

Standard Methods for Estimating Greenhouse Gas Emissions from Forests and Peatlands in Indonesia

(Version 2)



Chapter 1: Introduction



MINISTRY OF ENVIRONMENT AND FORESTRY
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The other chapters and full publication are also available on the INCAS website www.incas-indonesia.org



INTRODUCTION

This document (Annex) describes in detail the standard methods developed by the Indonesian National Carbon Accounting System (INCAS) to quantify net greenhouse gas (GHG) emissions for forests and peatlands in Indonesia in a transparent, accurate, complete, consistent and comparable (TACCC) manner. The first version of the standard methods, described in Krisnawati et al. (2015a) were initially tested and refined to estimate emissions and removals from forest and peatlands in Central Kalimantan as the REDD+ pilot province, the results of which are reported in *Estimation of Annual Greenhouse Gas Emissions from Forest and Peat Lands in Central Kalimantan* (Krisnawati et al., 2015b). These methods were improved as the coverage of INCAS was expanded to cover all provinces in Indonesia. Improvements arose due to access to new data sources and enhanced technical expertise.

The standard methods describe the approach and methods used for data collation, data analysis, quality control, quality assurance, modelling and reporting of GHG emissions and removals. Use of the standard methods ensures consistent methods are applied for every forest land sector GHG inventory conducted, regardless of the geographic or temporal coverage. The standard methods include:

1. *Standard method – initial conditions*: describes the process for defining the initial conditions that are used as inputs for modelling GHG emissions and removals. This includes aboveground biomass, belowground biomass, litter and dead wood (woody debris) for each biomass class (see Chapter 2 of this Annex).
2. *Standard method – forest growth and turnover*: describes the process for defining rate of growth, turnover of aboveground biomass and belowground biomass and decomposition rate of debris (deadwood and litter), for each component of each biomass class, which are used as inputs for modelling GHG emissions and removals (see Chapter 3 of this Annex).
3. *Standard method – forest management events and regimes*: describes the process for defining forest management events and regimes and their impact on carbon stocks as inputs for modelling GHG emissions and removals (see Chapter 4 of this Annex).

4. *Standard method – forest cover change*: the standard methods used to monitor changes in forest cover in Indonesia are described in *The Remote Sensing Monitoring Program of Indonesia’s National Carbon Accounting System: Methodology and Products, Version 1* (LAPAN, 2014) (see Chapter 5 of this Annex).
5. *Standard method – spatial allocation of regimes*: describes how available spatial data are used to consistently allocate management regimes to areas analyzed and to derive annual area statistics for use in INCAS (see Chapter 6 of this Annex).
6. *Standard method – peatland GHG emissions*: describes the process for quantifying GHG emissions from biological oxidation of drained peat, direct emissions from drained organic soils and emissions from peat fire (see Chapter 7 of this Annex).
7. *Standard method – data integration and reporting*: describes the process used to bring together data from the other INCAS standard methods (1–6) and to estimate GHG emissions and removals from activities occurring on forest lands including deforestation, forest degradation, sustainable management of forests and enhancement of forest carbon stocks in Indonesia (see Chapter 8 of this Annex).

This second version of the standard methods describes the methods, assumptions and data inputs used to estimate GHG emissions and removals for all provinces in Indonesia as part of the inaugural national GHG inventory using the INCAS. The standard methods should be updated as new data and technology become available, ensuring the continuous improvement of INCAS.

This publication describes in detail the standard methods of the Indonesian National Carbon Accounting System (INCAS) to quantify net greenhouse gas (GHG) emissions from forests and peatlands in Indonesia in a transparent, accurate, complete, consistent and comparable manner. The standard methods describe the approach and methods used for data collation, data analysis, quality control, quality assurance, modelling and reporting. The standard methods cover (i) Initial Conditions, (ii) Forest Growth and Turnover, (iii) Forest Management Events and Regimes, (iv) Forest Cover Change, (v) Spatial Allocation of Regimes, (vi) Peatland GHG Emissions, and (vii) Data Integration and Reporting. This second version of the standard methods includes improvements implemented in preparing the first comprehensive national GHG inventory for forests and peatlands, the results of which are reported in *National Inventory of Greenhouse Gas Emissions and Removals on Indonesia's Forests and Peatlands*. This publication has been prepared and published by the Indonesian Ministry of Environment and Forestry, under the Research, Development and Innovation Agency.



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