



Ministry of Environment and Forestry
Republic of Indonesia

PEATLANDS COMPONENT – NATIONAL GHG INVENTORY

Indonesia's forest and land use sectors have traditionally been considered as a significant contributor to global greenhouse gas (GHG) emissions. However, estimates of their total contribution have always been uncertain. The Indonesian National Carbon Accounting System (INCAS) has been developed to better account for these net emissions.

This poster summarises the methodology and results for monitoring net GHG emissions from peatland fire and biological oxidation under phase one of the INCAS.

Methods

GHG emissions from biological oxidation and peat fires across Indonesia's peatlands are estimated using a Tier 2 methodology (Figure 1), incorporating spatial and non-spatial data inputs.

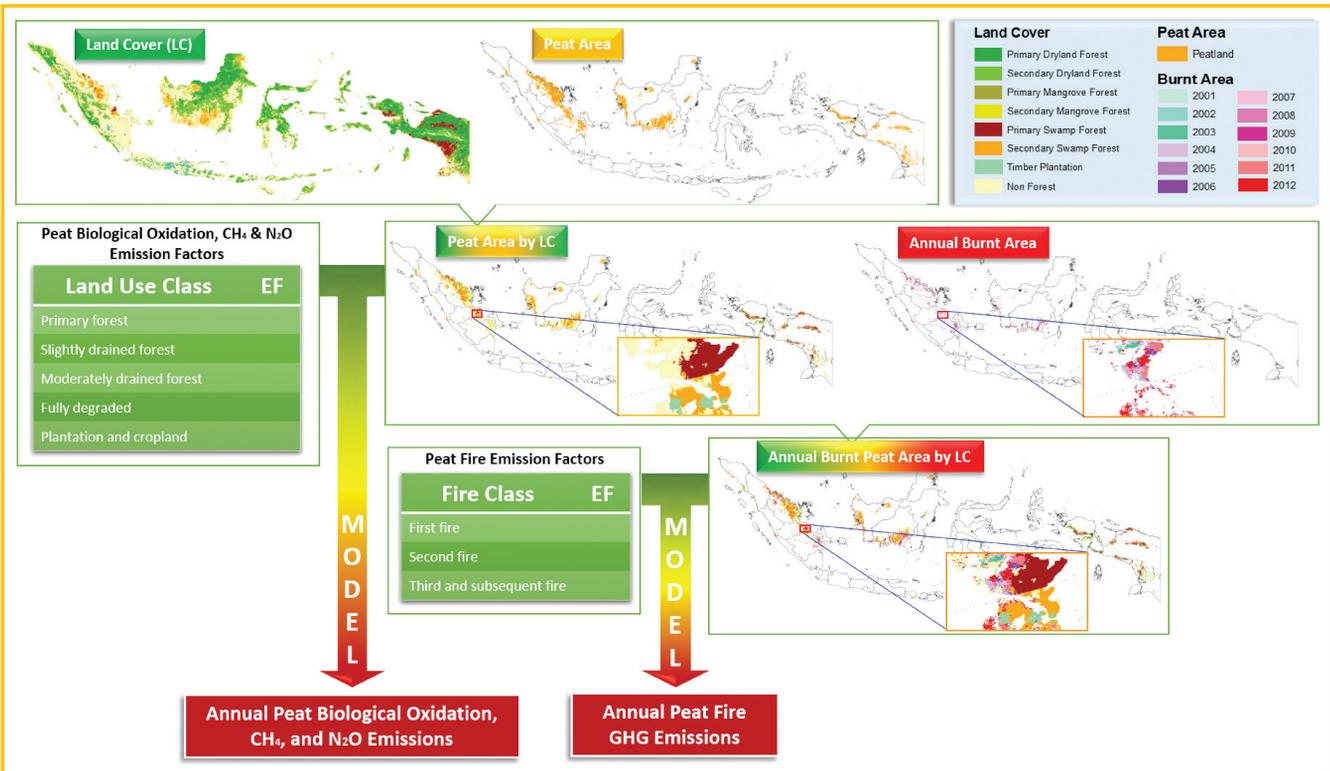


Figure 1. Overview of INCAS peat fire GHG emissions estimation approach

Annual changes in the area of drained peatland are estimated using the INCAS Land Cover Change Analysis outputs and land management information. Annual areas of peatland burnt and the frequency of fires (Figure 2) are estimated using MODIS hotspot data, corrected by Landsat and LiDAR burn scar data.

Total annual GHG emissions for 2001-2012 are estimated by multiplying the area affected by drainage and fires by activity specific emission factors (EFs) derived from the IPCC 2013 Wetlands Update, supplemented by peat fire data from studies in Indonesia.

Results

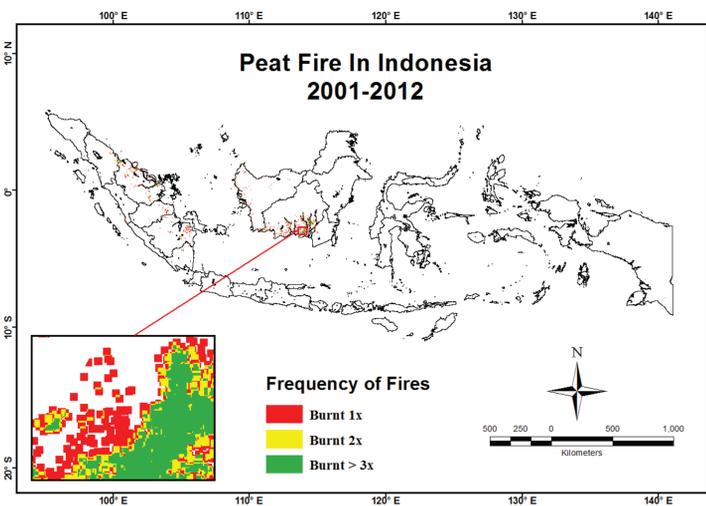


Figure 2. Annual Peat Fires In Indonesia 2001-2012

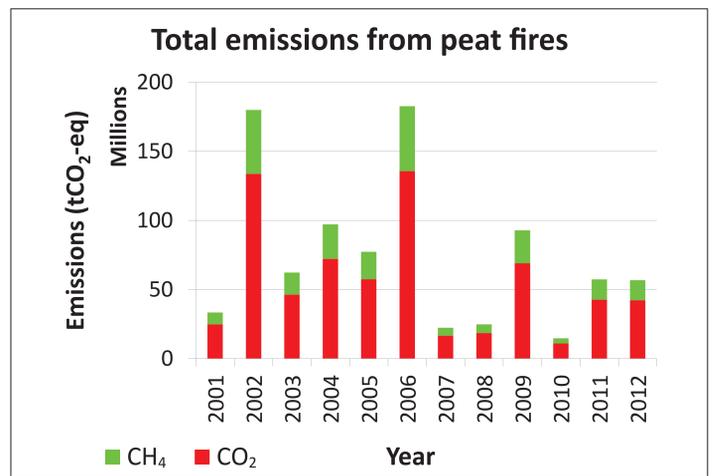


Figure 3. Annual estimates of GHG emissions from peat fires in Indonesia for the period 2001 to 2012

Significant annual variations in GHG emissions from peat fires occurred across Indonesia throughout 2001-2012 (Figure 3).

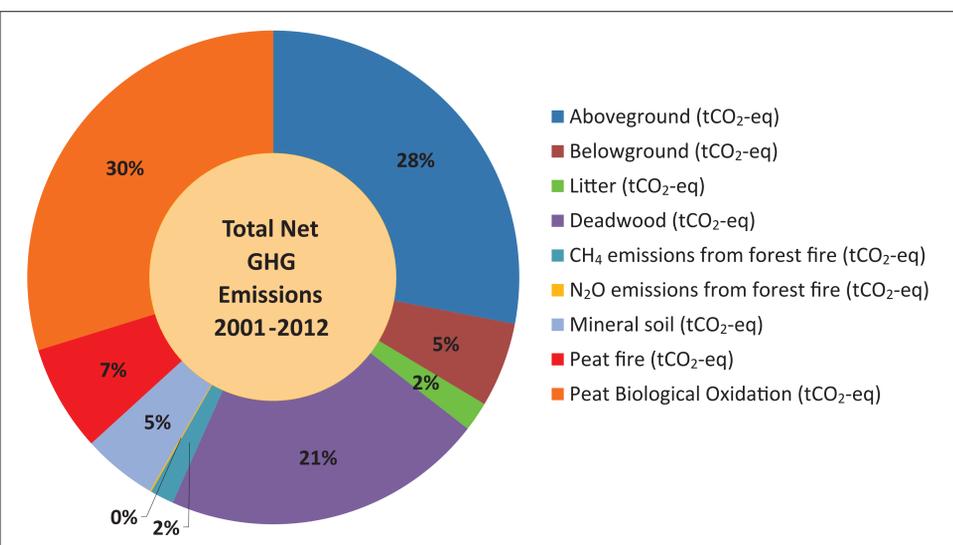


Figure 4. Total net GHG emissions estimates from forests and peatland in Indonesia

High emissions from peat fires in 2002 and 2006 contributed significantly to the elevated emissions from peatlands in those years. Riau, Central Kalimantan and South Sumatra contributed more than 70% of the total GHG emissions from peat fires in Indonesia.

GHG emissions from the biological oxidation of peatlands was the largest single source of emissions (Figure 4). This reflects the large areas of peatlands cleared and subsequently drained in the years prior to the analysis period.