LEDS GLOBAL PARTNERSHIP | Agriculture, Forestry and Land Use (AFOLU) Working Group

"Moving on From Experimental Approaches to Advancing National Systems for Measuring and Monitoring Forest Degradation Across Asia"

A LEDS Global Partnership Regional Workshop hosted by the AFOLU Working Group

June 16, 17 and 18, 2015 - Marriott Courtyard, Bangkok, Thailand

Background

There is an increasing recognition of the scale of forest degradation across Asia's forests. Preliminary or 'first order' estimates suggest that approximately 129 million tons of CO_2, or 39% of the total emissions from deforestation and forest degradation, are emitted annually from selective logging, fuelwood collection and fire from the four lower Mekong countries[1]. The recognition of the scale of greenhouse gas (GHG) emissions from degradation and decline in the diversity of Asia's forests has seen a corresponding increase in efforts to test methodologies for detecting, measuring and monitoring forest degradation through remote sensing, field surveys, proxies and modeling. But the task is challenging. Lack of clarity and consistency in definitions, technical difficulties with timely and effective degradation detection methods for the diverse range of drivers with different temporal and spatial patterns, limited historical information and inadequate resourcing (financial and human) are some of the key impediments for the systematic inclusion of forest degradation emissions in national GHG inventories.

Furthermore, the majority of methods currently employed to measure and monitor degradation are still exploratory or in an R&D phase. Discussion around these approaches also tends to be based on defining minimum level requirements at the national (or sub-national level) rather than issues of cost-effectiveness, a country's desire or need for measuring and monitoring forest degradation and even what is meant by degradation.

In November 2012, USAID LEAF and the USFS IP convened an international workshop on monitoring forest degradation in Southeast Asia, concluding that "The interdisciplinary nature of forest degradation monitoring makes it a challenging professional endeavor and requires significant commitments in terms of time and resources". Since 2012, there have been substantive developments in the science and practice of measuring and monitoring forest degradation. The United States Government's SilvaCarbon program continues to support applied research in methods to detect and measure degradation, the USAID Lowering Emissions In Asia's Forests (USAID LEAF) in collaboration with the United States Forest Service International Program has analyzed degradation rates and patterns in four country landscapes, the USAID's SERVIR program is now coordinating with Asian countries to deliver required satellite imagery, UN-REDD continues to support the development of national Forest Reference Levels that include degradation, World Bank's Forest Carbon Partnership Facility REDD+ Decision Support Toolbox provides national and sub-national

[1] Winrock International (2014), Draft, Technical Guidance Series for the Development of a National or Subnational Forest Monitoring System for REDD+: Forest Degradation Guidance and Decision Support Tool, prepared for USAID LEAF (unpublished).

USAID FROM THE AMERICAN PEOPLE | UAS IP | European Commission | UN-REDD PROGRAMME | SilvaCarbon | leaf Lowering Emissions in Asia's Forests | SERVIR MEKONG

estimates of emissions from logging, fire and fuelwood, and the European Commission's Joint Research Centre's has just commenced work on 'Capacity Building for Improving the Assessment of Forest Degradation' (ReCaREDD). These efforts are matched by on-going advances at the country levels. But still the challenges persist to move from excellent experimental and pilots to cost effective national systems.

The workshop will encourage dialogue and debate on how countries are advancing their inventory systems for measuring and monitoring forest degradation. The key questions to be explored are: Why do countries want to measure degradation? How can countries start operationalizing existing approaches? What needs to be done to overcome the noted limitations? To structure this discussion, the workshop will provide a framework for countries to critically look at their own system needs and in so doing, encourage a closer look at issues of cost-effectiveness, regulatory settings, capacity and data needs. The workshop will connect country level efforts to international discussions emerging from such forums as the Global Forest Observation Initiative (GOFI) and Global Observations of Forest and Land Cover Dynamics (GOFC-GOLD) international R&D conference on monitoring forest degradation[2], the UN-REDD regional Forest Reference Level workshops to be held in Fiji, Cambodia and Nepal throughout 2015 and other on-going developments across Asia.

Workshop Objectives and Outcomes

The workshop is designed to build a common regional understanding of the rationale for measuring and monitoring forest degradation in the context of climate change mitigation and provide a platform for national policy makers and technicians and international researchers to share information on methodologies and approaches for measuring and monitoring forest degradation.

Specific objectives of the workshop are to:

- Build common understanding of the rationale for measuring and monitoring forest degradation and using this to examine forest degradation definitions and issues of cost-effectiveness;
- Exchange country information on methodologies and technical approaches, their current operational status and utility for estimating GHG-emissions at the national level;
- Review international developments in measuring and monitoring forest degradation and opportunities for advancing country led efforts; and
- Complete a degradation measuring and monitoring decision framework that considers critical decisions, key components and resourcing (human and technical) necessary in developing a functional plan for measuring and monitoring forest degradation at the national level.

Expected Outputs:

- A short synthesis paper targeting national land-use decision-makers (and other relevant stakeholders that documents degradation rates, country rationale for measuring and monitoring degradation and utility of current national measuring and monitoring systems for degradation M&M.
- A short strategy paper targeting national policy leaders and the donor community which outlines how countries could respond to the issues and challenges identified during the workshop in order to advance cost-effective national systems that match country aims and rationale for measuring and monitoring forest degradation.
- A guidance document targeting technicians at the national level outlining key decisions, processes and components in developing effective systems for measuring and monitoring forest degradation.

[2] This international R&D conference was held in October 2014. To access workshop reports and all presentations, please see http://gfoi.org/second-rd-workshop

Agenda

Day 1, Tuesday June 16, 2015: Why Measure Degradation –Reasons and Rates?

Time	Session Theme	Title	Presenter
9:00am	***Start***		
20 mins	Open & Welcome	Opening and Welcome • Vili Fuavao, Deputy Regional Representative, FAO Regional Office for Asia and the Pacific • Mrs. J. Lundmark, EU Delegation • Dr Geoff Blate, US Forest Service	
10 mins		Workshop aims and structure	Peter Stephen USAID LEAF
20 mins	Why Measure?	Why worry about forest degradation? Multiple perspectives and multiple dimensions	Dr Deborah Lawrence University of Virginia
20 mins		UNFCCC and IPCC guidance on measuring and monitoring forest degradation	Dr. Sapit Diloksumpun Kasetsart University
20 mins		The policy imperative for acting on degradation – investments and management.	Ben Vickers FAO/UN-REDD
10:30-11:00	***Break***		
20 mins	Why Measure?	Measuring degradation for REDD+ forest reference emission levels / forest reference levels	Dr Julian Fox FAO/UN-REDD
20 mins	Why Measure? Country Case Study	Case Study 1: India (Reasons, rates and definition)	Mr Rajesh Kumar Forest Survey of India, MoFE
20 mins		Case Study 2: Vietnam (Reasons, rates and definition)	Dr Dinh Hung Nguyen Forest Inventory and Planning, MARD
12:00-1:00	***Lunch***		
15 mins	Why Measure? Guidance	Overview of critical decisions and key components in planning to measure and monitor degradation	Katie Goslee Winrock International/ USAID LEAF
15 mins		USAID LEAF/USFS Regional Review- Guidance and 'Best Practice'	Rick Turner USFS
60 mins		**MIXED Country group work #1:** Why measure? What is the motivation?	**Break-Out Groups**
2:30-3:00		***Afternoon Break***	
20 mins	Guidance	Estimating national and sub-national levels of forest degradation: Identifying the significance of degradation activities.	Katie Goslee Winrock International/ USAID LEAF
20 mins		Approaches to Monitoring Forest Degradation for REDD+, GFOI GOFC-GOLD Guidance for Asia	Dr Deborah Lawrence University of Virginia
60 mins		**Country group work #2:** Assessing and defining degradation?	**Break-Out Groups**
20 mins		Feedback and Review	
5:00pm		***Close***	

Day 2, Wednesday June 17, 2015: Process and Practice

Time	Session Theme	Title			Presenter
9:00am		***Start***			
30 mins	Data and Approach	Accounting methods for Measuring and Monitoring Degradation.			Katie Goslee Winrock International/ USAID LEAF
30 mins		Remote Sensing Regional Review- Guidance and 'Best Practice'			Jukka Miettien JRC and CRISP/National University of Singapore
10-10:30		***Morning Break***			
	Data and Approaches (***Activity Data)***	**Medium Resolution Imagery**. Is it good enough?		**High Resolution Imagery**: Is it needed?	
20 mins		Google Earth Engine and CLASLite for rapid detection in 4 countries	Ian Housman, Paul Maus, Veerachai Tanpipat USFS/USAID LEAF	Detecting degradation in Laos	Dr. Kajiwara Kokusai Kogyo Co., Ltd.
20 mins		LandSat and time series analysis in Vietnam	Jim Vogelmann USGS EROS Center/ Silvacarbon	Lidar to detect degradation, USA & Nepal	Dr Amanda Whitehurst, USFS
20 mins		CollectEarth in PNG	Gewa Gamoga, PNGFA	Monitoring forest degradation using LiDAR & SAR data	Dr. Sandra Englhart RSS - Remote Sensing Solutions GmbH
45 mins		**Country Group Work #3: Activity Data** *What is needed and what is good enough? Are the right data being collected to answer the right questions?*			**Break-Out Groups**
12:15:-1:15		***Lunch***			
20 mins	Data and Approach ***(Emission Factors)***	Indian's NFI and the development of degradation Emission Factors			Mr Rajesh Kumar Forest Survey of India, MoFE
20 mins		Measuring degraded forests and developing emissions factors in Bangladesh			Mr. Md. Shams Uddin USAID CREL
20 mins		Measuring degraded forests developing emissions factors in Laos			Gabriel Eickhoff Forest Carbon
45 mins		**Country Group Work #4: Emission Factors** *What is needed and what is good enough? Are the right data being collected to answer the right questions?*			**Break-Out Groups**
3:00-3:30		***Afternoon Break***			
20 mins	Methods and Utility	Shifting Cultivation: Activity Data & Emission Factors for an integrated, scalable system			Kiyono Yoshiyuki (FFPRI)
20 mins		Logging (Planned and Unplanned: Activity Data & Emission Factors for an integrated, scalable system			Sandra Brown (Winrock/USAID LEAF)
20 mins		Fire emissions (planned and unplanned): Activity Data & Emission Factors for an integrated, scalable system			Anuchit Ratanasuwan Director Geoinfomatics & Veerachai Tanpipat (USAID LEAF)
60 mins		**Panel Discussion:** *Are the right data being collected to answer the right questions?*			Panel made up of above presenters
5:30		***Close***			

Day 3, Thursday June 18, 2015: Plans and Operations

Time	Session Theme	Title	Presenter
8:30am		***Start and Introduction the morning session***	
30 mins	Methods and Utility	Increasing data certainty	Dr Sandra Brown Winrock International
60 mins		**Country Group Work #5 :** Country delegates to share knowledge on national approaches, utility and cost-effectiveness. - What is being monitored? - How often? What method? - Is it effective? (Does it match the Why?)	**Break Out Groups**
10:00-10:30		***Morning Break***	
60 mins	Planning and Operations	**Country Group Work #6:** Completing the degradation measuring and monitoring decision framework	**Break-Out Groups**
45 mins		**Country reporting#7** **- South Asia** **- Lower Mekong** **- Insular Asia + PNG**	
15 mins	Planning and next steps	Introducing the European Union Joint Research Centre's project on 'Capacity Building for Improving the Assessment of Forest Degradation' (ReCaREDD)	Hans-Jürgen Stibig EC JRC/ReCaREDD,
15 mins		Concluding comments and next steps	
12:45		***Lunch and Close***	

Using Google Earth Engine Imagery and CLASLite Software to Detect Historical Degradation Rates and Patterns

Time: Thursday 18 June (afternoon) and Friday 19 June (all day), 2015
Location: The Marriott Courtyard Hotel, Bangkok
A 1.5 day training session on the use of Google Earth Engine (GEE) and CLASLite software to prepare satellite imagery and map historical deforestation and degradation rates and patterns. This session builds upon and show-cases the USAID LEAF work to estimate forest degradation rates, trends and patterns across four countries. Participates of the workshop will:

- Gain understanding, knowledge, and access to GEE's imagery database;
- Use basic scripts in GEE to assemble and prepare cloud-free image mosaics that can be used in time series change detection analysis to address forest change; and
- Use CLASLite software, as a free, publicly available resource, to provide estimates of historical deforestation and degradation rates, tends and patterns.

The trainers will include experts from the United States Forest Service Remote Sensing Application Center (USFS RSAC), USAID LEAF and Forest Carbon.

Specific topics include:
Day 1:

- Introduction to GEE playground and Javascript
- Accessing image collections (Landsat 5, 7, 8 and MODIS) in the GEE cloud
- Developing cloud-free image mosaics in GEE

Day 2:

- Developing custom functions in GEE (Normalized Difference Vegetation Index – NDVI)
- Exporting Images from the GEE cloud to your workstation
- Preparing imagery for CLASLite
- Understanding the inputs, parameters, and outputs of CLASLite
- How to assess and interpret CLASLite outputs of deforestation and degradation.

To attend the training, participants:

1. Should have a strong background and understating in remote sensing and GIS;
2. **MUST** register for the beta version of GEE at least 2 weeks prior to the training. To register, please complete the on-line GEE Beta Signup Form;
3. Should be familiar with the CLASLite software. (Note: We encourage participants to register and complete the on-line training before this training, but this is not a prerequisite); and
4. Bring their laptops to the training.

Please register your interest to attend this training. Numbers will be capped at approximately 20.