



DEVELOPING AN INNOVATIVE PEATLANDS MONITORING SYSTEM

Peatlands cover only 3 percent of global land area but store nearly 30 percent of the world's soil carbon, and may contain twice as much carbon as the world's forests. Peat-related emissions are significant and are estimated to cause approximately 10 percent of total anthropogenic emissions from agriculture, forestry and other land use sectors, and at least 5 percent of global emissions. In addition to climate mitigation, they play a significant role in providing other ecosystem services that support the adaptive capacity of ecosystems and communities. Against this background, the project aimed to address the critical need for improved peatland monitoring systems. The first phase of the project focused on the global development of monitoring tools, approaches and guidance for peatlands monitoring, as well as a robust tool for estimating peatland emissions and removals from degradation and restoration. The focus moved to Indonesia in the second phase, which has 40 percent of all known tropical peatlands, to pilot test the methods and work towards an operational peatland monitoring system in the country, which would have application and utility in many countries containing peat.



WHAT DID THE PROJECT DO?

The project successfully improved peatland monitoring systems and the project-level estimations for reporting of greenhouse gas (GHG) emissions. Innovative FAO SEPAL satellite data processing modules were designed to produce vegetation-cover change maps and estimates of soil moisture across the peatland landscape, to assess peatland changes and the progress of their restoration impacts. These new products enable estimates of soil moisture over millions of hectares. A tailored and user-friendly tool for quickly estimating GHG emissions from land-use changes was developed, to support land managers and planners in evaluating management options and in assessing the impacts of various alternative choices in peatlands landscapes. In addition, the capacities of over 100 government staff members were significantly strengthened to apply both toolsets in peatland monitoring, through both face-to-face and online training sessions. The stakeholders have access to the new, relevant, easy-to-use tools, tailored to the country's needs. Another of the key outputs of the project was the development of a report co-authored by leading international and national experts working in the field, summarizing the state-of-the-art approaches and current level of knowledge in peatland restoration monitoring globally.

KEY FACTS

Contribution

USD 1 670 000

Duration

July 2018 – December 2020

Resource Partner

United Nations Office for Project Services (UNOPS), with financial support from Norway's International Climate and Forest Initiative (NICFI)

Partners

UNOPS, Indonesia Peatland and Mangrove Restoration Agency (*Badan Restorasi Gambut dan Mangrove* [BRGM])

Beneficiaries

Staff from BRGM and Ministry of Environment and Forestry (MoEF), and other national agencies and institutions involved in peatland restoration monitoring; communities living in peatland landscapes

IMPACT

The project is expected to contribute to climate change mitigation, as a result of the improved peatland monitoring system and the reporting of GHG emissions, as well as through the enhanced capacity for effective climate change-related planning and management. In addition, the introduction of new approaches to innovative monitoring of Indonesia's peatlands contributes to rehabilitating degraded land, thereby greatly reducing the risk of fires.



ACTIVITIES

- Innovative peatland monitoring tools developed and operationalized on SEPAL platform, through three missions carried out by FAO remote-sensing and peatland experts.
- Soil moisture and vegetation change data processed in SEPAL, and made available in Peatland Restoration Information and Monitoring System (PRIMS) for the 106 peatland hydrological units across seven provinces in Indonesia.
- Peat-GHG tool developed, following international guidelines and recent research, and tailored to Indonesia.
- Application and institutionalization of peatlands monitoring system undertaken in Indonesia, including peatland monitoring workshop organized in Rome in May 2019, comprising 35 representatives from different countries.
- Total of 102 Indonesian staff members from 13 different national agencies and other institutions trained to use FAO tools.
- Capacity in GHG estimation and use of SEPAL tools for peatland restoration monitoring developed, through face-to-face and online training courses.
- Four training workshops held, two Peat-GHG tool and two SEPAL, for stakeholders in Indonesia and online; and monthly coaching sessions provided.
- Fully costed paludiculture project proposal developed and submitted to BRGM board in December 2018, and ready to be implemented.
- Guidance developed, including comprehensive manuals for SEPAL platform and Peat-GHG tool, and materials widely disseminated through online community of practice on peatlands and FAO Web site, and the Trello board (<https://trello.com/b/1RriK3jW/fao-peatland-monitoring-ghg-estimation>).



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