

Workshop report summary – Towards sustainable land management practices for peatlands: special focus on drained areas

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Background of the workshop

Continuing the work of Organic Soils and Peatlands Climate Change Mitigation Initiative, FAO invited 25 experts on peatlands and climate change from different parts of the world for a 2.5 day-long workshop in May 2013. The workshop’s aims were to gather information on the advances in the quantification of greenhouse gas (GHG) emissions from peatlands; the location of peatlands and their use; and the potential for changing land use in peatlands, especially in drained areas, for agriculture and forestry. Workshop participants contributed to a plan for a guidebook on the use of peatlands that would both develop pathways towards responsible peatland management that reduce GHG emissions and provide guidance on how to follow them. A guidebook taskforce will be developed based on the participants’ recommendations.

The workshop concentrated in discussing the following questions:

- What and where are peatlands? With special focus on drained areas used for agriculture and forestry.
- How are drained peatlands used (e.g. food production, forestry, pastures, oil palm) in different parts of the world?
- How are peatlands managed? What are the options for the sustainable management of peatlands that are used in different ways? How can we develop management pathways towards sustainability both for ecosystems and livelihoods?

This report is based on the presentations in the workshop, the follow-up discussions and group work. The workshop concentrated on five main areas that formed the different parts of the

workshop: 1) mapping and quantification of emissions; 2) uses of peatlands and the drivers of land use change; 3) options for more ecologically and socio-economically responsible management of peatlands; 4) planning session for the guidebook (defining the audience, objectives and structure); and 5) potential for Nationally Appropriate Mitigation Actions (NAMAs) on peatlands.

Presentations and key messages of workshop

Part 1: State of peatlands – Mapping and quantification of emissions

Participants from six organizations presented their mapping projects from different areas of the world.

To reduce and quantify the emissions from drained peatland, there should be greater knowledge of their location and extent. There are high uncertainties in mapping the total coverage of drained peatlands. This is partly due to differing definitions of peatland. Improving the estimate of the total coverage should be the primary goal. In addition, largely because of a lack of accurate national data, current maps do not adequately indicate peat thickness, which increases uncertainty in carbon stocks estimations. It was noted that in some countries, such as Indonesia, peat depth is important because of legal constraints on using peat $\geq 3\text{m}$ depth, which delineates the boundary for production and conservation. For this reason, from the perspective of the peatlands management, depth also should be taken into the consideration. However, as depth plays a secondary function in terms of GHG emissions, peat depth measurements should be a secondary objective.

There are several constraints for mapping drained peatlands coverage. Mapping drained peatlands is especially problematic because of the difficulties in identifying land use and the consequent drainage through satellite images. Also, due to the low water table, some mapping indexes applied for wetlands delimitation (e.g. VIS/NIR wetness index) are not applicable for drained peatland areas. In lowland areas, domed peatlands can be well delineated from elevation data as provided by LiDAR or radar. On the other hand, peatlands are often 'hidden' within mineral soil and very hard to detect remotely.

The use of the analysis of historic satellite imagery can help overcome these difficulties. However, maps created by remote sensing imagery require validation data from land surveys, and with the high cost of the field work this validation data is not always available. Land surveys not only enable the validation of remote sensing imagery, they can also provide information on peat thickness, bulk density and carbon concentration data for estimating carbon stocks in the land.

The second constraining factor for peatlands mapping is the variation in peatlands definitions and classifications among different countries. The third constraining factor relates to data availability, as peatland data are not always published or available online. It is important to develop and host platforms where researchers can share their information and data. For separate management units, an improvement in the scale and resolution, including information on drainage depth and hydrology, of mapping was suggested. To avoid discrepancies, improved local maps should be linked to regional and national maps.

Parts 2 and 3: Peatland use and drivers of land use change. Opportunities for change, and options for more sustainable peatland management

Peatlands drainage not only leads to increased GHG emissions and carbon loss in the form of particulate and dissolved carbon, it also causes subsidence of land, reduces biodiversity, pollutes water sources and increases the susceptibility to fires. Agriculture and forestry are the main drivers of change in peatland use. In particular, in countries with rapidly increasing populations, the high demand for new land for agriculture, plantations and forestry is threatening peatlands. Because of their high risk of fire, abandoned lands are another important category of converted peatlands. In Russia alone, the area of cutover and abandoned peat deposits covers about 540 000 ha. In other regions, the area of abandoned land is increasing because the management of drained peatland requires high investments to enable them to be used.

Grazing on peatlands is also considered a strong driver of peatland degradation. For instance, in the United Kingdom, blanket bog peatlands, covering over 1 million ha, have been drained and damaged as a result of their use as grazing land. These peatlands are in urgent need of restoration to reduce the negative impacts on the carbon balance, biodiversity and drinking water.

The restoration of peatlands is partly constrained by the need for arable land and the costs of restoration. For example, the average cost of rewetting peatlands in the United Kingdom is estimated by the International Union for Conservation of Nature (IUCN) to be £ 1 500 per ha.

There is a need to develop more well-defined technical solutions for the rewetting and restoration of peatlands for different ecological zones. Possible solutions for livelihoods include paludiculture: wet agriculture, forestry and pasture; as well as fisheries. As an example of forestry in wet conditions, it is possible to grow native forests without peat drainage. This form of paludiculture has already provided highly valuable timber from Indonesia and Malaysia. Paludiculture can provide both environmental and socio-economic benefits. Paludiculture's environmental benefits include reduced GHG emissions and the prevention of wild fires. Its socio-economic benefits include improved water quality and employment in rural areas (e.g. through eco-tourism development). Moreover, products from paludiculture can be used in different types of industry, including for food (e.g. for fibre and biogas production from biomass, edible oils).

All peatland restoration and development projects should include the active participation of all stakeholders, especially local people. The needs and desires of the people who live and depend on peatlands should be taken into consideration and their rights respected. This stakeholder engagement is a prerequisite to any intervention. It is not enough simply to engage local stakeholders. An approach based on negotiation which combines the different visions and interests should be used. External players must admit in writing that stakeholder rights exists and that these rights are a fundamental part of the work. The principles of rights-based approach should be followed to promote concerted actions in peatland restoration and development interventions.

When neither conservation, nor restoration or wet use are possible, adaptive and responsible management practices should be developed. It was also recommended that for any possible management practice there should be evaluations of its impacts on soil and water resources, air quality, GHGs, biodiversity and ecosystems, as well as people's livelihoods both on- and off-site.

Part 4. Planning session of the guidebook on the responsible use of peatlands

To support the improved management of drained peatlands and promote their ultimate rewetting and/or restoration, FAO is planning to publish an illustrative, technical guidebook with the working title *Towards climate responsible peatland management practices*. Many participants were willing to contribute to the guidebook. There was an animated discussion about the priorities of publication, its scope and target audience.

The guidebook's objective as discussed at the workshop is to reduce further peatland drainage, lower GHG emissions from drained peatlands and offer guidance on improving ecosystem services and promoting practices that can improve livelihoods. It is planned that the guidebook's chapters will include: an introduction and justification (as stated in the earlier report *Peatlands – guidance for climate change mitigation through conservation, rehabilitation and sustainable use*); definitions, types and characteristics of peatlands in different latitudes; the utilization of peatlands; fires in peatlands; responsible management practices; and case studies of responsible peatland management practices. The series of descriptions of more responsible management opportunities for drained peatlands will consider both socio-economic and environmental aspects.

The guidebook is intended to work as a useful and accessible manual on peatland management practices. It will focus on climate change mitigation and the other environmental and socio-economic benefits that peatlands can provide. Descriptions of more responsible management opportunities for drained peatlands will form the key content of the publication. The guide book is intended especially for land managers and planners at the district or provincial level. The descriptions of the management practices are also planned to be made available on an online platform, which will allow for the continuous posting of new case studies. Modules for describing responsible management practices would follow a specified format.

It is suggested that it should also include case studies based on large-scale investment projects and smallholders' management practices in different regions, as well as guidance for engaging diverse stakeholders' participation in the processes.

Part 5. Co-operation on NAMA development as tool for peatland rewetting

Nationally appropriate mitigation actions (NAMAs) are an emerging tool for climate change mitigation under the United Nations Framework Convention on Climate Change (UNFCCC) framework. To implement NAMAs in developing countries, ideas, such as peatland rewetting, are needed so that countries can take action on climate change mitigation. There are already 30 NAMA proposals from developing countries. NAMAs can be national plan, and, in some cases, they can be smaller projects. The presentation by the coordinator of FAO's Mitigation of Climate Change in Agriculture (MICCA) Programme noted that NAMAs can reduce emissions of whole production systems by looking at an entire production chain and area.

As workshop participants pointed out, the problem of national or international leakage of emissions should be taken well into account, especially in the preparation of NAMAs. The inclusion of large-scale investors into the NAMA processes was viewed as another important success factor. Funding for climate change mitigation on peatlands through NAMAs could come from multiple sources, such as the Global Environment Facility (GEF), which could provide particular support for activities undertaken by developing countries.

FAO is willing to provide support for the development of the NAMAs. The option of including NAMA guidance into the guidebook will be considered.

Conclusions and further action

Experts at the workshop considered that increasing the awareness of policy makers of the benefits of peatland restoration has a paramount importance. They also recommended that good examples of responsible peatland management should be compiled and presented to policy makers. Stakeholder engagement in peatland restoration was also seen as vital: no positive development can happen if local people are not motivated and do not see benefits for them. Stopping further drainage was recommended as a priority objective, and quick advances in the rewetting of peatlands should be sought. It was also concluded that despite regional differences and the various types of peatlands, there are more things that peatland communities have in common. Common action and recommendations are possible. Raising funds is necessary for more organized action. The main outcome of the workshop was the participants' interest in contributing to the planned guidebook.

Recommended priority actions

As a clarification: the proposed priority actions should not be intended as commitments as such by either FAO or partners, but rather as proposals for further actions, including appropriate fund raising.

Mapping and state of peatlands

- Develop in the short term (2015) a new updated global inventory and mapping of peatlands based on existing data and information (Global Atlas of Organic Soils).
- Standardize the definitions and methods used for the assessment of drained peatlands.
- Invest into land survey and soil samples analyses.
- Develop of platform(s) for data sharing.

Uses of peatlands and options for responsible peatland management

- Conserve undrained peatlands.
- Demonstrate the value of undrained peatlands for food production and livelihoods (e.g. diverse forest products, native fisheries for food and recreation).
- Identify the key regions for advancing the responsible management practices of drained peatlands, mitigating GHG emissions, protecting biodiversity and supporting livelihoods.
- Use a negotiation approach for involving local people in planning peatland management to achieve successful long-term results.
- Develop information on potential and impacts of developing fisheries and aquaculture as livelihood options in rewetted peatlands.
- Develop technical guidelines towards the responsible management of degraded peatlands.
- Identify investments, grants and subsidies for rewetting of drained peatlands.

Guidebook Towards responsible peatland management practices

- Concept note, invitation to new contributors and an outline will be sent out by FAO.

NAMAs for peatland rehabilitation and livelihoods

- Support countries in planning NAMAs on peatlands for development and livelihoods; and
- Develop collaboration between funding organizations for developing finance structures for NAMAs from multiple sources.

Other follow-up actions

The workshop also promoted the networking and knowledge sharing among specialists, as well as joint project establishment for the improved regional mapping (e.g. for Northeast China).

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