

Implementing APRIL's 4Cs on Peatland

APRIL-IPEWG Peatland Roadmap

Version 3.2, June 2017

The Independent Peatland Expert Working Group (IPEWG) was established to support APRIL by providing science-based information and recommendations on the practical implementation of its obligations, policy commitments and 4Cs philosophy (Good for Community, Country, Climate and Company) in peatland. This document was developed by IPEWG and discussed and agreed with APRIL management to provide a framework for IPEWG to undertake this work with APRIL. The Roadmap and accompanying Workplan are living documents which are regularly reviewed, revised and updated by IPEWG.

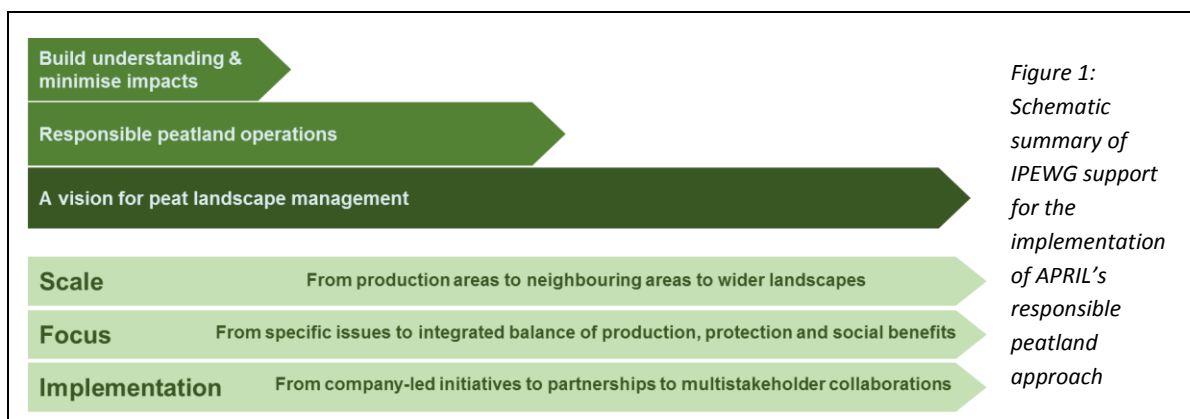
IPEWG will work collaboratively with APRIL to support the development of a peatland management strategy for all APRIL and supplier concessions, made up of three components, providing a roadmap to full implementation of the APRIL commitments to community, country, climate and company in peatlands:

Component 1: **Science-based understanding and minimising impacts:** an immediate priority is building a robust scientific understanding to underpin the further development of the APRIL approach to responsible peatland management: minimising the negative impacts of production on peat, protecting remaining forest areas and preventing fire within the landscape.

Component 2: **Responsible peatland operations:** the focus is on the implementation of the evolving APRIL approach to responsible peatland operations, designed to minimise fires, optimise yields, improve community livelihoods and minimise subsidence, oxidation and APRIL's carbon footprint for existing production on peat, while also working in partnership with other stakeholders to develop a long-term vision for peat landscape management.

Component 3: **The vision for peatland landscapes:** the goal is the full implementation of a vision for peatland landscapes based on a combination of responsibly-managed production, increasing use of water-tolerant species, restoration and rehabilitation, and protection of all remaining forest in collaboration with other stakeholders, to deliver a balance between production, protection and social development without further loss or degradation of peat.

A summary of IPEWG work for each component is provided on the following pages while the detail of IPEWG actions and outcomes is in the IPEWG Workplan.



IPEWG Workplan Overview

Version 3.2, June 2017

The IPEWG Roadmap and accompanying Workplan are living documents which will be used to plan, track and review activities and actions of the various IPEWG scientists and APRIL staff as well as build discussion and collaboration with other stakeholders.

The overview below sets out the objectives of the different work streams, providing a brief background, explaining what IPEWG is aiming to achieve and summarising the approach being taken. Details of the activities within each work stream are set out in the workplan, while information on progress and outputs is provided through IPEWG meeting summaries, briefings and, eventually, scientific publications.

Roadmap Component 1: Building understanding and minimising impacts

Work stream 1.1 Data collection and analysis

Objective: To ensure that all APRIL's activities on peat, including both current operations and new and evolving approaches, continue to be underpinned by the best possible science and understanding.

Approach: APRIL already has a large amount of good data coming from (a) its existing research programmes and (b) large databases of plantation data which are collected routinely by operations. For each topic identified by IPEWG as important for understanding APRIL's peatland landscape and activities, data are being analysed and reviewed, together with other published data from peatlands. Where gaps are identified, additional studies will be agreed on in order to try to fill the gaps. The scope of topics IPEWG is currently working on are:

D1. Subsidence and carbon balance: A key challenge in managing plantations on peat which use drainage to lower the water table is the oxidation of the unsaturated peat which results in subsidence and the release of CO₂, a greenhouse gas (see D5 below). Understanding and minimising oxidation and subsidence is central to responsible management. APRIL has a large amount of good quality subsidence data and is also actively collecting greenhouse gas flux data (using flux towers and ground chambers). Analysis of this data will improve the understanding of the outcomes of current operations and alternative management approaches, as well as peat carbon balance, and future viability of production at the landscape scale. Field trials are being established to examine the potential to reduce subsidence and carbon loss under Acacia plantation.

D2. Hydrology and water table management: In natural peat swamp forests the vegetation is adapted to growing with roots in a near-permanently flooded environment. Regulated drainage-based peatland management lowers and manages the water table so that species which cannot tolerate permanently saturated roots can be grown. Understanding the implications of different water table depths on crop growth and survival, peat subsidence and moisture content, fire and nutrient availability is very important. Furthermore, peatland formations have a complex hydrology which can extend over large areas in the landscape with water moving laterally over

considerable distances. Therefore, understanding the hydrology, and how it is affected by plantation operations, is essential for good water management.

- D3. Growing trees on wetter peat:** Maintaining the water table at a higher level reduces oxidation and subsidence, but may impact the growth and survival of plantation species like Acacia. Finding traits within either existing plantation families or new species which can grow well on wet peat is important to improve plantation productivity while maintaining higher water tables. Slower peat oxidation also has implications for nutrient availability which needs to be better understood.
- D4. Fire:** Forest fires and the resulting haze have been one of the biggest environmental issues in SE Asia over the last decade. Indonesian government policy is now strongly focused on addressing this problem and has particularly targeted peatland forest since it is not only the forest, but also the peat that can burn. APRIL has a programme to manage fire within its own and supply partners' concession areas which to-date is proving successful. Analysis of fire data generated will be helpful in understanding the main factors that increase and decrease the incidence and the severity of fires, which is important for addressing fire in the wider landscape.
- D5. Greenhouse gases:** Peatlands contain huge stores of carbon which are released to the atmosphere if the peat oxidises (see D1 above) or burns (see D4 above). The main gas emitted by oxidation and burning is carbon dioxide (CO₂), but other greenhouse gases, particularly methane (CH₄) and nitrous oxide (N₂O) are also produced from components of the plantation landscape including some alternate species which can grow on wetter peat (see D3). Understanding the fluxes of these gases is important for understanding peat oxidation, quantifying impacts on climate, and developing effective mitigation measures to reduce plantation impacts.
- D6. Natural forest condition and management:** Maintaining large areas of natural peat swamp forest is crucial to maintaining the hydrology of peatland landscapes, as well as protecting biodiversity and peat carbon stores. APRIL is committed to a 1:1 ratio of protection to production forest, and has exceeded this commitment for peatlands through a combination of two large conservation programmes: (i) Riau Ecosystem Restoration (RER) on the Kampar Peninsula and Pulau Padang and (ii) the setting aside of many smaller conservation peat swamp forest areas within the wider landscape. Continued research on these areas will help to answer questions about how to maintain the overall health of a peatland and their ecosystem function.
- D7. Social issues and community development:** An understanding of communities and of socioeconomic impacts needs to be central to any vision of peatland management, so any scientific work on peatland management needs to be framed within the social context.

Work stream 1.2 Resource mapping

Objective: Build the best possible understanding of the peat and forest resource across APRIL and supplier concessions and affected landscapes.

Approach: APRIL production and ecosystem restoration concession areas cover around 1 million hectares, located within a landscape that is many times larger and full of complexity. A good

understanding of this resource will provide the foundation for all other work. Currently, technologies to map and analyse landscapes are evolving very fast. The IPEWG will support APRIL in identifying and using the best combination of technologies, techniques and analysis, including collection and analysis of LiDAR data as well as satellite data, aerial photography and ground surveys and assessments to build a comprehensive understanding of their fiber supply base and the landscape in which it is located.

Work stream 1.3 Managing impacts of activities in existing concessions

Objective: To recognize and mitigate the impacts of current peatland management in the short term while improved approaches are developed, tested and implemented.

Approach: IPEWG will support APRIL to understand and mitigate the risks of any new operations on peat, noting that currently there is a moratorium on any further development on peatlands. Should this change, APRIL, per its Sustainable Forest Management Policy 2.0, will ensure that any plans for activities are discussed with IPEWG and the APRIL Stakeholder Advisory Committee, including clarity about why they are needed, the intended use and the potential impact. Activities should continue to be guided by the precautionary principle so if there is a risk of negative impact there is no further activity until plans are in place that will satisfactorily mitigate the impact. In the meantime, APRIL will continue to actively protect its concessions from encroachment and fire. The IPEWG will also be kept informed of any substantive new information or engagement and/or agreements with government and other key stakeholders relevant to peat to ensure integration of science and policy.

Work stream 1.4 Clear communication

Objective: As both government and APRIL revise their approach to peatland management, it is crucial that there is clear communication internally and externally about the process set out in this roadmap, progress being made, challenges identified and the science underpinning the approaches to address or mitigate these challenges.

Approach: With input from IPEWG, APRIL will develop and implement a systematic approach to (a) presenting science and data, (b) discussing the development of the approach, and (c) communicating externally to stakeholders in a systematic, constructive and positive manner.

Roadmap Component 2: Responsible peatland operations

IPEWG is working with APRIL to further develop best management practices for existing operations on peatland which address both the plantations themselves and the effects of operations on the wider landscape. Central to this is improved understanding of peatland hydrology and the impacts of water table management on hydrological functions across the wider landscape.

Work stream 2.1 Reviewing and improving Best Management Practices (BMPs)

Objective: Support APRIL in using science-based BMPs which maximise peatland sustainability and fiber productivity while minimising subsidence, GHG emissions and fire. This includes developing and implementing approaches for areas which need to be restored or rehabilitated, protecting remaining natural forest and delivering best possible water management options.

Approach: There are three elements to the work on improving BMPs: (a) IPEWG and APRIL staff working together to review operational approaches in light of the results of research and data analysis (Component 1), and using these results, further informed by new information (e.g. simulation models - see 2.2 below), to see where it is possible to improve or innovate management practices (e.g. varying water table levels, optimizing nutrient/oxidation balance, subsidence mitigation strategies, etc); (b) IPEWG and APRIL staff reviewing current management of conservation forest areas to see where it is possible to improve management; and (c) in parallel with (a) and (b), APRIL to engage in practical discussions with technical experts from NGOs and companies implementing responsible production on peat for crops such as oil palm or managing conservation and restoration areas, to provide peer-to-peer review of current practices and suggestions and ideas for improvements.

Work stream 2.2 Modelling plantations and landscapes

Objective: Develop a model to allow predictions of the impacts of different management strategies to inform thinking about which approaches are most promising and the trade-offs between different factors.

Approach: Finding optimum strategies for peat management requires consideration of the interaction between many different factors (water table depth, nutrition, rotation length, yield and productivity, species, etc). To test every combination in the field is not feasible as the costs and time required would be enormous. By developing simulation models, different combinations of these variables can be considered and a reasonable prediction of the outcome made, so that only the most promising combinations are trialled in practice.

Work stream 2.3 Monitoring

Objective: A mature monitoring system which provides information that allows water, subsidence, emissions and fire dynamics to be understood across landscapes and across time, and that can be fed into models which allow adaptive management decisions to be made in an informed way.

Approach: IPEWG will work with APRIL staff to review current monitoring systems, and make recommendations for any changes or additions needed to fill gaps or improve data quality or to improve the use of the data once collected. Detail of the various areas where data is required is summarised in Component 1.

Roadmap Component 3: Support for the development of a vision for managing peat landscapes

The future approach to peatland management must be equally adapted to both the reality of peatland dynamics and to the socioeconomic context of Indonesia. It needs to be developed through collaboration with all relevant stakeholders, building on the approaches already being discussed and developed by the Indonesian government, NGOs, academics, and other oil palm and fibre production companies as well as APRIL, its Stakeholder Advisory Committee (SAC) and the IPEWG. It should aim for a fully functional, biodiverse, flourishing and stable peatland environment which provides livelihoods for local communities and a secure fibre supply for APRIL.

Work stream 3.1 Development of a strategic vision

Objective: To have a clear, shared vision of what future peatland management should look like and the activities required to implement this.

Approach: The vision for responsible peatland management needs to balance the different social, environmental and economic needs of different stakeholders, and balance priorities across the wider landscape. It must recognize and address the specific challenges of peatlands including fire, subsidence, complex hydrology and GHG emissions, utilise best management practices for plantation operations on peatland and include development of approaches for both production and restoration which deliver a stable and flourishing peatland environment. It should build on the many strengths of APRIL's existing programmes (e.g. development of BMPs for plantation operations, Fire Free Village Program (FFVP), ecosystem restoration (RER), forest conservation programs (1:1 strategy), and community forestry partnerships) but also involve innovation and change where needed. It must promote partnerships and transparency and provide a mechanism to deliver APRIL's 4 Cs - Community, Conservation, Climate and Company - over the long term.

Work stream 3.2 Approaches to address key issues

Objective: To provide the best possible science-based information to inform the process of developing improved approaches to peatland management.

Approach: Several topics have already been identified as crucial to informing the development and implementation of the vision (see Component 1). As information is generated IPEWG will provide input to APRIL on the underlying science and available information to help inform the development of approaches. Where challenges are identified, the information will be used to help inform potential solutions. If further topics are identified these will also be added.

Work stream 3.3 Collaboration

Objective: Increasing collaboration with other actors in the landscape and greater transparency and interaction with other stakeholders to accelerate the successful development and deployment of improved approaches to peatland management.

Approach: IPEWG and APRIL, together with the SAC, are identifying and talking to other actors and organisations including government, companies and NGOs, working on the development and implementation of best practices on peat. The aim is to exchange information and share learnings to accelerate the development and deployment of improved practices for peatland management collaboratively.