Practical guidance for implementing RSPO Principles and Criteria in relation to peatlands

**Decisions for the future** 



Draft for comments and inputs

### Foreword

In April 2013, the Roundtable for Sustainable Palm Oil (RSPO) has adopted a new set of Principles and Criteria (P&C), including various criteria, indicators and guidance for the production of palm oil on peat and the special sustainability issues connected to this. Some of the new P&C relate to existing plantations on peat and others are relevant for the development of new plantations. The new P&C are the result of several years of deliberations and negotiations between the different stakeholders represented in the RSPO, including discussions and results of the RSPO Greenhouse Gas Working Group and the RSPO Peatland Working Group

The new P&C can constitute a major step forward in the development of sustainable palm oil. However, capacity to implement, monitor and audit implementation of the new P&C is still limited. Many of the new requirements demand a high level of awareness of the issues that are being addressed, such as the issues of greenhouse gas emissions and soil subsidence resulting from peatland drainage for oil palm cultivation, and special understanding and expertise to enable appropriate implementation. For some items an "Implementation Period" for learning has been built in, to enable growers to adjust their planning and practices.

This manual has been drafted by Wetlands International to help and stimulate this learning process. The manual is presented to you as a draft to solicit comments, questions and other inputs from all RSPO members and other interested parties who would like to see the new P&C to be implemented in an optimal way. Many of the issues at hand are complex, and the measures proposed will present growers with new challenges. While trying to address the issues we also need to learn about these challenges and share ideas and lessons learned to facilitate an improved understanding and better solutions.

We look forward to working with you on this.

Marcel Silvius Head of Programme and Strategy Wetlands & Climate Wetlands International

### Key back ground reading:

• RSPO Manual on Best Management Practices (BMPs) for existing oil palm cultivation on peat

• RSPO Manual on Best Management Practices (BMPs) for management and rehabilitation of natural vegetation associated with oil palm cultivation on peat • RSPO Methods for determining GHG emissions and carbon stocks from oil palm plantations and their surroundings in tropical peatlands

• RSPO Greenhouse Gas Calculation Tool for the oil palm sector (PalmGHG)

• Peatlands – guidance for climate change mitigation through conservation, rehabilitation and sustainable use

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Draft for comments and inputs post@wetlands.org

Arina Schrier, Marcel Silvius & Aprianto Masjhur Wetlands International, Ede, 2013. www. wetlands.org

design: www.stratforddesign.nl illustrations: Jam Design, Joost Fluitsma

# 1. Important issues to consider when cultivating oil palms on peat



### Peat soils subside when they are drained

Drainage of peatlands soil leads to subsidence of the peat soil. The rate of subsidence can range from 2 to 40 cm per year in tropical peat regions in the first years after drainage (resulting mainly from compaction and shrinkage) and 2 to 5 cm in the following years. To minimise soil subsidence after plantation development, the water table must be kept as high as possible for cultivation of oil palm, but in any case between 40 and 60 cm below the soil surface, over the entire plantation area or between 50 and 70 cm below the surface in the drainage ditches ditches (see Criterion 4.3 of RSPO Principles and Criteria).

### Large parts of Southeast Asia's peatlands will be flooded as a result of soil subsidence

Subsidence of peat soil can lead to flooding of (parts of) the peatland landscape and plantations. Flooding risks will first increase if the peat soil under the plantations subsides to levels lower than the surrounding areas. In areas where the bottom part of the peat layer or the mineral sub soil is below the sea level or river level, flooding will become increasingly problematic as subsidence progresses, with longer periods of flooding and increased flood depth. Long or permanent flooding will occur when the subsidence has reached the drainage limit and the soil has sunk to below the mean sea or river level.

As a first step of Best Management Practice, it is important to slow down the process of soil subsidence as much as possible. Water management in a plantation is therefore very important and site specific, depending on the surface and hydrological features of the plantation. In this regard, it is also important to incorporate the hydrological situation of the



surrounding areas in the design of the drainage construction, as the hydrology of the plantation and the adjacent areas may be directly connected. Specific guidance on development of the drainage construction is given in the '*RSPO Manual* on Best Management Practices (*BMPs*) for existing oil palm cultivation on peat' (*From now on will be referred as BMPs Cultivation*), Chapter 3 (also see Criteria 3.1 and 4.3).

## Peatland fire - a serious problem in Indonesia and Malaysia

When peat soil is drained, the peatland becomes very vulnerable to fire. During a peat fire, large amounts of smoke along with greenhouse gases and aerosols will be released into the atmosphere. This is certainly bad for the health of



people, climate and economy. Peat fires can smoulder underground for periods of weeks to months or even years. In existing plantations on peat, RSPO requires the presence of an advanced fire prevention and control system (Criterion 5.5). In surrounding areas, the fire risk can be decreased to almost zero if the water table is high. This can be realised by blocking or separating the drainage system of the plantation from the undrained surroundings. Section 5.3 of the *BMPs Cultivation* provides specific guidance on fire prevention and control.

## Peatlands emit carbon dioxide when they are drained

Drainage of peat causes high amounts of greenhouse gas (GHG) emissions. To reduce such emissions and minimise the rate of soil subsidence, it is best to keep the water table as high as possible (between 40 and 60 cm below the peat soil surface) and the practice of burning of vegetation on peatland must be avoided (Criteria 5.5 and 7.7). RSPO requires the development and implementation of plans to reduce or minimise emissions (Criteria 5.6 and 7.8). Section 5.4 of BMPs *Cultivation* provides information on how to minimise greenhouse gas emissions from oil palm plantations. RSPO also provides information for determining GHG emissions in the plantation (see 'RSPO Methods for determining GHG emissions and carbon stocks from oil palm plantations and their surroundings in tropical peatlands', 2013).



# Most peat soil becomes unsuitable for agriculture when subjected to long-term drainage

Long-term drainage of lowland peatlands will in many cases render these areas unsuitable for agricultural purposes as a consequence of the inevitable soil subsidence and related flooding and/ or salt water intrusion. To minimise this risk, RSPO requires a drainability assessment, monitoring of soil subsidence and the consideration of a cut-off point well



before agricultural land-use becomes no longer viable (Criterion 4.3). Options for alternative land-uses, such as paludiculture (productive land-use of peat soils without drainage) and guidance on rehabilitation of peatlands are provided in the *RSPO Manual on BMPs for management and rehabilitation of natural vegetation associated with oil palm cultivation on peat* (referred as BMPs *Rehabilitation*) and in Chapter 5 of this booklet.

# Peat swamp forest - High Conservation Value areas

Peat swamp forests are unique and important ecosystems. They play key roles in maintaining water supply, regulating and reducing flood damage. providing fish, giving home to many (rare) animal species, provision of timber and non-timber forest products and storage of large amounts of carbon in the vegetation and in the underlying peat soil. Peat swamp forests are therefore defined as the so-called 'HCV-areas'. Conservation and maintenance of HCV areas is required (Criteria 5.2 and 7.3); no new plantings are allowed that replace high carbon peat swamp forest. Before planting, an HCV assessment by external experts must be performed. If the peat swamp forests are part of a new concession, these swamp forests must be maintained and/or enhanced and protected for biodiversity as described in chapters 3. 4 and 5 of BMPs Rehabilitation.

### Peatlands: Areas to be avoided

In view of all sustainability issues mentioned above, especially the unavoidable GHG emissions and soil subsidence, new plantings on peat should be avoided. As it may sometimes be difficult to detect small peatland areas within larger plantations, RSPO has adopted the principle that extensive planting on peat should be avoided (Criterion 7.4).



# 2. What does the new RSPO P&C mean for growers?

#### New oil palm plantings and re-plantings

Protect, maintain and enhance peat swamp forests that are part of the concession and areas adjacent to it. This means that no new plantings are allowed in peat swamp forests since these are High Conservation Value (HCV) areas. A comprehensive HCV assessment by experts is required before plantation development. This assessment is part of the Social and Environmental Impact Assessment (SEIA) that is required before establishing a new plantation. Peat swamp forests within the plantation and adjacent to the plantation (also wider landscape-level green belts such as wildlife corridors) should be maintained and monitored following the rehabilitation guidance in the RSPO P&C.



**Criterion 7.3**: New plantings since November 2005 have not replaced primary forest or any area required to maintain or enhance one or more High Conservation Values Required documents/products:

 Social and Environmental Impact Assessment

HCV assessment

Avoid new plantings and re-plantings on peat. Drainage of peat inevitably leads to negative impacts (see Chapter 1 of this booklet). Soil surveys and maps (of fragile soils, including peat soils) will provide better insight of the location of peat soils within a concession or plantation. In the case that planting on peat is unavoidable and the peat area to be planted is < 100 ha, prior to (re) planting on peat, a peat *drainability* assessment is required to determine the long-term viability of the necessary drainage for oil palm growing. Where drainability assessments have identified areas unsuitable for oil palm replanting, plans should be in place for appropriate rehabilitation or alternative use of such areas. If the assessment indicates high risk of serious flooding and/or salt water intrusion within two crop cycles, growers and planters should consider ceasing replanting and implementing rehabilitation. Plantations on peat should be managed at least to the standard set out in the BMPs Cultivation (especially water management, fire avoidance, fertiliser use, subsidence and vegetation cover).

**Criterion 7.4:** Extensive planting on steep terrain, and/or marginal and fragile soils, including peat, is avoided

Required documents/products:

- Drainability assessment
- Topographic surveys -> maps
- Soil surveys -> maps (e.g. peat soil and peat depth)

Do not use fire to prepare the land for new plantings and re-plantings, unless there is a specific reason why fire should be used. In that case, the use of fire has to be approved by RSPO and will be tested against the ASEAN Policy on Zero Burning. Burning of biomass and peat may have far reaching effects related to the climate, air pollution and human health.



**Criterion 5.5**: Use of fire for preparing land or replanting is avoided, except in specific situations as identified in the ASEAN guidelines or other regional best practice

### Existing oil palm plantations; management

#### Good Practice is important.

Management of the plantation on peat shall be compliant to RSPO P&C, following the BMPs *Cultivation*. The P&C asks for a

water and ground cover management plan and requires a long-term management strategy for peat soils, particularly in relation to subsidence and flooding. Peat subsidence, peat depth and the plantation's water levels shall be monitored and reported. This is important to ensure the long-term viability of the peat soils. The long-term strategy includes the consideration of a cut-off point for existing oil palm cultivation on the peat. This cutoff point is based on a minimum distance to the drainage base (and thus the best chance to avoid serious flooding), or maximally 2 crop cycles before the drainage limit is reached, whichever is the first.

## **Criterion 4**: Use of appropriate best practices by growers and millers

Required products:

- Water management plan
- Ground cover management plan
- Long-term management strategy for peat soils
- Peat subsidence monitoring data

#### Practice Monitoring and Reporting.

Monitoring of impacts of oil palm cultivation on peat is important to keep track on possible (invisible) changes and to avoid short- and long-term negative effects on people and the environment. An *environmental impact assessment (EIA)* is required for identifying these impacts and it shall be fed into the *management plan*. This *EIA* includes the identification of the impacts of/on:

• All major planned activities, including planting, mill operations, roads and other infrastructure

HCVs

 Adjacent natural ecosystems of planned developments, including whether development or expansion will increase pressure on nearby natural ecosystems

Hydrology and land subsidence

• Surrounding communities of a plantation, including an analysis of potential effects on livelihoods, and differential effects on women versus men, ethnic communities, and migrant versus long-term residents;

GHG emissions

The management plan shall incorporate a *monitoring protocol* to monitor the effectiveness of mitigation measures. RSPO requires a 2-yearly review of the management plan to reflect the results of monitoring positive and negative environmental impacts.

**Criterion 5**: Environmental responsibility and conservation of natural resources and biodiversity

Required products:

- Environmental Impact Assessment (EIA)
- Management plan (2-yearly review)
- Monitoring protocol

#### Mitigate negative impacts.

Where the identification of impacts requires changes in current practices, in order to mitigate negative effects, *a timetable for change* shall be developed. This timetable with mitigation measures shall be implemented within a comprehensive *management plan*. The mitigation measures for peat shall include plans to reduce pollution and GHG emissions, to reduce soil subsidence and to increase water levels within the plantation. Specific guidance on mitigation measures for reducing negative impacts is given in the BMPs *Cultivation* and BMPs *Rehabilitation*. The *RSPO Greenhouse Gas Calculator (PalmGHG)* can be used to explore what the emissions are at a certain point in time, and how they can be reduced.

**Criterion 5.1**: Aspects of plantation and mill management, including replanting, that have environmental impacts are identified, and plans to mitigate the negative impacts and promote the positive ones are made, implemented and monitored, to demonstrate continual improvement

#### Required products:

Timetable for change

### 3. Decisions support tree

### DO YOU HAVE PEAT SOILS IN AND/OR AROUND YOUR CONCESSION AREA?



1. Any kind of development on peat should be avoided at all times (see RSPO Criterion 7.4)



2. Peat areas whose soils are close to the drainage base are required to be rewetted and rehabilitated (see RSPO Criterion 4.3.5)

3. Total area of planting on fragile soil (such as peat soil) within a new development should not be greater than 100ha. Recognising that small growers have fewer options, for the development of 500 ha or less, no more than 20% of the total area should be on fragile soil.

### 4. What is needed to ensure 'best' management and best monitoring operations on peat and to fulfil the requirements of RSPO?

### 1. Mapping of peat soils

The concession area or 'plantation area' has to be defined in terms of latitude and longitude. Changes have to be mapped if they exist during the cultivation/ monitoring period. The location and depth of peat soils within and adjacent to a concession have to be known. Available (most recent) maps, field observations, remote sensing data and other official documentation with a spatial resolution (sampling distance) of 30 m or higher may be used to differentiate peatland from non-peatland and thus to estimate the total area op peat within and adjacent to the plantation area. An example of mapping carried out (by Sime Darby) is given in the section 5.1 of BMPs Cultivation. Soil suitability maps or soil surveys should be appropriate to the scale of operation and they should include information on soil types, topography, hydrology, rooting depth,



moisture availability, stoniness and fertility to ensure long-term sustainability of the development. Soils requiring appropriate practices should be also identified.

### 2. HCV assessment, environmental impact assessment

Peat swamp forests and river reserves form unique ecosystems and they are valuable resources for local communities. By default, these areas are defined as HCV areas. RSPO has experts that are familiar with the reporting requirements of the HCV assessments and environmental impact assessments



for RSPO certification. All HCV reports for RSPO certification should include main elements of a credible and robust HCV report (see the list below), proportionate with the scale and potential impact of the plantation or development (see also section 1.3 of *BMPs Rehabilitation*). It is up to the assessment team to decide how these elements are integrated into the report, logically and legibly. The standard template which the HCV Technical Panel uses for peer reviews of HCV assessments can be found at http://www. rspo.org/en/rspo\_and\_hcv (Also see '*The HCVF Toolkit*' – available from www. hcvnetwork.org).

#### HCV 1 Species diversity.

Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels.

HCV 2 Landscape-level ecosystems and mosaics. Large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance. HCV 3 Ecosystems and habitats. Rare, threatened, or endangered ecosystems, habitats or refugia. HCV 4 Critical ecosystem services. Basic ecosystem services in critical

situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.

**HCV 5 Community needs.** Sites and resources fundamental for satisfying the basic necessities of local communities or indigenous peoples (for livelihoods, health, nutrition, water, etc.), identified through engagement with these communities or indigenous peoples.

**HCV 6 Cultural values**. Sites, resources, habitats and landscapes

of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/ sacred importance for the traditional cultures of local communities.

### 3. Drainability assessment, determination cut-off point

A drainability assessment should be provided prior to oil palm planting on peat and at regular intervals during oil palm cultivation. The results of drainability assessment give, for example, insight of the longer-term drainage potential of the peat soils. The results will indicate the potential lifespan of the plantation in relation to soil subsidence impacts and future potential uses. Where drainability assessments have identified areas unsuitable for oil palm replanting (peat soils that subside may lose their potential for gravity drainage), plans should be in place for appropriate rehabilitation or alternative use of such areas. The decisions support tree poster in the middle of this booklet provides guidance on the steps to take. Areas without drainage problems will have a positive potential drainage depth. (See section 3.6 of BMPs Cultivation).

#### 4. Management plan

A management plan for oil palm cultivation on peat shall be in place. This management plan for peat soils shall at least include a plan for slowing down the peat loss (peat subsidence). Additionally it shall include a water management plan with consideration of RSPO's advice (see also Chapter 3 of *BMPs Cultivation*), a ground cover plan (for slowing down decomposition and thus CO2 emissions and erosion), a management plan for peat swamp forest within and surrounding the concession area (e.g. relevant wider landscape-level considerations, such as conservation of forest and wildlife corridors), plans for maintaining and/ or enhancing high biodiversity within and surrounding the plantations, green belts and corridors along rivers (section 1.4 of BMPs *Rehabilitation*) and a plan for reducing greenhouse gas emissions. Appropriate measures that are expected to reduce negative impacts shall be implemented through the management plan and where a management plan; has been created, there shall be ongoing monitoring in which the results shall be fed back to the management plan. Progress on reducing impacts shall be reported regularly. The RSPO greenhouse gas calculator (PalmGHG) can be used to calculate emissions and resulting emissions reductions (www.rspo.org).

## 5. Management strategy for peat soils, including long-term strategies

A long-term management strategy for oil palm cultivation on peat shall be in place. This management strategy for peat soils shall at least include 'future planning': what is the distance to drainage base (output from the drainability assessment), what is the subsidence rate in the plantation, how will the water management be improved and when to consider stopping cultivation of oil palm on peat. In addition, strategies for appropriate rehabilitation or plans or alternative use of such areas should be in place. *BMPs Rehabilitation* provides information on rehabilitation options and 'wet' agriculture (paludiculture and other undrained land-use practices). See also the Decisions Support Tree (Chapter 3 of this booklet) which can be used for long term strategic planning.

### 6. Annual replanting programme

An annual replanting programme is required and projected for a minimum of five years for mineral soils. For fragile soils such as peat soils (particularly in regards to the long-term process of subsidence and related flooding risks), a longer term replanting programme is necessary. This annual replanting scheme shall, with yearly review, be available and it should include an evaluation on economic and financial viability through long-term management planning.

### 7. Monitoring of soil subsidence

Soil subsidence shall be measured by installing (steel) poles into the peat. These poles have to be anchored deep into the mineral sub-soil (minimum of 50 cm) beneath the peat layer in order to obtain



a fixed base. A laver of concrete (or another permanent marker) can act as a marker of the initial soil surface height. An area of 2m x 2m should be securely fenced around each subsidence pole to prevent disturbances that could lead to inaccurate readings. Subsidence poles should be installed at a rate of at least one and preferably two (for control) in each major block of an estate (in representative locations). More subsidence poles may be required to measure subsidence in plantations with varying peat qualities, depths and drainage circumstances. Each year the subsidence of the peat can be marked on the subsidence pole or recorded elsewhere. The results have to be reported to RSPO. Section 2.4 of BMPs Cultivation provides more background information on peat subsidence and its monitorina.

#### 8. Monitoring of water table

To determine groundwater elevation above mean sea level or river level, use the following equation:

#### $\mathbf{EW} = \mathbf{E} - \mathbf{D}$

where: EW = Elevation of water above mean sea level (m) or river level E = Elevation above sea level or river level at point of measurement (m) D = Depth to water (m)

The water level in canals, drains, rivers, stream and other open water bodies relative to the soil surface can be determined with a simple ruler.

#### WATER LEVEL MANAGEMENT



For measuring the groundwater elevation relative to the soil surface, a piezometer can be installed. Different techniques could be used to measure the groundwater level in the field within the piezometer or well.

### 9. Greenhouse gas emission reduction plan

A plan for greenhouse gas emission (GHG) reductions shall be in place. The RSPO greenhouse gas (GHG) emissions calculation tool (PalmGHG) has been developed to help the palm oil producers to estimate the net greenhouse gas emissions produced during palm oil cultivation and the reductions they could gain by following a certain measure. It has to be noted that although Best Management is being practiced, GHG emissions cannot be reduced to zero unless the area is being rewetted and rehabilitated. The guidance document for the GHG tool is being made available for free for interested users (http://www.rspo. ora/file/RSPO\_PalmGHG%20Beta%20 version%201.pdf). PalmGHG can be downloaded upon request at: http://www. rspo.org/en/rspo palmghg calculator.

### 5. Options for alternative use

# Commercially undrained land-use (e.g. paludicultures)

Paludicultures are land management techniques that cultivate commercially interesting crops on wet or rewetted peatlands under conditions that maintain the peat body, facilitate peat accumulation and sustain the ecosystem services associated with natural peatlands. Paludiculture will help to reduce or stop peat oxidation and simultaneously provide sustainable productivity from peatlands. It requires species that are adapted to growing under very wet circumstances, such as the indigenous peat swamp forest tree species. Some well-known native and commercially interesting tree crops are Jelutung (Dyera sp) which produces latex and Tengkawang (Shorea spp) which produces seeds with high quality oil. Over 500 native plant species are known from Southeast Asian peat swamp forests with potential for commercial uses. Aquaculture of indigenous fish species can be another attractive land-use option and offer economic incentives in areas where many drainage canals must be blocked for hydrological restoration. In



addition, combinations and/or land-uses that are independent of the soil or water, such as chicken farming may also be considered. Maintaining and rehabilitating peat soils and peat swamp forests will contribute to a positive carbon balance of the mill and may provide options for carbon credit sales on the voluntary carbon market.







### Peat swamp forest rehabilitation projects

The stage of degradation of a peat swamp forest area needs to be identified before starting rehabilitating/restoring an area. It is good practice to systematically perform field work which should involve not only recording species composition/ structure/ densities, but also other parameters such as peat depth and composition, nutrient availability and site hydrology. Rehabilitation involves rewetting of the peat by blocking of canals (to restore near natural hydrology or keep the water table as close as possible to the soil surface). In addition, it requires the re-establishment of a permanent cover of vegetation (either natural or in the form of a paludiculture plantation), using native or local species. Some areas may be naturally

recolonised by native species, but others may require active reintroduction and replanting. Rehabilitation and restoration can contribute to pest reduction as it enhances overall biodiversity including occurrence of natural predators of pest species. BMPs Rehabilitation provides 1) BMPs on management of existing peat swamp forest areas within or adjacent to the plantations and 2) BMPs on the rehabilitation of peat swamp forests in degraded sites 3) Approaches for overcoming factors that may limit the rehabilitation of peat swamp forest. Various ways of financing restoration and rehabilitation projects are listed in 'Peatlands - guidance for climate change mitigation through conservation, rehabilitation and sustainable use. Chapter 3'.

#### References

FAO and Wetlands International, 2012. Peatlands – guidance for climate change mitigation through conservation, rehabilitation and sustainable use (second edition). Eds. Joonsten, H., Tapio-Biström, M-L, and Tol, S. FAO, Rome Also available at: http://www.fao. org/docrep/015/an762e/an762e.pdf

RSPO, 2012. RSPO manual on Best Management Practices (BMPs) Practices (BMPs) for existing oil palm cultivation on peat. Eds. K. H. Lim, S. S. Lim, F. Parish. & S. Rosediana. RSPO, Kuala Lumpur.

RSPO, 2012. RSPO manual on Best Management Practices (BMPs) for management and rehabilitation of natural vegetation associated with oil palm cultivation on peat. Eds. Parish, F., Lim, S.S., Parumal, B., Giesen, W. RSPO, Kuala Lumpur. RSPO, 2013. Environmental and social impacts of oil palm cultivation on tropical peat – a scientific review. Schrier-Uijl, A.P., Silvius, M., Parish, F., Lim, K.H., Rosediana, S., Anshari, G. In press.

RSPO, 2013. Methods for determining greenhouse gas emissions and carbon stocks from oil palm plantations and their surroundings in tropical peatlands. Schrier-Uijl, A.P., Anshari, G.Z. In press.

RSPO, 2012. PalmGHG: A Greenhouse Gas Accounting Tool for Palm Products. Chase, L., Henson, I, Abdul-Manan, A.F.N., Agus, F., Bessou, C., Canals, L.M., Sharma, M. (online) available at: http://www.rspo.org/file/RSPO\_ PalmGHG%20Beta%20version%201.pdf.

### Wetlands International's View

Peatlands are important natural ecosystems with high value for biodiversity conservation, climate regulation and human welfare. Degradation of peatlands is a major and growing source of anthropogenic greenhouse gas emissions, contributing 6% of all global emissions and almost one quarter of carbon emissions from the land-use sector.

Many peatlands are located in low-lying coastal zones. Drainage of these areas inevitably results in the compaction and oxidation of the peat, a process that continues until the peat layer is finished or until the drainage limit is reached. Some countries with a long history of peatland drainage already experience the long-term consequences of this. In the Netherlands over one-third of the country lies below sea level as a result of peat soil subsidence; some areas as low as 6 to 8 meters below the sea. Still drainage has continued using pump-operated systems, but this also requiring the development and maintenance of major and expensive systems of dikes to prevent flooding. It is questionable if this is feasible in the wet tropical rural peatland areas of Southeast Asia, both in an economic sense and practically, considering the extensive areas involved and the huge quantities of water from precipitation. The expected sea level rise from climate change, partly fuelled by peatland degradation, will only exacerbate the problems.

Therefore, Wetlands International advocates the wise use and conservation of peatlands. This can involve paludiculture (the productive use of undrained peatlands) but also conservation and restoration, ensuring the long-term provision of the various ecosystem services such as carbon storage, water regulation, supply of food (including fisheries) and building materials, and maintenance of biodiversity.

Often we only start to value these services once they have been lost. For many peatlands it is not yet too late. Priority should be on the conservation of remaining natural peatlands. Secondly, degraded peatlands should be managed and restored as integral part of sustainable and integrated landscape management.

There is an urgent need to strengthen awareness, understanding and capacity to manage peatlands wisely. It will require a paradigm shift from current unsustainable practices to conservation and sustainable use. We hope that this manual will receive inputs from many stakeholders, and that a further developed version can be presented soon to the RSPO. Enhanced awareness and capacity is also and particularly needed in the wider palm oil sector and governments that should provide for a level playing field for responsible industry. Let us work together for a more sustainable palm oil sector, sound economic development and the conservation, rehabilitation and management of peatlands as part of sustainable landscapes.

#### Mission:

To sustain and restore wetlands, their resources and biodiversity for future generations. This Practical guidance for implementing RSPO Principles and Criteria (P&C) in relation to peatlands is presented to you as a draft to solicit comments, questions and other inputs. Feedback is welcome from all RSPO members and other interested parties who would like to see these new P&C to be implemented in an optimal way. Many of the issues at hand are complex, and the measures proposed will present growers with new challenges. While trying to address the issues we also need to learn about these challenges and share ideas and lessons learned to facilitate an improved understanding and better solutions.

For more information, please contact: Marcel J. Silvius - Head of Programme and Strategy (Wetlands & Climate) Tel: +31 318 660924 E-mail: Marcel.Silvius@wetlands.org Website: www.wetlands.org



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