

# The impact of peatland restoration practice on hydrological function and peatland development in tropical environments

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## Research Objective

The main topic is about how peatland restoration measures and future climate change may affect peatland hydrological function and peatland long-term development. This research will explore some of the tropical peatland key hydrological properties spatial variation in drained, undisturbed, and progressing restoration peatland.

**Research Period:** 1 July 2019 – 31 December 2019.

## Research Counterparts:

Mrs. Novianti Nugraheni – Sebangau National Park, Ministry of Environment and Forestry, Indonesia.

Mr. Hendrik Segah – CIMTROP, University of Palangka Raya, Indonesia.

Mr. Mark E. Harrison – Borneo Nature Foundation, Indonesia.

## Research Location:

Empirical field data will be collected, focussing on sites in Kalimantan, Indonesia, where significant investment in peatland restoration is planned. Those locations are:

Sebangau National Park – Intact peatland.

Laboratorium Alam Hutan Gambut (LAHG) – Conserved peatland.

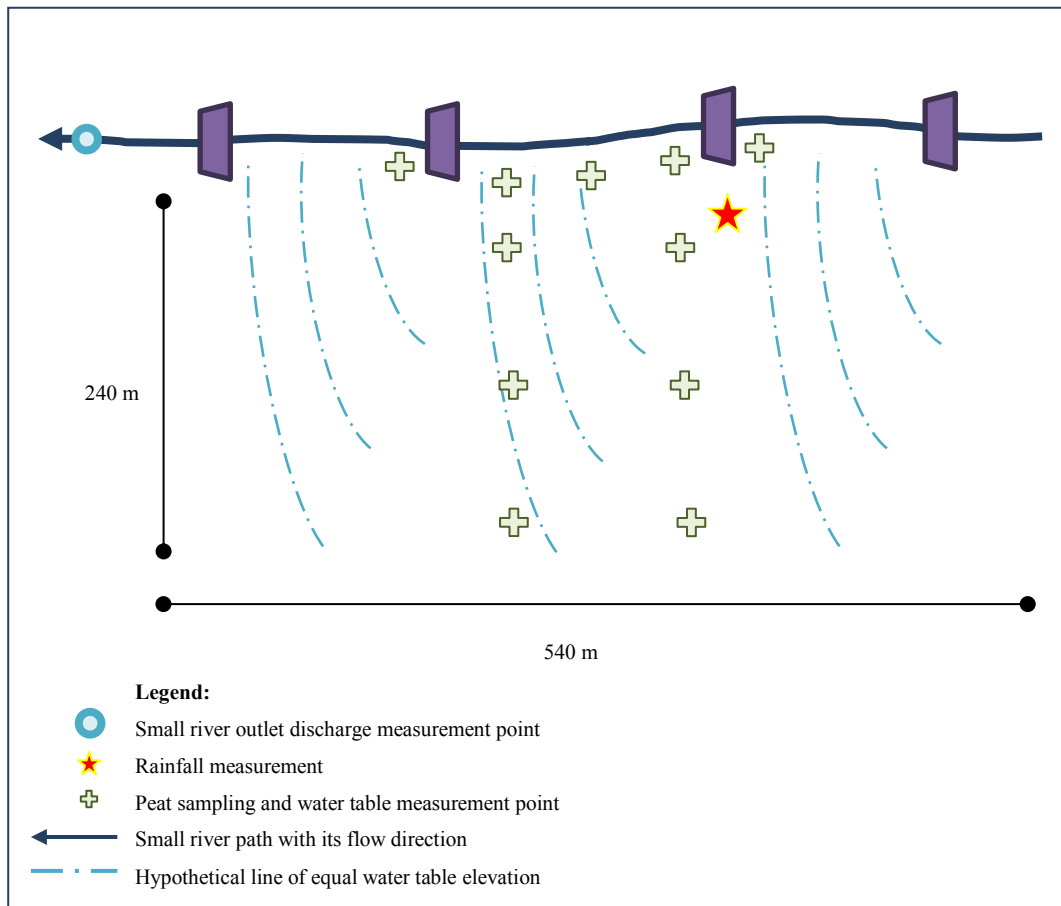
Ex-Mega Rice Project Area (ex-PLG) – Disturbed peatland.

## Research Plan

Hydrological monitoring instruments will be installed in each site. These instruments include canal water level monitoring, peatland water level monitoring, and rainfall water level monitoring. The continuous monitoring logger will be activated within 2 months of dry season and 2 months of wet season.

Some manual hydrological monitoring efforts will be implemented too. This manual efforts will help to draw the hydrological variable spatial variability in each of the studied peatland. In specific, there will be 10 peatland water level manual monitoring points in each studied site. The manual measurements will be conducted by the support of local people or research assistant. The measurement point arrangement example is presented in the following figure.

Furthermore, peat physical properties of the studied sites will be tested either in situ or in the laboratory. The in situ test is the saturated hydraulic conductivity test. The test will be conducted at several peat depths. If the targeted peat depth is not saturated during the dry season, the test will be conducted on the wet season or the test will be replaced with soil infiltration test. Meanwhile, some peat samples will be collected for bulk density test, porosity test, and fibre content test in the laboratory.



**Figure.** Detail sampling point schematization for the peatland forest with canal blocking site.

### Research Budget

This PhD research is supported by LPDP. The covered funding items are:

1. Consumable materials (e.g. testing liquid, disposable tools, etc.).
2. Office utensils (e.g. paper, ballpoint, permanent marker, etc.).
3. Instrument rental (not for instrument purchasing).
4. Print and copy fee.
5. Flight ticket – economy class (1 x Outbound and 1 x Return).

The accommodation fee and local transport fee are included in the monthly student living allowance.