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

5

MITIGATION OF CLIMATE CHANGE IN AGRICULTURE SERIES

Second edition

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MICCA

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MITIGATION OF CLIMATE CHANGE IN AGRICULTURE SERIES 5

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

Second edition

Hans Joosten, Marja-Liisa Tapio-Biström & Susanna Tol (eds.)

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Executive Summary

Peatlands provide many important ecosystem services, including water regulation, biodiversity conservation, and carbon sequestration and storage. To safeguard these services and mitigate climate change, these highly sensitive areas should be protected from further degradation. Peatlands and organic soils contain 30 percent of the world's soil carbon but only cover 3 percent of the Earth's land area. Fifteen percent of peatlands are drained and used for agriculture, grazing, peat mining and forestry, especially for bioenergy plantations. Including emissions from peat fires, these drained peatlands emit almost 6 percent of anthropogenic CO_2 emissions. This represents almost 25 percent of emissions from the entire land use, land use change and forestry sector. Once the peat carbon is lost, the losses are virtually irreversible. Peatland conservation, restoration and improved management are low-hanging fruit for climate change mitigation.

This report provides information on management and finance options to achieve emissions reductions and enhance other vital ecosystem services from peatlands. A decision support tree guides users through options for the management of both cultivated and uncultivated peatlands. The report also summarizes the methodologies and data available for quantifying greenhouse gas emissions from peatlands and organic soils. Practical approaches are presented concerning measuring, reporting and verification, and accounting of greenhouse gas emissions. Country-specific case studies illustrate the problems, solutions and opportunities associated with peatland management. This report is a handbook for policy-makers, technical audiences and others interested in peatlands.

10 elements of strategic action:

1. **Identify occurrence and status** (pristine, drained, abandoned, under productive use) of all peatlands worldwide.
2. **Improve assessment** of greenhouse gas emissions from peatlands. Improve methodologies for measuring, reporting and verifying (MRV).
3. **Conserve** all reasonably intact peat swamps.
4. **Prevent** further degradation of already degraded peatlands through a range of activities, including:
   - halting the intensification of artificial drainage in already drained areas;
   - installing hazard monitoring and mitigation schemes to avoid and restrain uncontrolled fires and soil erosion;
   - halting the expansion of agricultural practices that require drainage (shift land use activities currently carried out on peatlands, such as oil palm and pulpwood plantations, to mineral soils and practice paludiculture); and
   - halting uncontrolled, selective and illegal logging.
5. **Restore** degraded peatlands by rewetting, reforesting (in the tropics), and subsequent conservation or paludiculture. Restoration of peatlands reduces emissions, improves water regulation, benefits biodiversity and opens up other income options.
6. **Target** financial resources to peatland conservation, restoration and improved management.
7. **Stimulate and apply** existing and developing climate financing mechanisms on the compliance market (Kyoto Protocol, REDD+, NAMAs), the voluntary market (private sector investment in peatland rehabilitation) and from other sources.
8. **Support** local communities at the earliest stage and stimulate community development to overcome their opportunity costs and dependence on unsustainable peatland use.
9. **Ensure** that greenhouse gas criteria are integrated into credible certification and subsidy schemes for products derived from drained peatlands, including biofuels, palm oil, wood pulp, and other products from agriculture, horticulture and forestry. Each country that imports such products should review their domestic policies for these prodcuts.
10. **Share** experiences and expertise on peatland conservation, restoration and improved management among countries rich in peatlands and organic soils, especially those in need of capacity building.

This report provides guidance for these actions. The main strategies are:

- Secure undrained peatlands to prevent emissions.
- Rewet drained peatlands to reduce emissions.
- Adapt management of peatlands that cannot be rewetted.

Contents

Tables

Figures

Boxes

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Rome, October 2012, Hans Joosten, Marja-Liisa Tapio-Biström & Susanna Tol

Abbreviations and acronyms

AAU	**Assigned Amount Unit** The Units are issued to industrialized countries under the Kyoto Protocol in an amount equal to the caps they assumed.
Annex 1	**Annex I to the UNFCCC** Industrialized countries are listed in Annex I to the UNFCCC to differentiate obligations these countries have under the UNFCCC from those of developing countries. Most of the Annex I countries also agreed to binding caps under the Kyoto Protocol.
CAP	**Common Agricultural Policy** A system of European Union agricultural subsidies and programmes
CBD	**The Convention on Biological Diversity** An international legally binding treaty. The Convention has three main goals: conservation of biological diversity (or biodiversity); sustainable use of its components; and fair and equitable sharing of benefits arising from genetic resources.
CDM	**Clean Development Mechanism** Mechanism created under the Kyoto Protocol to finance climate mitigation projects in developing countries via creating CERs
CEH	**The Centre for Ecology & Hydrology**
CERs	**Certified Emission Reductions** Offsets created by CDM projects that can be used by industrialized countries to meet their emission reduction commitments under the Kyoto Protocol
CM	**Cropland Management** Type of activities that a country can choose to include in their LULUCF accounting under the Kyoto Protocol
CMP	**Conference of the Parties serving as the Meeting of the Parties** The annual UN conference and decision making body for the Kyoto Protocol
COP	**Conference of the Parties** The annual UN conference and decision-making body for the UNFCCC
CSA	**Climate-smart agriculture**
CUPP	**Conservation of Undrained or Partially drained Peatland** VCS project category that would cover for example activities to protect a peatland from being drained.
DO	**Domestic Offsetting** Mechanism to create domestic offsets in the EU under the EU ETS.
DSS	**Decision Support System**
ERU	**Emission Reduction Unit** Offset credits created by JI projects that can be used by industrialized countries to meet their emission reduction commitments under the Kyoto Protocol. ERUs are created by either converting an AAU or RMU into an ERU.
EU	**European Union**

EU ETS	**European Emissions Trading Scheme** Emissions trading scheme established in the EU.
FM	**Forest Management** Activities that involve the management of forests. This could include activities such as changing the logging rotation in a forest to increase the average carbon stock stored in the forest.
GCF	**Green Climate Fund** Climate fund and UNFCCC financial mechanism recently established under the UNFCCC to finance climate mitigation and adaptation.
GEST method	**Greenhouse gas Emissions Site Types method** The GEST approach is a method for assessing greenhouse gas fluxes from peatlands using vegetation and water level as a proxy.
GEF	**Global Environmental Facility** Facility to provide finance under UNFCCC and other environmental treaties (Convention on Biological Diversity, UN Convention to Combat Desertification, and Stockholm Convention on Persistent Organic Pollutants).
GHG	**Greenhouse gas** The six greenhouse gases / groups of gases listed in the Kyoto Protocol are Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF_6).
GM	**Grazing land Management** Type of activities that a country can choose to include in their LULUCF accounting under the Kyoto Protocol.
IMCG	**International Mire Conservation Group** An international network of specialists having a particular interest in mire and peatland conservation.
JI	**Joint Implementation** Mechanism created under the Kyoto Protocol to finance climate mitigation projects in industrialized countries via the creation of ERUs.
KP	**Kyoto Protocol**
LULUCF	**Land use, land-use change and forestry** An umbrella term that covers a range of different types of activities affecting land, land use change and forestry, such as forest management, grazing land management etc.
M.a.s.l.	**Metres above sea level**
MICCA	**Mitigation of Climate Change in Agriculture Programme of FAO**
MRV	**Measuring, reporting and verification**
NAMA	**Nationally appropriate mitigation action** Action undertaken in developing countries to mitigate climate change under the UNFCCC.
NAPs	**National Adaptation Plans** National plans developing countries are to develop to support adaptation to climate change.

Non-Annex 1	**Developing countries** See explanation of "Annex I".
NTFP	**Non-timber forest products**
OTOP	**Polish Society for the Protection of Birds**
PRC	**Peatland Rewetting and Conservation** VCS project category that sets rules on accounting for emission reductions or removals from peatland rewetting or conservation projects.
RDP	**Rewetting of Drained Peatland** VCS project category related to projects that re-wet drained peat, e.g. by damming drainage canals.
REDD+	**Reducing Emissions from Deforestation and Forest Degradation** Topic being negotiated under the UNFCCC related to conservation and enhancement of forest carbon stocks and sustainable management of forests.
RMU	**Removal Unit** Units that are issued by Annex I countries if they generate net removals from their LULUCF accounting under the Kyoto Protocol.
SAC	**Special Areas of Conservation** Defined in the European Union's Habitats Directive (92/43/EEC), also known as the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora. The Special Areas of Conservation protect the 220 habitats and approximately 1000 species considered to be of European interest.
SSSI	**A Site of Special Scientific Interest** A conservation designation denoting a protected area in the United Kingdom. SSSIs are the basic building block of site-based nature conservation legislation.
SPA	**Special Protection Area** A designation under the European Union Directive on the Conservation of Wild Birds. Under the Directive, Member States of the European Union (EU) have a duty to safeguard the habitats (for example peatlands) of migratory birds and certain particularly threatened birds.
UNCCD	**United Nations Convention to Combat Desertification**
UNDP	**the United Nations Development Programme**
UNFCCC	**United Nations Framework Convention on Climate Change**
UNICEF	**The United Nations Children's Fund**
VCS	**Verified Carbon Standard** Voluntary market standard used to quantify emission reductions or removals.
WDR	**Wetland Drainage and Rewetting** Activities that a country can choose to include in its LULUCF accounting under the Kyoto Protocol.

Zoige Plateau, the largest peatland in the Tibetan Plateau (altitude 3 500 m),
where eco-tourism has been developed by local communities.
Photo: Wu Ning