

Sustainable Management
of Peatland Ecosystems
in Mekong Countries

MEKONG PEATLANDS PROJECT

Known Peatlands in Lao PDR

Nong Phommalue, Champasak Province (IUCN)

Implemented by



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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 groundwater throughout the year, making them an important water resource during the dry season. They also provide a natural buffer against localised floods.



Peat soils (IUCN)




Loumpa (fish trap), IUCN

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. As recently as 2019, major peatland and forest fires in Indonesia covered the region in smoke haze causing the closure of schools, cancelation of flights and unhealthy air pollution levels impacting millions of people.

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.



Smoke haze over Kuala Lumpur Sept 2019 (Shutterstock)

Known peatlands in Lao PDR

Peatlands in Lao People's Democratic Republic (PDR) have not yet been fully inventoried or described in detail, and the total area of Lao PDR's peat soils is unknown. Initial surveys undertaken by the SEAPeat project (2013-15) identified the presence of peatlands scattered throughout various locations in Lao PDR, from north to south. In the northern

Province of Vientiane, peatlands were found as floating peat mats and as seasonally flooded swamps. In the southern province of Champasak, a total area of 570 ha of peatlands have been identified, including the largest recorded peatland in Lao PDR – the Beung Kiat Ngong wetland. More than 20 other potential peatlands were identified across Champasak Province requiring detailed surveying and assessment to confirm the presence of peat.



Nong Youp, Vientiane Province (DWR)



Beung Kiat Ngong, Champasak Province
(IUCN)



Beung Kiat Ngong, Champasak Province
(IUCN)

Peatlands are also likely to occur in other parts of Lao PDR, including Attapeau Province, Savannakhet Province, Khammouane Province, and perhaps elsewhere. Mapping of potential peatlands across Lao PDR is currently under way using remote sensing and GIS. Ground surveys are planned for the coming years to confirm the presence of peatlands and map them in detail, however surveying peatlands across the whole of Lao PDR may take several years to complete.

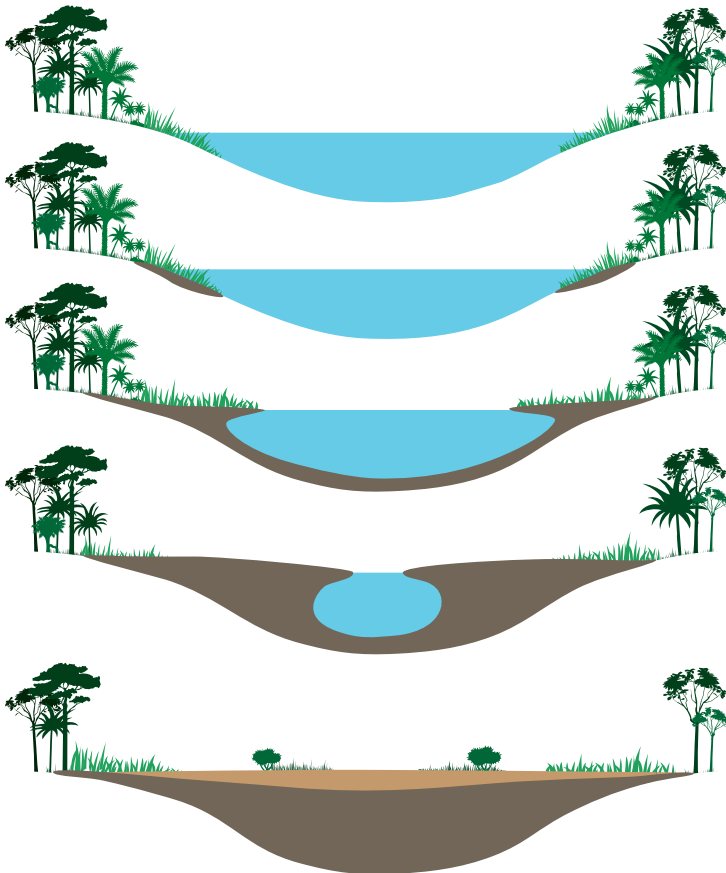
So far, several different types of peatlands have been found in Lao PDR, including floating peatlands, infilled lake/ pond peatlands, and buried, or partially buried peatlands. These peatlands are influenced by seasonal flooding and receive inputs of sediment from the surrounding landscape and rivers.



Floating peatlands

When peat forming vegetation growing at the edges of a lake or pond grow outward towards the centre, they form floating peat mats. Beneath the floating mats, peat is formed, which slowly sinks downwards and gradually fills the water body. The continued

outward growth of peat, and often combined with inputs of sediment, will eventually infill the lake or pond and form a raised peatland. This process is known as terrestrialisation. Examples of floating peatlands and shallow infilled lake/pond peatlands have been found in Vientiane and Champasak Provinces.



Formation of buried and infilled lake/pond peatlands

Infilled lake/pond peatlands

Infilled pond or lake peatlands are a further development stage of lakeshore or floating peatlands, where the entire water body has mostly been infilled with peat and vegetation - the end result of terrestrialization. Infilled peatlands are found in the floodplains of the Mekong River and in small ponds in Southern Lao PDR, as seen in Champasak Province. In these systems, most of the pond or lake has been filled with peat, with some containing small areas of open water and floating peat.

Past peat extraction, Champasak Province (IUCN)



Bung Naphat, Champasak Province (IUCN)



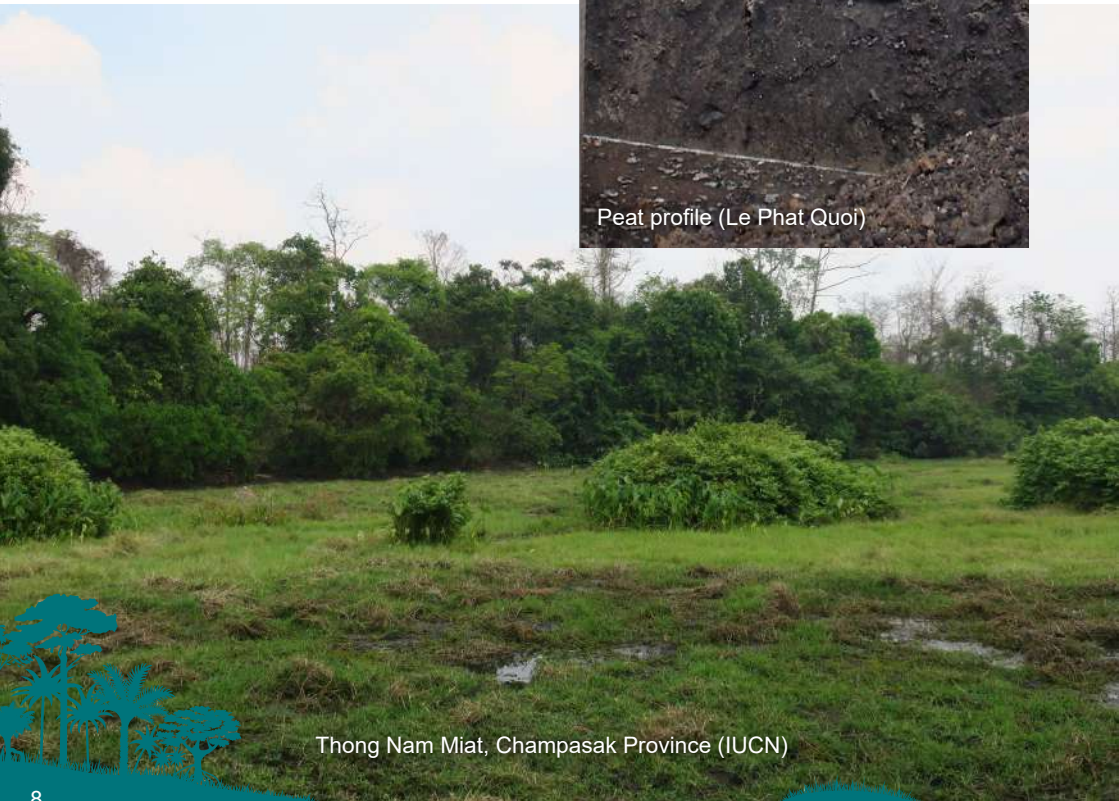
Buried peatlands

Buried peatlands are peatlands that may have formed as lakeshore or infilled lake/pond peatlands but subsequently become covered with a layer of 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. Other materials, such as volcanic ash, have also been found within peat layers, deposited over time from past volcanic events and floods.

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.



Peat profile (Le Phat Quoi)



Thong Nam Miat, Champasak Province (IUCN)

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.

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.

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 Pathoumphone District, Champasak Province in communities adjacent to the Bung Naphat peatland. 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 Water Resources (DWR) as the Lead Executing Agency under the Ministry of Natural Resources and Environment (MONRE). DWR 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, the Champasak Provincial Government and departmental offices of MONRE

will work closely with the communities of Ban Thongsay, Kaeng Na ang and Kala, 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. Other government agencies, research institutes, NGOs and community groups will also participate in project activities, and as partners in project execution.

Nong Phadeng, Vientiane Province (IUCN)



Discussions at Thongxay Village (IUCN)



Basket weaving, Beung Kiat Ngong
Ramsar wetland (IUCN)



Project Executing Agency



GEF Implementing Agency



Project Executing Partners



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