



Indonesia-Australia
Forest Carbon Partnership



FACTSHEET

Indonesian National Carbon Accounting System (INCAS) Program

December 2013

Due to changing climate, countries are seeking to reduce the quantity of greenhouse gas (GHG) emissions they release into the atmosphere. Deforestation contributes to around 18 percent of global GHG emissions and for Indonesia, a country with high forest cover and high rates of deforestation, forests will play an important role in it reaching its emissions reduction targets. A country needs to be able to measure its GHG emissions and removals (the uptake of carbon by forests) to better understand, manage and progressively reduce its emissions in response to climate change. Effective and transparent systems to measure, report and verify (MRV) emissions underpin all efforts to reduce GHG emissions.



Degraded forest area

Indonesia, as a leading REDD+ (Reducing Emissions from Deforestation and forest Degradation) country, is developing an MRV system to enable emissions reductions to be reported and managed with greater certainty. This system will need to monitor emissions and carbon uptake from Indonesia’s entire forest estate annually.

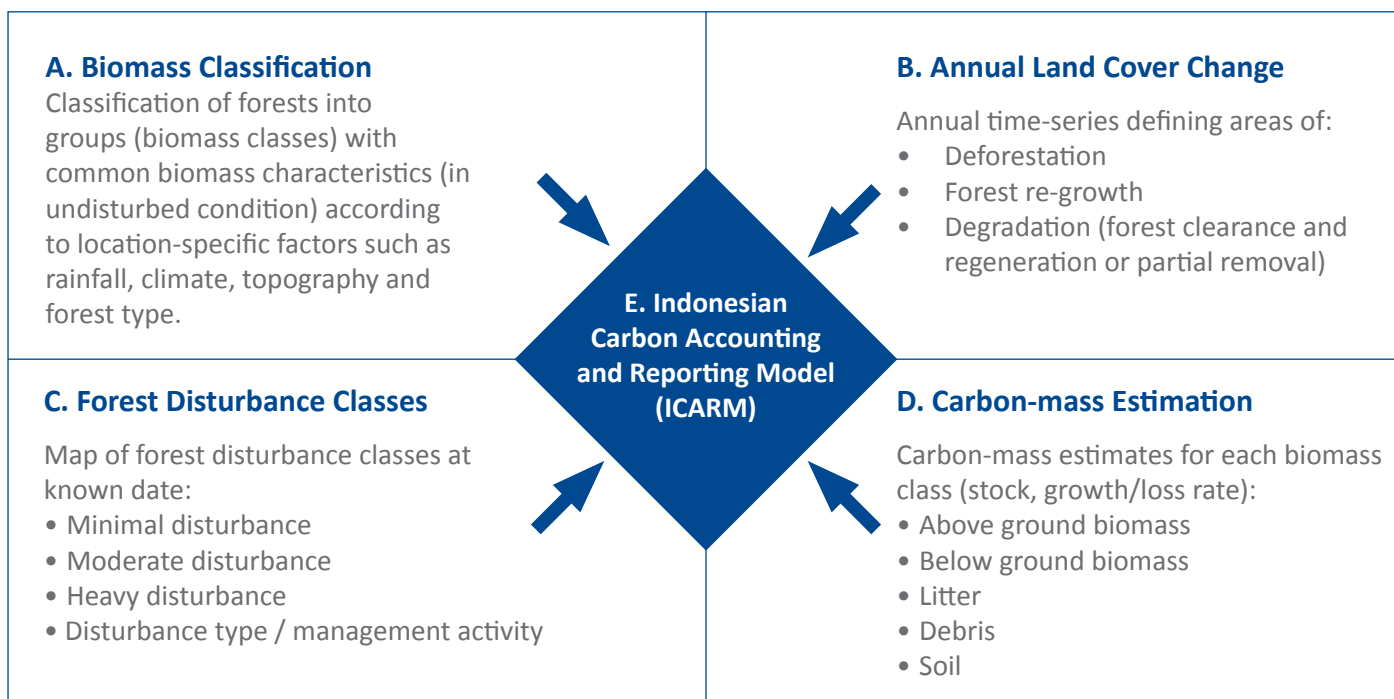
The Indonesian National Carbon Accounting System (INCAS) Program has been assisting the Indonesian Government to design and implement a national MRV system called ‘INCAS’. This assistance includes technical support and resources to partner agencies – the Ministry of Forestry, the Indonesian National Institute of Aeronautics and Space (LAPAN) and others – to build the system and their capacity in this field.

The INCAS is being developed in a phased approach starting with the Pilot Province of Central Kalimantan as a pilot MRV system. Following this, the system will be expanded across Indonesia according to the UNFCCC requirement for forest MRV systems to be developed at the national level. This system is being developed to comply with international good practice guidance and with sufficient flexibility to be able to meet Indonesia’s future carbon accounting requirements. The outputs will be estimates of GHG emissions and removals which will form the basis for the national GHG inventories, and can be used to analyse land sector policy options and meet multiple emissions reporting requirements.

There are many potential uses for the outputs from this system. These may include:

- Supporting participation in future carbon markets in schemes such as REDD+

INCAS pilot system framework



- Informing the design of Indonesia's REDD+ architecture including, but not limited to, generating reference emissions level (REL) scenarios and selection of a base year.
- Tracking progress towards emissions reduction targets and possible international treaties.
- Supporting informed decision-making and appropriate management of GHG emissions and Indonesia's forests.
- Forming a basis for international climate change and REDD+ negotiations.
- Informing domestic policy development, implementation and monitoring progress; and
- Sustainable land use planning and other applications.

The INCAS is designed to use remote sensing imagery to detect the occurrence of forest cover change. In these areas, GHG emissions estimates are based on available data and knowledge of the existing forest biomass and carbon stock, together with the forest disturbance and management events that caused the forest to change. This allows for the flow of carbon to be tracked between the different forest carbon pools and the atmosphere, using a mass-balance approach which is driven by the observation of forest disturbance events. GHG emissions largely occur where a loss of forest cover has been detected and new growth is estimated.



The INCAS team at work.



The forest cover change analysis is conducted by LAPAN, and the biomass and emissions estimation work by the Forestry Research and Development Agency (FORDA) within the Ministry of Forestry. FORDA is producing these results in collaboration with the REDD+ Pilot Province of Central Kalimantan and the REDD+ Special Team, the REDD+ Agency (once established), LAPAN, the Directorate General of Forestry Planning, the Ministry of Environment, BAPPENAS and other agencies to produce national level emissions estimates which meet their emission reporting requirements.

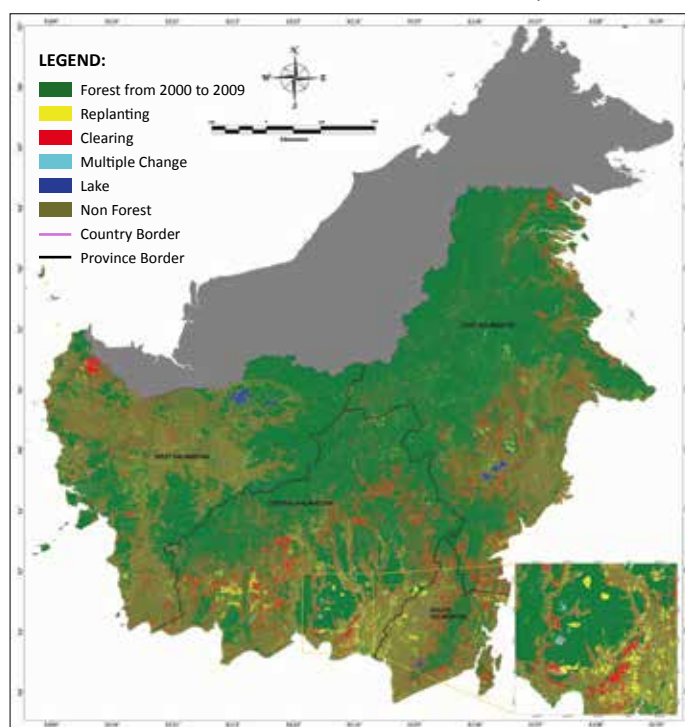
Progress to date under the INCAS Program

With the Central Kalimantan MRV Team and REDD+ Special Team, FORDA, using inputs from LAPAN and the Directorate General of Forestry Planning and its own analysis, has developed a simple system to estimate GHG emissions from forests in Central Kalimantan. This approach is designed to meet the interim emissions reporting requirements for REDD+ at this time, and account for interim estimates of annual GHG emissions for the period 2000-09.

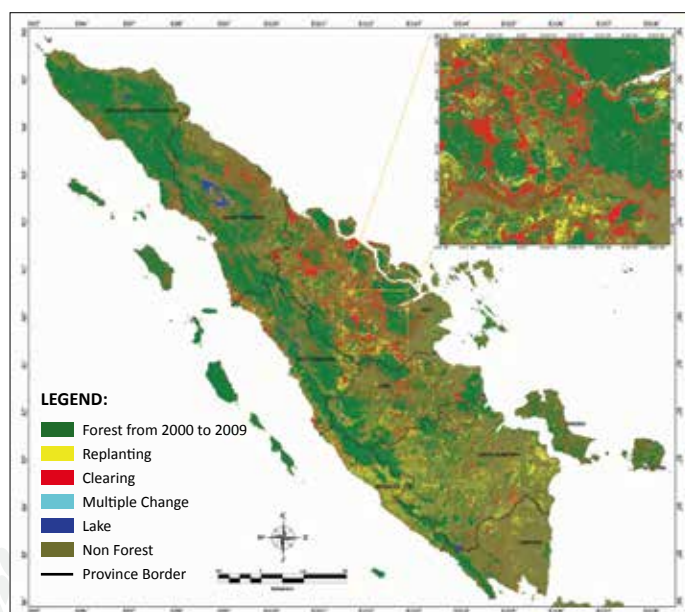
This system is undergoing improvement with the development of a detailed system over Central Kalimantan. This will be an event driven mass-balance model that traces the flow of carbon between the different carbon pools.

The Government of Indonesia will expand the detailed system across Indonesia to provide national-level coverage and 'wall-to-wall' estimates of GHG emissions from Indonesia's forests.

FOREST COVER LOSS AND GAIN - KALIMANTAN, 2000-2009



FOREST COVER LOSS AND GAIN - SUMATRA, 2000-2009



Forest-cover change analysis

The INCAS Program is working closely with LAPAN to build its capacity to monitor forest cover change from satellite imagery.

LAPAN is using both medium and high-resolution satellite imagery, provided through the INCAS Program, to support analysis and produce forest cover change data for use in the INCAS. The INCAS Program has also supported the installation of equipment at LAPAN to store and process these large quantities of satellite data.

Progress to date includes the completion of nationwide forest cover change analysis showing forest loss and gain for all the main island groups in the Indonesian archipelago. This analysis is produced in a consistent time series to allow for the history of forest change to be monitored and the carbon impact assessed and factored into the emission estimations. These maps, integrated with Ministry of Forestry data, can also serve as a valuable tool for other sustainable land use planning efforts in Indonesia.

Biomass, carbon modelling and emissions estimations

FORDA, as the implementing agency for INCAS, is leading the development of the INCAS with support from LAPAN

and IAFCP. In this role, FORDA with LAPAN, the REDD+ Pilot Province and the REDD+ Special Team have produced the first simple account of GHG emissions from Central Kalimantan. FORDA has also commenced development of a more detailed system over Central Kalimantan which includes the operation of an event driven mass balance carbon model. In support of this more detailed system, FORDA has compiled a significant amount of forest data and conducted pre-analysis of this. It has conducted extensive research into forest carbon stocks and prepared interim emissions factors for common forest types. Importantly, FORDA has produced national guidelines for estimating biomass and carbon stocks in Indonesia's forest. Using these standards, FORDA has conducted early analysis to produce forest biomass classes in Kalimantan, a key input to the more detailed system.

The INCAS team at FORDA has taken part in an extensive training program in carbon accounting and emissions modelling. Its strong capacity in forest carbon accounting, and in forest MRV issues generally, is demonstrated by its leading role in the development of the INCAS.



Collaboration meeting with the pilot province and REDD+ special team.