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Peatland Mangement in Mongolia for Water Security and Livelihoods

based on results of the Technical Assistance Project "Strategic Planning for Peatlands in Mongolia"

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GOVERNMENT OF MONGOLIA
MINISTRY OF ENVIRONMENT AND GREEN DEVELOPMENT

CLIMATE CHANGE AND DEVELOPMENT ACADEMY

ADB
Japan Fund for Poverty Reduction

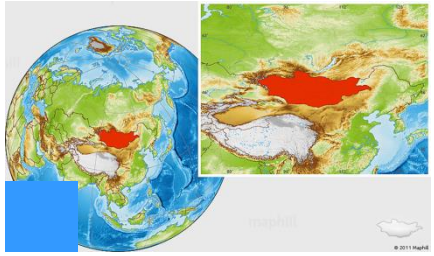
Wetlands INTERNATIONAL

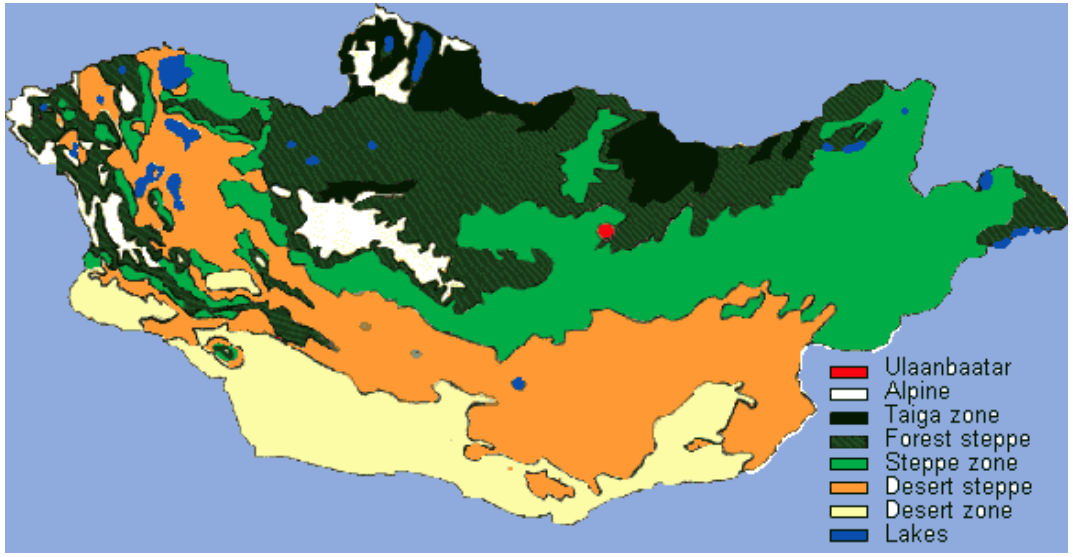
Country Profile: Geography and Natural zones

Mongolia is one of the few countries, which possesses a great range of natural ecosystems within their borders.

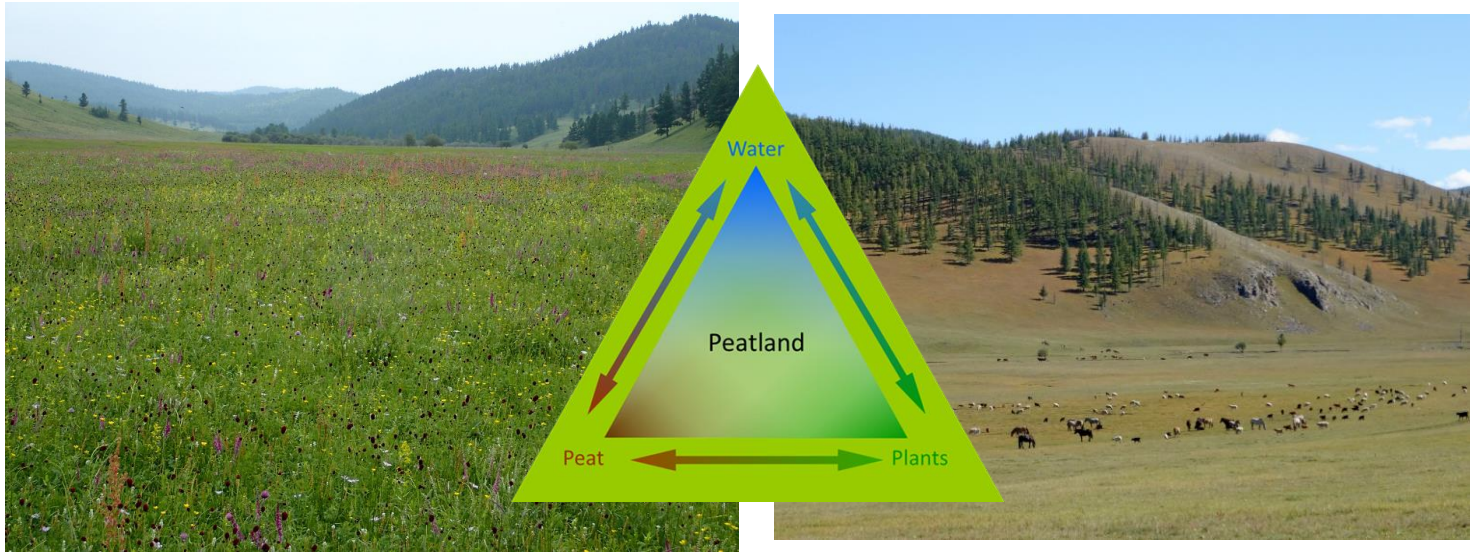
Mongolia is located at the junction of Siberian taiga and Central Asian prairie steppe and deserts. Mongolia's unique combination of diverse landscapes and is divided into six basic natural zones, differing in climate, landscape, soil, flora and fauna:

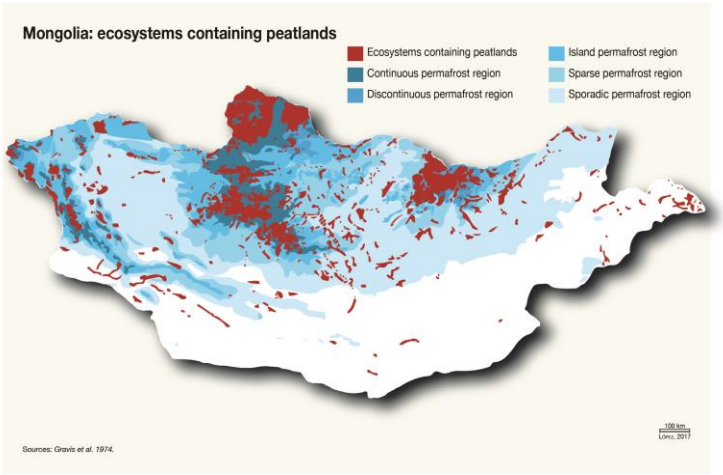
- High Mountain Zone,
- Taiga Forest Zone,
- Forest Steppe Zone,
- Steppe Zone,
- Semi- Desert Steppe Zone
- Gobi desert zone





Peatland ecosystems functions and importance





https://gridarendal-website-live.s3.amazonaws.com/production/documents/:s_document/376 /original/RRApeatland_revised_jan.pdf?1515398975

Peatlands are unique self-maintained ecosystems that are one of the main parts of the global hydrosphere. Three integral components of peatland are **peat, water and vegetation**.

The peatland in natural status (picture on the left) is functioning as “perpetual motion”: in the conditions of surplus of water the specific plants and associated biota are producing from the atmospheric carbon a biomass (organic carbon) which does not decompose but is deposited in the form of specific organic matter – peat.

Peat has unique high absorption capacity. It absorbs and store more and more water and hence sustains wet conditions.

In wet conditions more plants are growing, wore peat is produced and more water is absorbed.

The process can last thousands of years.

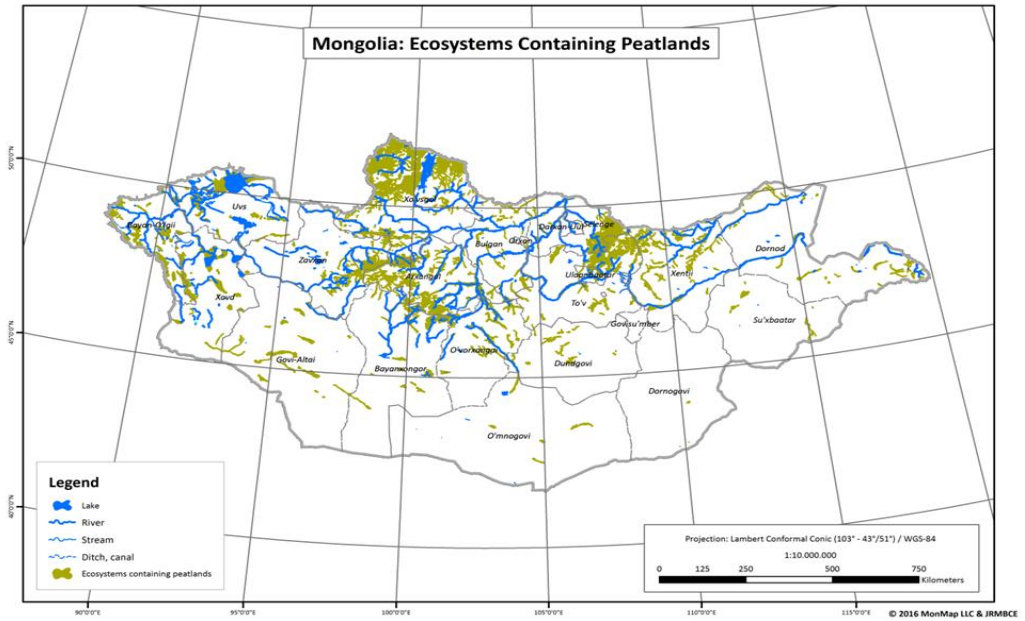
Why are peatlands important? Water resources and peatlands

Table 1. Top 20 countries with the largest peatland areas[2,3] (Adapted from Joosten 2010).

	Country	Peat area (sq. km)
1	Russia	1 375 690
2	Canada	1 133 926
3	Indonesia	265 500
4	USA	223 809
5	Finland	79 429
6	Sweden	65 623
7	Papua New Guinea	59 922
8	Brazil	54 730
9	Peru	49 991
10	China	33 499
11	Sudan	29 910
12	Norway	29 685
13	Malaysia	26 685
14	Mongolia	26 291
15	Belarus	22 352
16	United Kingdom	17 113
17	Germany	16 668
18	Republic of Congo	15 999
19	Zambia	15 410
20	Uganda	13 640

Source: Crump, J. (Ed.) 2017. ***Smoke on Water – Countering Global Threats From Peatland Loss and Degradation.*** A UNEP Rapid Response Assessment.

Distribution of water resources and peatlands



Mongolia has a large expanse of peatlands (26,291 sq.km) . In terms of their distribution, peatland coverage varies across the country with most being concentrated in the northern, central and the most easterly areas. This is thought to have declined by 60-80% during the last decades.

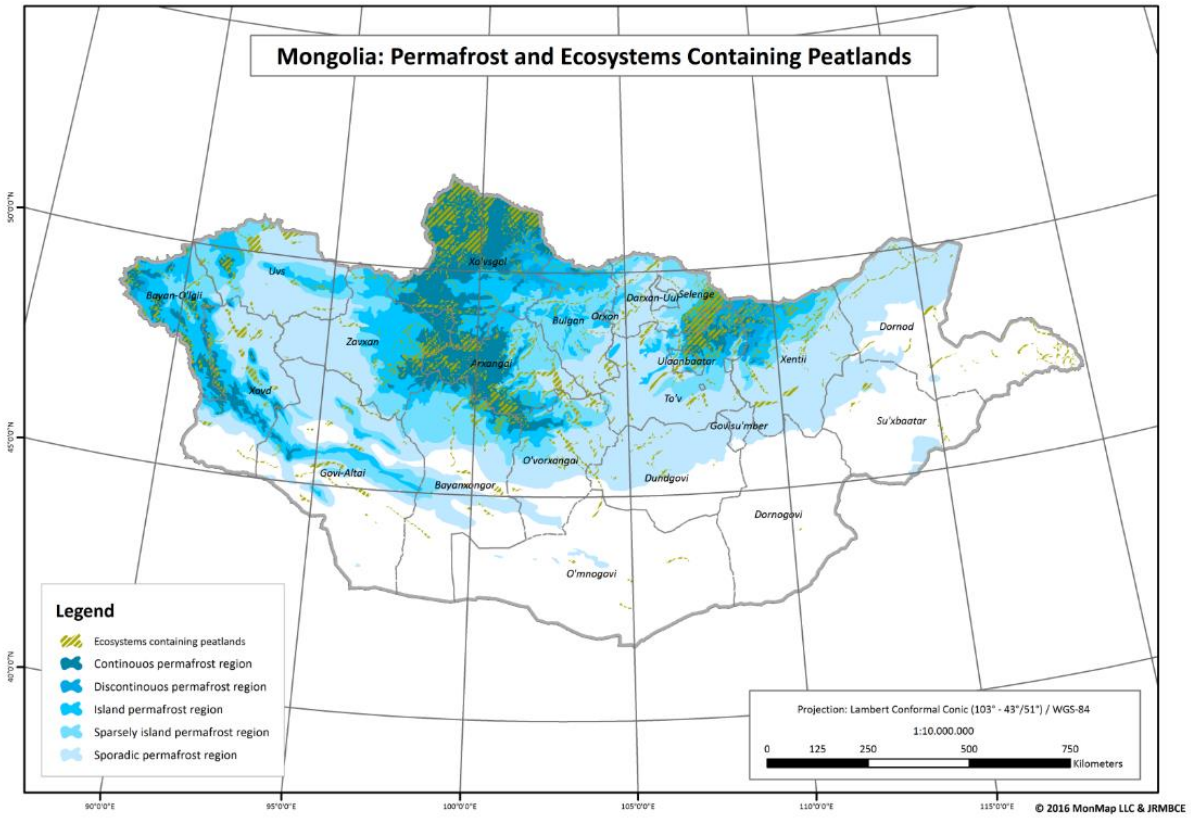
In its dry continental climate Mongolian peatlands fulfill many important ecological functions: **they feed rivers, maintain humid and highly productive habitats, and prevent soil erosion and the thawing of permafrost.**

Average age of peatlands in Mongolia is 3000 thousand years. In taiga zone – 6000 years. All those thousands of years the atmospheric carbon proceeded by plants is imobilised from carbon cycle and stored in the peat.

Despite their importance, Mongolia's peatlands are poorly represented in global inventories of peat resources (Minayeva et al., 2005) because of limited research and assessments.

Why are peatlands important? Permafrost and peatlands

Distribution of Permafrost areas and Ecosystems containing peatlands. Status of 1970s.



Source: MonMap LLC and JRMBCE, 2016 after Gravis, 1974 and Minayeva et al, 2004

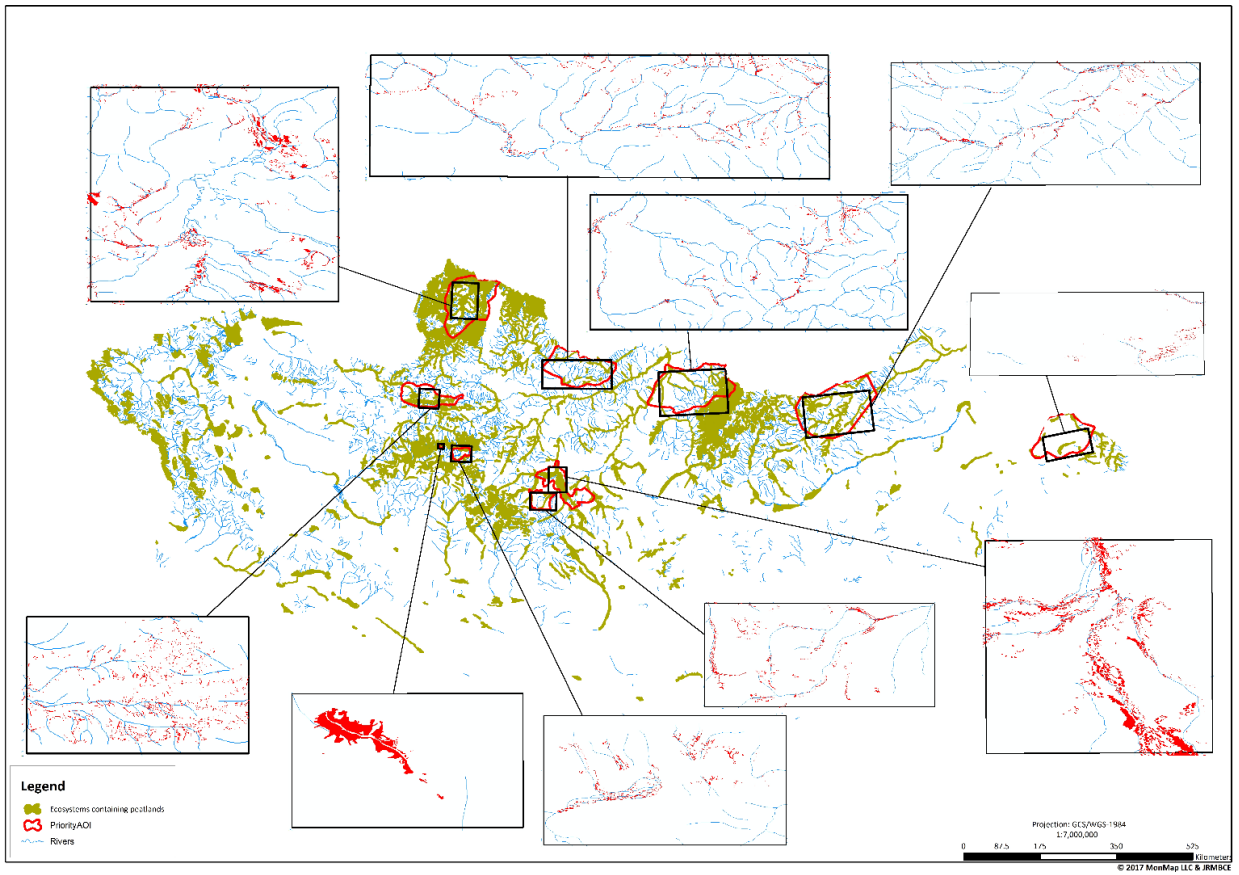
Peatlands are mostly found in areas with permafrost. The southern boundary line of permafrost area of the Northern Hemisphere passes across the territiry of Mongolia. They are associated with both lower slopes and highland areas within the steppe, forest steppe and taiga belt ecosystems, and in river valleys in the lowland steppe (Minayeva et al., 2016).

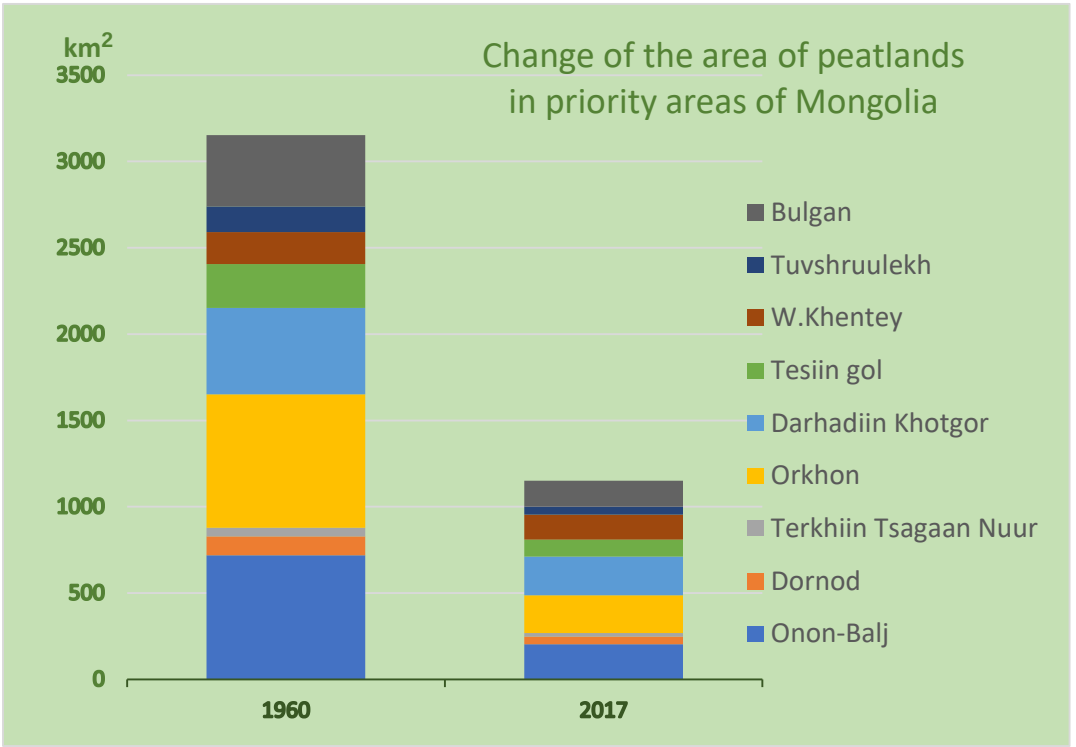
The permafrost in Mongolia used to cover about 63% of the country area as described in studies of 1970s.

Peatlands and permafrost are connected: peatlands from one side depend on permafrost, from the other side protect it from thawing. The loss of peatlands is constantly followed by the loss of permafrost.

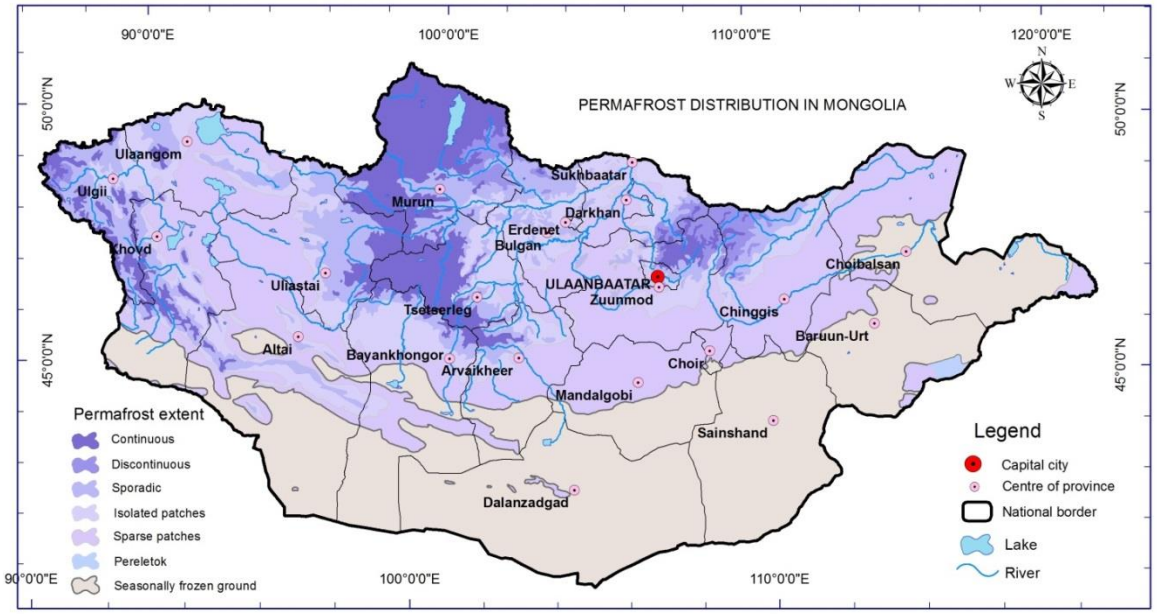
Losses and damages to Peatlands in Mongolia

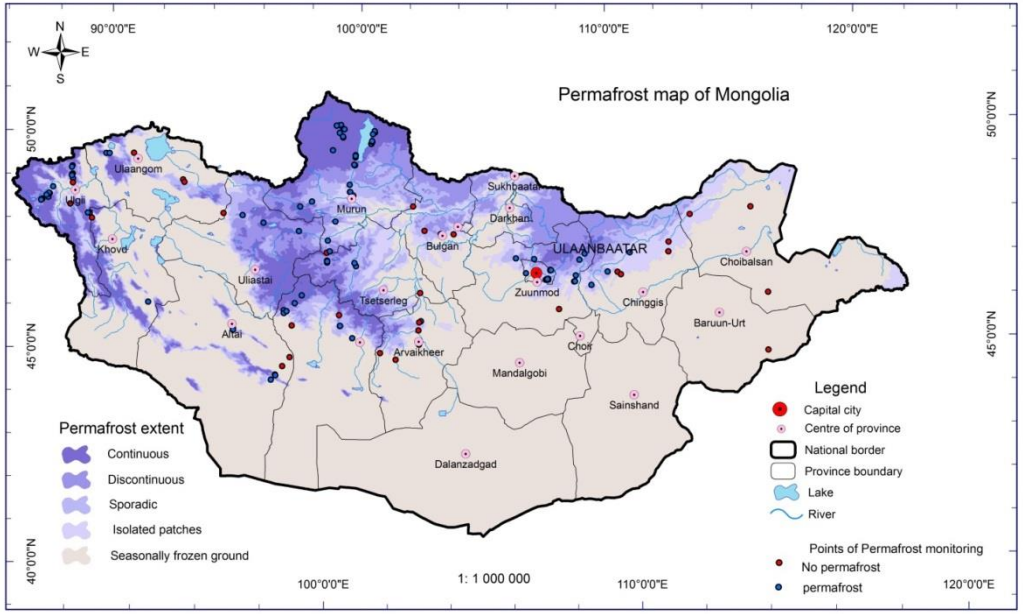
While peatlands are under pressure from a range of human activities, drainage is the immediate and most common threat to the integrity of these ecosystems. In case of Mongolia, climate change has very adverse impacts on peatland degradation. Some studies show that peatlands in Mongolia had been reduced in their distribution almost by 50 % over the last 50 years.





Permafrost shrinkage in Mongolia





As estimated by Gravis in 1974, about 63% of the area in Mongolia covered by permafrost . Sparse patches permafrost makes up 30 % of total permafrost area.

Recent studies (Jambaljav et al. 2016) show that permafrost area covers about 29.3 % of Mongolia. Over the last 40 years :

- permafrost temperature at 10 and 15 m depths has been increased by 0.57-0.85°C in main permafrost areas,
- sparse patched permafrost zone disappeared,
- continuous and discontinuous permafrost areas shrank rapidly.

Mongolian peatlands loss: implications on global level

- **Enhancing of climate change:**
  GHG emissions, regional climate,
  desertification and land degradation
- **Changes of global biodiversity:**
  losses of critical sites along flyways
  losses in wetlands ecosystem diversity
- **Changes in global economy:**
  losses of ecosystem services,
  losses of organic soils,
  decreasing of livelihoods,

United Nations
Convention to Combat Desertification

Ramsar

CMS

ipbes
Science and Policy for People and Nature

FAO
FIAT PANIS

Key vulnerability and threats to peatlands in Mongolia (1)

- There is a low level of knowledge and awareness about peatlands and their critical role, including among decision makers.
- But, overlooked by experts, land users and local communities.
- Changes in long-term changes in climatic conditions.
- Most pastures in Mongolia are former peatlands which are degraded as a result of overgrazing.
- Peatlands are affected by any change of the hydrological regime caused by overgrazing, dams, roads and other linear constructions.
- Peatlands are vulnerable to fires. If fire gets into peat it is very difficult to stop and can last for years and produce more dangerous haze than forest or grass fires.
- Forest fires cause permafrost to thaw, while permafrost is a source of water for most of the peatlands.
- Many mining activities are conducted in peatlands which are the sources of rivers.
- Peatlands are not considered as a target of restoration by the mining industry.

Key vulnerability and threats to peatlands in Mongolia (2)

- The construction of roads and other linear infrastructure does not take into account the surface and ground water flows responsible for supplying the water required to maintain peatlands. In many areas, this has a crucial impact on the condition of peatlands.
- Pasture restoration programs do not consider peatland restoration.
- Peatlands are not addressed by a specific sector, nor by cross sectoral management;
- There is little background knowledge on peatland distribution, diversity, ecosystem functions, values and services;
- Management mechanisms for protected areas do not consider peatlands;
- Peatlands are not considered as fresh water resources in integrated basin management schemes, including evaluations related to the planning of hydropower facilities;
- The connection between peatlands and permafrost is not recognized, and therefore no actions take this link into consideration.

Next steps (1):

Given the critical importance and natural features of peatlands, high potential of adaptation and GHG mitigation co-benefits and the threats they are facing, there are a number of actions and measures that can be taken at the national, local andinternational levels:

- Incorporate provisions related to the use, conservation and restoration of peatlands into environmental sector legislative acts and all policy documents and plans, and implement those provisions,
- Peatlands should be mainstreamed into national strategies and action plans on the implementation of the UNFCCC and the Ramsar Convention, in particular Climate Change Adaptation and Mitigation Strategies,
- Develop and introduce best practices on sustainable and wise peatland use to balance the need to maintain the long-term ecosystem services of peatlands and current livelihood needs, consider the peatlands as fresh water resources in integrated basin management schemes and as a natural alternative for water storage.

Next steps (2)

- Promote international partnerships and integrate the conservation of peatlands in such arrangements, including the implementation of existing bilateral and multilateral and cross trans-boundary agreements,
- Request ADB and the Wetlands International to support Mongolia to develop and implement an action-oriented programme/project to preserve peatlands, conserve biodiversity and take action on climate change in the country.
- The awareness and knowledge of government institutions, natural resource users, the general public, non-governmental organizations and the private sector with respect to peatlands and appropriate management approaches needs to be increased focusing on the critical importance of peatland ecosystems for their multiple environmental services, and proper utilisation, conservation and restoration of peatlands.

THANK YOU FOR YOUR ATTENTION !

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