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Objectives
Use data-modeling framework to pursue three principal objectives:

¾ Improve our understanding of the historical effects of land cover and land use change (LCLUC) dynamics on the quantities and pathways of biogeochemical carbon and nitrogen fluxes

¾ Project future LCLUC in the study region in the next 50 years

¾ Quantify the impacts of current and future LCLUC on carbon and nitrogen dynamics in the study region

Satellite-Based LAI Data

Remote sensed forest fraction data for South East Asia at 30 m resolution (2005) based Landsat satellite.


LCLUC data resampled at 250 meter resolution for the year 2005. The land classifications are based on University of Maryland scheme.

Satellite-Based LCLUC Data

LCLUCs due different human activities compiled based on different sources. The data is compiled over the period 1765-2005. The data is shown here for the year 2005 in unit km². The sources for different data sets are:

(a) Cropland: updated Rasiakutty, N. and J.A. Foley (1999),
(b) Pastureland - Rasiakutty, N. and J.A. Foley (2006),
(c) Wood harvest - Hurtt et al. (2006),
(d) Urban land - Goldewijk et al. (2010),
(e) Secondary forest - Yang et al. (2010).

Land Use Change Due to Different Human Activities

Barren Land
Urban Land
Cropland
Grasslands
Open Shrublands
Closed Shrublands
Wooded Grasslands
Woodlands
Mined Forests
Deciduous Broadleaf Forests
Coniferous Needleleaf Forests
Evergreen Broadleaf Forests
Evergreen Needleleaf Forests
Water Bodies

Remotely sensed LCLU data for Indiaregion at 56 m resolution (2004-2005) based on Indian satellite IRS-P6 (AWiFS) (Courtesy: P.S. Roy, ISRO).

Remotely sensed forest fraction data for South East Asia at 30 m resolution (2005) based Landsat satellite.

MODIS LCLU data resampled at 250 meter resolution for the year 2005. The land classifications are based on University of Maryland scheme.

ISAM Land Surface Model and Results

ISAM Land Surface Model

PET Model IPCC A1B LU Scenario Development:

¾ Computable General Equilibrium model
¾ 9 world regions
¾ 5 economic sectors
¾ Input: A1B and use input assumptions - IIASA
¾ Economic & land data - GTAP
¾ Energy data - IEA

PET-IPCC A2 LU Scenario Results

PET-IPCC A2 Scenario Results

LAI

LAI

LAI

LAI