

Sustainable Management
of Peatland Ecosystems
in Mekong Countries

MEKONG PEATLANDS PROJECT

Peatlands in Cambodia

Mangrove Forest in Koh Kapik Ramsar Site (GDANCP-MOE)

Funded by



Implemented by



Peatlands are a type of wetland that are formed from partially decomposed plant materials that have accumulated over long periods of time, sometimes over thousands of years.

Under permanently wet or waterlogged conditions the remains of plants (roots, leaves, stems etc.) are slow to breakdown due to the lack of oxygen present. Microbes in the soil use oxygen to breakdown organic matter into carbon and other elements, so when oxygen is in short supply, decomposition is slow resulting in soils that are high in organic matter. These soils are often fibrous and referred to as peat or organic soils.

Because peat soils are high in organic matter, peatlands are a significant store of carbon - representing about 30 percent of the world's soil carbon, which is an amount greater than the world's above-ground forests all combined. Maintaining these carbon stores in their natural condition plays an important role in the global effort to combat climate change - by avoiding carbon emissions caused through peatland degradation.

Peatlands are important to the hydrology of landscapes. They provide ecosystem services such as the storage of water throughout the year, recharge and discharge groundwater making them an important water resource during the dry season. They retain and remove pollutants from water, and they also provide a natural buffer against localised floods.



Peat soils (GEC)

Because of their special characteristics, and often isolation within the landscape, peatlands are known to support many rare and unique plants and animals. Some of these provide food, medicines and other resources to local people, and can be an important part of local livelihoods.

Conserving and sustainably managing peatlands is not only important to preserve these important ecosystems, but it's critical in reducing the risk of peatland fires and their resulting impacts. When peatlands are drained and degraded, they become vulnerable to fire that can burn out of control for weeks to months causing significant health impacts. Numerous smoke haze events have occurred throughout South East Asia over the past two

decades due to slash and burn practices and peatland fires.

Peatlands occur throughout South East Asia, with large areas in Indonesia and Malaysia, and to lesser extent in other neighbouring countries. The exact area of peatlands in Southeast Asia is unknown, but some estimates suggest the area could be about 23 million hectares and representing 56% of the world's tropical peatlands.



Mangrove Forest in Koh Kapik Ramsar Site (GDANCP-MOE)

Smoke haze over Kuala Lumpur Sept 2019 (Shutterstock)



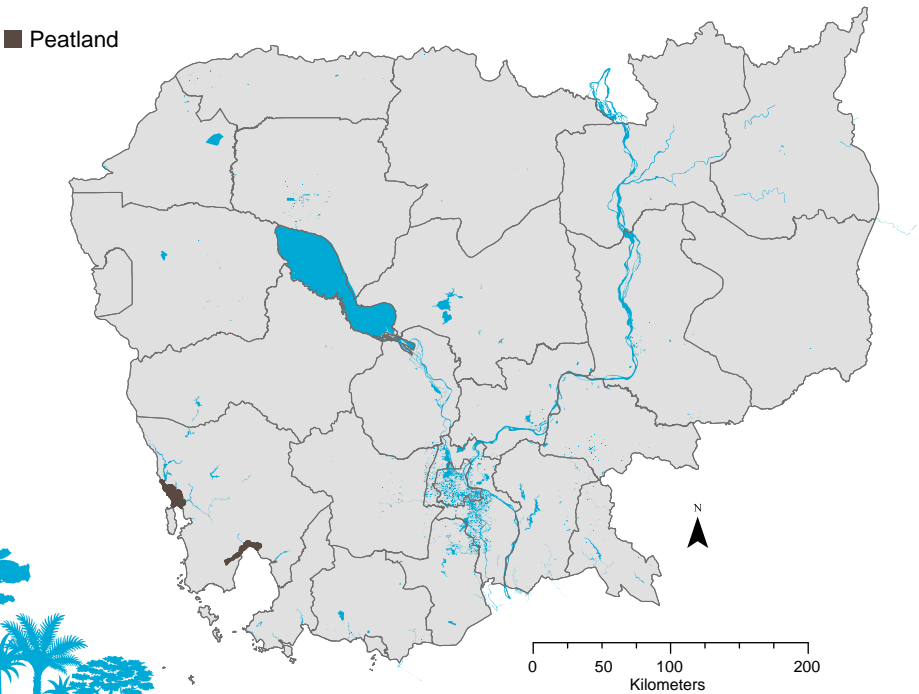
Peatlands in Cambodia

Peatlands in Cambodia have not yet been fully inventoried or described in detail, and the total area of Cambodia's peatlands is unknown. Mapping of potential peatlands across Cambodia is currently under way using remote sensing and GIS. Ground surveys are planned to confirm the presence of peat and map them in detail, however surveying peatlands across the whole of Cambodia may take several years to complete.

So far, several different types of peatlands have been found to occur, or likely occur, across Cambodia. These include mangrove peatlands, lakeshore and floating peatlands, and buried and infilled lake/pond peatlands.



Map of known peatlands in Cambodia



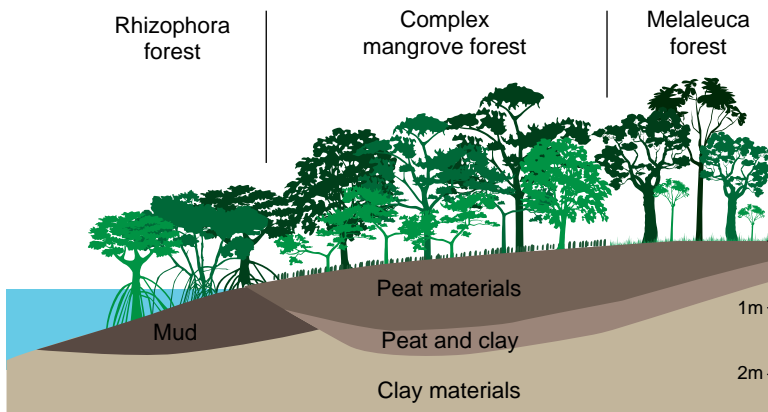
Mangrove peatlands

Approximately 10,000 ha of peatlands have been mapped along the coastline of Koh Kong Province, through surveys undertaken by the SEApeat project (2013-15). These peatlands occur within the mangrove forests of Koh Kapik Ramsar Site and Botum Sakor National Park. The Koh Kong mangrove forest peatlands are unique, with the only other known occurrence of mangrove peatlands in Southeast Asia being found in parts of Indonesia.

The formation of the Koh Kong mangrove peatlands is not fully understood and requires further investigation to determine its origins. The peat may have been derived from organic material accumulated in

a former freshwater coastal lagoon system, or from the long-term vertical accretion of mangrove root materials, or as a combination of both over time. Field observations undertaken by the SEApeat project suggest that the Koh Kong mangrove peat may have formed from the accretion of fine tertiary roots of mangroves.

Other reports and anecdotal evidence suggest there are likely to be other areas of peatlands present in Cambodia, such as along the Mekong River and around Tonle Sap Lake. These peatlands are thought to consist of lakeshore peatlands around Tonle Sap Lake and buried peatlands within the floodplain of the Mekong River. On-ground surveys are needed to confirm this.

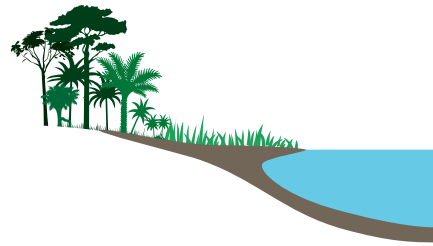


Koh Kong peatlands

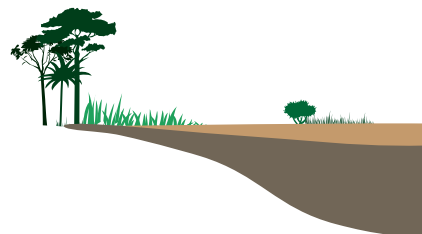
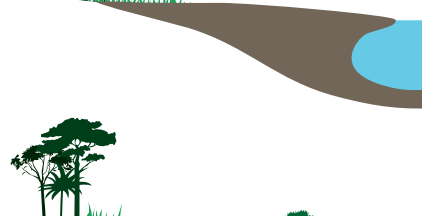
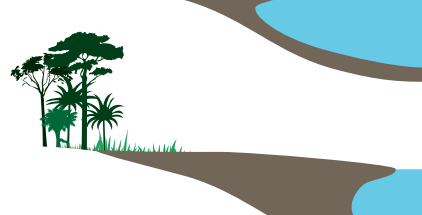
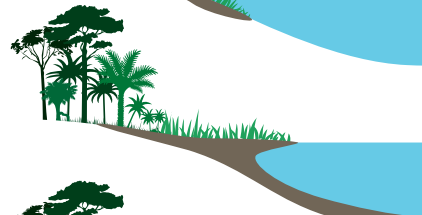
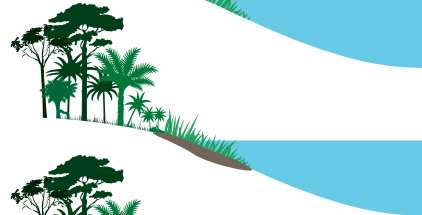
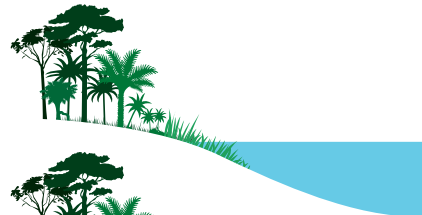


Lakeshore and floating peatlands

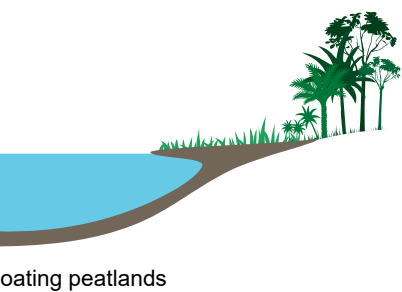
Lakeshore peatlands are formed as the initial stages of a process called terrestrialization, where vegetation growing at the edges of a lake or pond deposits peat there. Over time, peat begins to grow outwards toward the centre of the lake forming floating peat mats. Eventually, the lake or pond fills with peat forming a raised bog. Initial surveys undertaken by the SEAPeat project suggest that peat has formed around some of the shoreline forests of Tonle Sap Lake. Floating peat mats may also exist in some areas adjacent to Tonle Sap Lake.



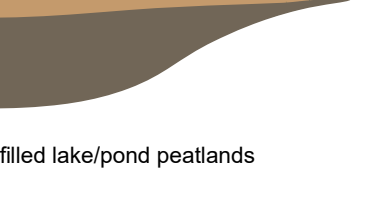
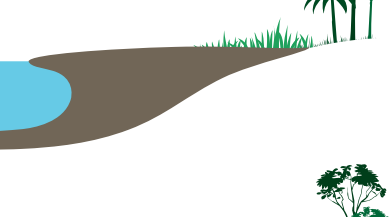
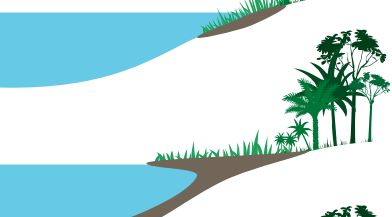
Lakeshore and fl



Formation of buried and in



floating peatlands



infilled lake/pond peatlands

Buried and infilled lake/pond peatlands

Infilled lake or pond peatlands are the end result of terrestrialization. Infilled peatlands that are within river floodplains often become covered, or “buried” by a layer of colluvial sediment from nearby eroded soils or from river flood deposits. These sediments, or colluvial deposits, may occur between peat layers or become mixed with layers of peat.

The presence of these colluvial inputs in the peatlands of Mekong countries reflects the dynamic nature of peatlands sitting within river flood plains. This often results in peats that are lower in organic matter content but heavier (in a given volume) compare to other peats, such as those found in Southern ASEAN countries.



Lakes in the flooded lowlands along the Mekong River



The Mekong Peatlands Project

The Mekong Peatlands Project is a regional project implemented in Cambodia, Lao PDR and Myanmar. In each of these countries, there is insufficient information on peatland distributions and a general lack of understanding on the values and functions of peatlands. The project aims to fill these knowledge gaps and build local capacity to manage peatland ecosystems sustainably.

Key activities to be undertaken by the project include:

- Assessing and documenting peatland ecosystems in the three countries,
- Strengthening institutional capacity and enabling policy and legal frameworks for sustainable peatland management at local, national and sub-regional levels, and
- Demonstrating sustainable peatland management practices that conserve biodiversity, reduce GHG emissions and strengthen sustainable livelihoods for local communities.

Drying shrimp at Koh Kapik (IUCN)



Dried shrimp at Boeung Kachhang (IUCN)





At a regional level, the project aims to bring together key government officials and decision makers at ASEAN level forums to enhance regional cooperation, share knowledge and experience, and encourage the development of common guidelines and approaches for the conservation and sustainable use of peatland resources.

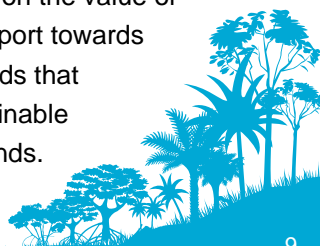


Community meeting at Koh Kapik (IUCN)

At a country and local level, the project aims to raise awareness and build capacity of government at national, provincial and district levels,

to improve their understanding of the functions and importance of peatland ecosystems, and mainstream peatlands into policies and plans to encourage conservation and sustainable use. At a community level, the project will support the demonstration of best practice approaches for sustainable peatland management and strengthen the sustainability of livelihoods.

The project will pilot activities in the mangrove peatlands of Koh Kong Province, working with the communities in Koh Kapik Ramsar Site. Project activities will include raising awareness on the value of peatlands and support towards improving livelihoods that enhance the sustainable use of local peatlands.



Project implementation

The project is being implemented in partnership between IUCN, as GEF Implementing Agency, and the Department of Freshwater Wetlands Conservation (DFWC) of General Directorate for Nature Conservation and Protection (GDANCP) as the Lead Executing Agency under the Ministry of Environment (MOE). DFWC is supported by IUCN and the Global Environment Centre through technical assistance and regional coordination.

At the community level where on-ground activities are undertaken, DFWC and Department of Environment in Koh Kong Province will work closely with the communities in Koh Kapik Ramsar Site where livelihood activities are to be implemented. A national project steering committee comprised of various government agencies will provide guidance and ensure that cross-sectoral coordination and implementation is achieved, and that project activities are in line with national policies and strategic plans.



Communities living in mangrove forests in Koh Kong province



Implemented by



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Project Executing Partners



For more information please contact
mekong.peatlands@iucn.org
Nalin_phonlm@gmail.com

Department of Freshwater Wetlands Conservation
General Directorate of Administration for Nature
Conservation and Protection
Ministry of Environment
Tonle Bassac Road, Tonle Bassac, Chamkarmon
Phnom Penh, Cambodia
www.moe.gov.kh