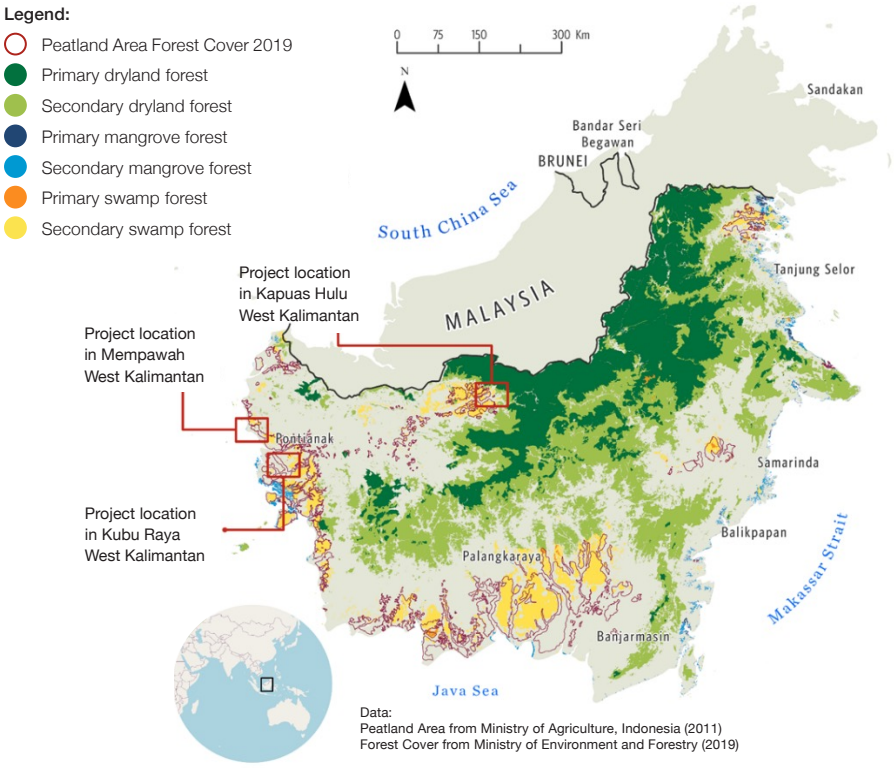
Konservasi
Alam Nusantara
Untuk Indonesia Lestari

NATURAL CLIMATE SOLUTIONS (NCS)
WEST KALIMANTAN-PEATLAND CARBON PROJECT

Indonesia is a critical hotspot for peatlands as it is home to about a third of total tropical peatland areas. Peatland ecosystems are critical for carbon storage and provide a broad array of ecosystem services, including habitat for biodiversity, water regulation, and pollution control.[1] Nevertheless, degraded and drained peatlands are estimated to emit 1.9 Gt of CO_2e annually, equivalent to 5% of global anthropogenic greenhouse gas emissions, exacerbating impacts from climate change. Thus, rewetting peatlands is required to restore the hydrological functions of degraded peatlands ecosystems and revert them back to carbon sinks from carbon sources.

West Kalimantan NCS Project Location



[1] Joosten, H., Sirin, A., Couwenberg, J., Laine, A. & Smith, P. in Peatland Restoration And Ecosystem Services (eds Bonn, A., Allott, T., Evans, M., Joosten, H. & Stoneman, R.) (Cambridge University Press, Cambridge, UK, 2016)

Project Duration

3.5 years
(01/2021 – 06/2024)

Project Goals

- Refine tropical peat maps
- Reduce uncertainty in GHG emissions accounting on rewetted peatlands
- Quantify restoration opportunities on tropical peatland
- Quantify the link between peat fire and climate change in Indonesia

Kalimantan Project Location

3 Regions
in West Kalimantan

1. **Mempawah**
   - KHG Sungai Mempawah-Sungai Peniti
2. **Kubu Raya**
   - KHG Sungai Punggur Besar-Sungai Kapuas
   - KHG Sungai Terentang-Sungai Kapuas
3. **Kapuas Hulu**
   - KHG Sungai Bunut-Sungai Kapuas

Partners

Universitas Tanjungpura Pontianak
Stanford University
Oregon State University

Peatlands: a strategic Natural Climate Solution (NCS) Pathway

Prioritized NCS strategies that can be implemented in Indonesia include avoided forest conversion, reforestation, climate smart forestry, avoided peat decomposition, avoided vegetation loss on peat, avoided peat fires, peat restoration, avoided mangrove deforestation and degradation, mangrove restoration. Amongst all of the mitigation actions orchestrated in NCS, peatlands mitigation action is the most potential.

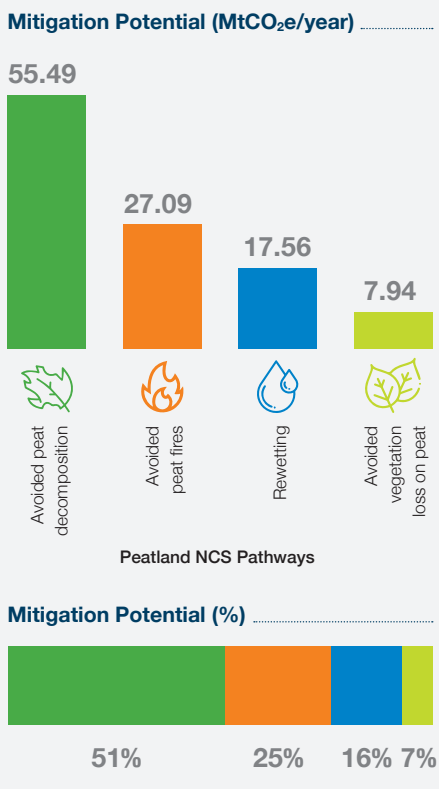
Avoided peat decomposition, which primarily avoids drainage and conversion on peat swamp forest, represents the largest opportunity in 2030. The maximum NCS mitigation potential in Indonesia is estimated to be 1.3 ± 0.04 $GtCO_2e$/year in 2030 based on the analysis using baseline period from 2009–2019. Protecting and restoring Indonesia's peatland is key to achieving the country's emissions reduction target by 2030. Peatlands contribute up to 72% of the total NCS mitigation potential in Indonesia. Based on the mitigation potential ranking from peatlands on a provincial basis, YKAN reported that West Kalimantan is among the five top provinces other than Central Kalimantan, Riau, South Sumatera and Papua, which has the largest opportunity.

Threats to Peatlands

About 7% of Indonesia's land area is peatlands, but their roles are underappreciated as a climate change mitigation strategy. Recent comprehensive peatland mapping conducted by Anda et al., (2021), showed that peatlands occupied 13.4 Mha distributed on four islands: Sumatera, Kalimantan, Papua, and Sulawesi, with exceptionally deep (>700cm) peatlands occurring in Kalimantan and Sumatera. Over half of the total peatland area (58%) is in various levels of degradation. Peatlands cover 11% of the total area of West Kalimantan (1.55 Mha; Anda et al., 2021).

Since 2009, 33% of peat forest in West Kalimantan has been converted into plantations (mainly oil palm), agricultural lands, and shrubs. Human activities and oil palm plantations are the most prominent threats to the West Kalimantan peatland ecosystem which has rapidly increased during the last two decades, invariably exacerbating their degradation and making them vulnerable to fires. This causes high carbon emissions that contribute to global climate change. From MoEF spatial data in 2019, 44% of the peatland area in West Kalimantan remains to be covered by forest, while the rest of the area has been converted into other uses, including cropland, plantation, and degraded lands. These extents of degradation make peatlands vulnerable to accelerated peat decomposition and catastrophic fire events. Peat fire has occurred in West Kalimantan based on satellite imagery from 2009 to 2019 reached a total of 281,631 ha.

NCS mitigation potential from peatland ecosystem in Indonesia



NCS Priorities in West Kalimantan Project

West Kalimantan is one of our prioritized areas for NCS implementation due to its 1.6 Mha peatland coverage, mitigation potential, and high vulnerability to climate change. The main objective in West Kalimantan is to mitigate further peatland loss by assessing the impact of peat restoration on greenhouse gas emissions. YKAN strategies include field campaigns, multistakeholder engagement, collaboration, and primary research to influence policy decisions based on robust data and research.

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About YKAN

Yayasan Konservasi Alam Nusantara (YKAN) is a science-based organization which was established in Indonesia in 2014. With the mission to protect lands and waters on which all life depends, YKAN provides innovative solutions for realizing harmony between people and nature, through effective management, non-confrontational approaches, and building collaborative partnerships with all stakeholders for a sustainable Indonesia.

Team members

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