

Locating and delineating peatlands and other organic soils in the tropics

Alexandra Barthelmes (1), Uwe Ballhorn (2), John Couwenberg (1), and Hans Joosten (1)

(1) Greifswald, Institute for Botany and Landscape Ecology, Department of Peatland Studies and Palaeoecology, Greifswald, Germany (abarthelmes@gmx.de), (2) RSS Remote Sensing Solutions GmbH, Isarstr. 3, 82065 Baierbrunn; Germany

Key words: peatland mapping, Tropics, High Carbon Study, remote sensing, legacy soil maps

Deforestation and drainage of tropical peatlands stops their ability to sequester carbon and leads to the emission of huge amounts of greenhouse gases both through microbial oxidation and fire. According to the High Carbon Study (2015; Barthelmes et al. 2015), all tropical organic soils with more than 20% soil organic matter or more than 12% soil organic carbon surpass the High Carbon Stock forest equivalent threshold with respect to soil carbon if their organic layer is deeper than 15 cm. These areas thus need to be excluded from reclamation for oil palm, rubber or any other plantation to prevent huge greenhouse gas emissions and peat fires. We outline state-of-the-art information and present practical guidance on locating and delineating organic soils (incl. peatlands) in West Africa and Southeast Asia, where expansion of oil palm plantations is expected. The use of legacy soil and suitable proxy data (e.g. hydromorphic soils, wetlands, wetland vegetation, depressions, floodplains), and up-to-date remote sensing approaches (Optical, Radar or LiDAR) on different scales will be illustrated using examples from Papua New Guinea, Indonesia and Sierra Leone.

Mapping for the local (concession) scale needs to be accompanied by thorough field survey, whereas identification of large tracks of organic soils as 'no-go' areas for oil palm plantations for regional scale planning may base on legacy data and remote sensing solely.

Barthelmes A, Ballhorn U & J Couwenberg 2015. Consulting Study 5: Practical guidance on locating and delineating peatlands and other organic soils in the tropics. The High Carbon Stock Science Study, Malaysia.