



# Reference Level for the Estimation of Emission Reduction from Peatland Restoration

## Executive Summary

The Government of Indonesia's position and commitment to sustainable development is already widely known, as is its commitment to reducing greenhouse gas (GHG) emissions; the cause of global climate change. Indonesia's commitment to reducing greenhouse gases is laid out in its Nationally Determined Contribution (NDC) document, and was recorded in the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat in November 2016. The NDC states that Indonesia's GHG emissions in 2010 were 1,334 million tons of CO<sub>2</sub> equivalents (MtCO<sub>2</sub>e) and would increase to 2,869 MtCO<sub>2</sub>e in 2030 under a business as usual scenario without intervention. Indonesia has committed to reducing GHG emissions by 29% (834 MtCO<sub>2</sub>e) independently before 2030, or by 41% (1,081 MtCO<sub>2</sub>e) with international assistance.

Most activities for GHG emissions reduction need to be carried out in the land and forestry sectors with figures from around 647 MtCO<sub>2</sub>e through independent efforts to 714 MtCO<sub>2</sub>e with international assistance. For that reason a reference GHG emissions level of 568 MtCO<sub>2</sub>e for these sectors – called the Forest Reference Emission Level (FREL) – has been set as the emissions reduction reference for avoided deforestation, forest degradation, and peat decomposition.

Emissions from the land and forestry sectors are closely tied to deforestation, peatland degradation, and peatland and peat forest fires. To curb emissions and restore peatlands that have suffered degradation, including excessive drainage causing decomposition and fires, the government established the Peatland Restoration Agency (known as *Badan Restorasi Gambut*, BRG) in early 2016. BRG has tasks to coordinate and facilitate peatland restoration activities, with a restoration target of 2.2 million hectares degraded peatlands in seven provinces: Riau, Jambi, South Sumatra, West Kalimantan, Central Kalimantan, South Kalimantan and Papua by 2020.

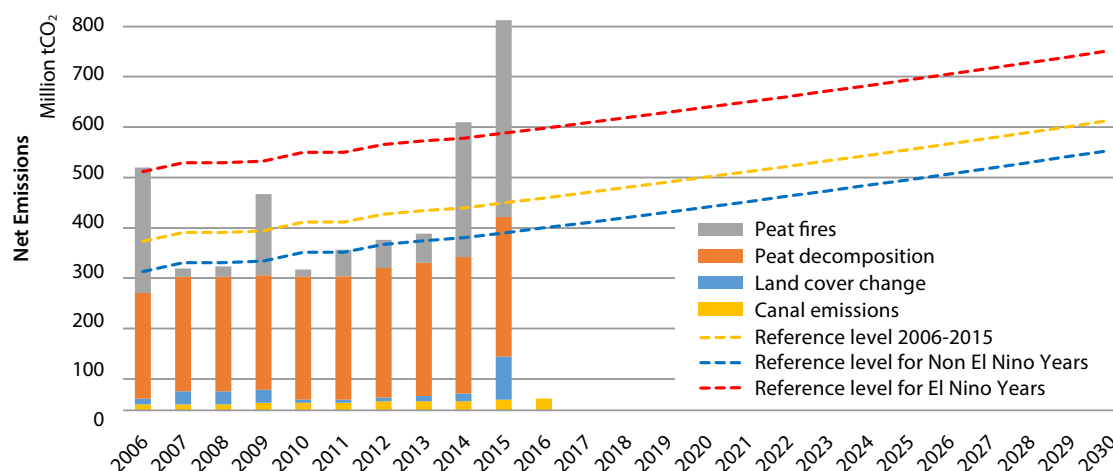


Figure 1. Total net emissions from land cover change, decomposition, emissions from drainage canals and peat fires for the 2006-2015 period, and Reference Level for 2016-2030 with three El Niño scenarios: without El Niño years (the broken blue line), with El Niño years (the broken red line) and all year averages (the broken yellow line).

This Reference Level (RL) document was prepared to look at the efficacy of peatland restoration activities in reducing GHG emissions. The aim of determining the RL is to infer GHG emissions reductions from the following activities: (i) rewetting to reduce the decomposition of organic matter in peat and the reoccurrence of forest and land fires; (ii) revegetating to increase carbon sequestration; and (iii) revitalizing community livelihoods to reduce pressures to convert peat swamp forests. The scope for RL use is peatlands; it does not include activities carried out on mineral soils.

The RL was determined by using historical data for the 2006-2015 period based on changes in vegetation cover in forests and peatlands, decomposition in deforested and degraded peatlands, canal construction, and peatland fires. Historical RL figures for these activities were: 25 MtCO<sub>2</sub>e from land cover change, 228-278 MtCO<sub>2</sub>e from decomposition, 21-24 MtCO<sub>2</sub>e from canal construction, and 110 MtCO<sub>2</sub>e from peatland fires (see Figure 1).

Accordingly, average combined Reference Level aggregations for peatland restoration were 431 MtCO<sub>2</sub>e in 2015; 372 MtCO<sub>2</sub>e for non El Niño conditions, and 564 MtCO<sub>2</sub>e for El Niño conditions. With an additional 10.8 MtCO<sub>2</sub>e of GHG emissions a year from deforestation and degradation, peat decomposition, and emissions from drainage canals, projected average emissions levels from Indonesia's peatlands in 2030 are 569 MtCO<sub>2</sub>e; 510 MtCO<sub>2</sub>e without El Niño, and 588 MtCO<sub>2</sub>e with El Niño.

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