; and science-based approaches.</p>
<b>Component 2 - Responsible Peatland Operations</b>		
<b>2.2 Modeling plantations and landscapes</b>	<p><b>2.2.1</b>– Develop, test and refine models which will allow predictions to be made of the impacts of different management strategies for (a) responsible management and (b) a new vision for peat landscape management.</p> <p>Review and discussion of the Plantation Model resulted in agreement for a 2-day workshop to develop a series of scenarios reducing WT depth and GHG emissions levels, while calculating the potential management costs and benefits of doing so.</p> <p><b>Actions:</b></p> <ol style="list-style-type: none"> <li>1) A workshop outline is to be specified and a date agreed in order to develop, review and discuss the costs, benefits and likelihood of modelled scenarios on operational management.</li> <li>2) Incorporate the MIKE-SHE hydrological modeling project within the workshop to provide participants with the full overview of how the 2 modeling approaches differ and complement each other.</li> </ol>	<p><b>2.2.1</b> Model which can be used to predict the implications of different management strategies</p>
<b>2.2 Modeling</b>	<b>2.2.2</b> – Drainability and flood risk assessment / mapping	<b>Output 2.2.2</b>

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<p><b>plantations and landscapes</b></p>	<p>APRIL provided an update on the hydrological modeling project initiated in PPD with the MIKE-SHE software.</p> <p>The parameterization will continue until mid-2018 and will include hydrological porosity and % Moisture Content. This system will provide a thorough understanding of watersheds for resource management.</p> <p><b>IPEWGW recommends</b> APRIL work together with the Plantation Model to build synergies for added value; and consider a collaborative publication to put this information into the public domain.</p>	<p>An understanding of the areas of peat at greatest risk from subsidence and the timeframe for changes</p>
<p><b>Component 3 – Developing a Vision for Peatland Landscapes</b></p>		
<p><b>Senior Management Discussions</b></p>		
<p><b>3.1 Development of a strategic vision</b></p> <p><b>Peatland Regulations Update</b></p> <p><b>IPEWGW Tenure</b></p> <p><b>Engagement</b></p>	<p>APRIL reviewed its draft Peatland Vision with the IPEWGW to solicit feedback. IPEWGW will provide inputs towards year end and early in 2018.</p> <p>APRIL provided an update on the status of its RKU revision process with the MOEF, responding to concerns raised by IPEWGW of reports in the press that APRIL is ‘suing the government’.</p> <p>Several revisions have been submitted but none have been accepted, and on October 16<sup>th</sup> APRIL received a formal letter cancelling the current RKU, which was widely reported and discussed with IPEWGW at the time. In response to concern about job losses, the Ministry clarified with APRIL that operations could continue except for replanting in peatland areas identified in the Ministry’s (FLEG) map, pending approval of a revised RKU. However, this was only communicated verbally and the current legal case is a process to get this confirmed formally, preferably by cancelling the original letter, in order to ensure the continued legality of operations. APRIL management stressed very strongly that they are committed to finding cooperative solutions with the MOEF and the company’s perspective is that the current case was not undertaken to challenge them but rather to ensure legal clarity for the company.</p> <p>IPEWGW urged the company to find collaborative solutions which support the work of the Ministry to ensure the best possible management of Indonesia’s peatlands in the long term.</p> <p>APRIL confirmed its wish to extend the IPEWGW’s initial two-year term, ending December, 2017 for another two-year period – see further notes below. A progress review of the ‘Phase I’ work is underway and will be made available in early 2018.</p> <p>OBSERVERS – the IPEWGW discussed a request to allow observers to attend its meetings. Although open to observers in principle, the IPEWGW is currently transitioning to a new structure in Phase II starting in 2018 and are not yet sure of where or how observers might fit in with the workstream-focused meeting style.</p>	<p><b>Output 3.1.1</b></p> <p>Understanding of the views and aspirations of different local, national and international stakeholders with respect to peatland management</p>

