Module 1.1 UNFCCC context and requirements and introduction to IPCC guidelines

Module developers:

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After the course the participants should be able to:

- Understand the UNFCCC context and requirements for monitoring and reporting of REDD+ activities
- Explain fundamental concepts of the IPCC guidelines for national greenhouse gas (GHG) inventories and for reporting on forest-related activities

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Background material

- GOFC-GOLD. 2014. *Sourcebook*. Section 1.
- IPCC good practice guidelines and guidance (various). http://www.ipcc-nggip.iges.or.jp/public/index.html
- GFOI. 2014. Integrating Remote-sensing and Ground-based Observations for Estimation of Emissions and Removals of Greenhouse Gases in Forests: Methods and Guidance from the Global Forest Observation Initiative (MGD).
- Hewson, Steininger, and Pesmajoglou, eds. 2013. REDD+ Measurement, Reporting and Verification (MRV) Manual. USAID-supported Forest Carbon, Markets and Communities Program.

Background material

- UNFCCC. 2013. CP.19 Decisions:
  - Decision 11. Modalities for national forest-monitoring systems. http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=31
  - Decision 12. The timing and the frequency of presentations of the summary of information on how all the safeguards referred to in decision 1/CP.16, appendix I, are being addressed and respected. http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=33
  - Decision 13. Guidelines and procedures for the technical assessment of submissions from Parties on proposed forest reference emission levels and/or forest reference levels. http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=34
  - Decision 14. Modalities for measuring, reporting and verifying. http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=39
  - Decision 15. Addressing the drivers of deforestation and forest degradation. http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=43

Background material

- UNFCCC. 2011. Decision 12/CP.17. Guidance on systems for providing information on how safeguards are addressed and respected and modalities relating to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16 http://unfccc.int/resource/docs/2011/cop17/eng/09a02.pdf#page=16
- UNFCCC. 2011. Decision 2/CP.17. Outcome of the work of the ad hoc working group on long-term cooperative action under the convention. http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=4
- UNFCCC. 2010. Decision 1/CP.16. The Cancun Agreements http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2
- UNFCCC. 2009. Decision 4/CP.15. Methodological guidance for activities relating to reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf#page=11
- UNFCCC. 2007. Decision 2/CP.13. Reducing emissions from deforestation in developing countries: approaches to stimulate action. http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=8

Outline of lecture

1. Introduction to UNFCCC REDD+ process
2. UNFCCC context and requirements for measurement and reporting of REDD+ activities
3. IPCC guidelines for national GHG inventories and reporting for forest land
    a. Reporting principles
    b. Estimation of carbon emissions

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Tropical forests and climate change

- Tropical forests store significant amounts of carbon in above- and belowground biomass, dead wood, litter, and soil.
- Deforestation impacts global GHG emissions by releasing carbon dioxide (CO_2) to the atmosphere.
- A significant amount of emissions is from deforestation: see next slide.

Climate mitigation framework REDD+

- United Nations Framework Convention on Climate Change, Cancun Agreements on REDD+ (UNFCCC, 2011. Dec.1/CP16)
  "Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries"
- Following activities are included:
  - Reducing emissions from **deforestation**
  - Reducing emissions from **forest degradation**

  } **REDD**

  - **Conservation** of forest carbon stocks
  - **Sustainable management** of forest
  - **Enhancement** of forest carbon stocks

  } **+**

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Guidance from UN climate negotiations on MRV of REDD+ activities

Developing country parties are requested to develop the following elements:

- A national strategy or action plan
    - Including ways to address drivers of deforestation and forest degradation (See Module 1.3) and ensuring safeguards
- A robust and transparent national forest-monitoring system including, if appropriate, subnational systems (See Module 1.2)
- A national forest reference (emission) level (See Module 3.2)
- A system for providing information on the safeguards (respecting the role of local people and ecosystems)

REDD+ phased approach

Countries may follow a phased approach for implementing REDD+ in steps, which allows them to gradually build capacities and acquire data

Implementation phase		Characteristics	MRV activities
Phase 1	Readiness	National strategy or action plan formulation, development of policies and measures and capacity building	Capacity-development needs; roadmap development
Phase 2	Transition, implementation, and capacity building	Implementation of national policies and measures and national strategies or action plans (further capacity building); technology development and transfer and results-based demonstration activities	Demonstration activities; monitoring system development
Phase 3	Full implementation	Implementation of national policies and measures on the whole national territory; results-based actions that should be fully measured, reported, and verified	national performance monitoring system; fully operational MRV system to report REDD+ mitigation performance in CO_2e

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IPCC Good Practice Guidance and Guidelines

- IPCC guidance and guidelines comes in many different volumes
- Most relevant for REDD+ is 2003 Good Practice Guidance for Land Use, Land-Use Change and Forestry (GPG-LULUCF), which refers to 1996 Guidelines.
- Countries may wish to refer to the updates in the 2006 Guidelines (AFOLU).
- The GFOI Methods and Guidance Document (MGD) provides systematic linkage between IPCC guidance and each of the REDD+ activities, showing in each case how the IPCC methods can be used to estimate the REDD+ activity and countries may also wish to refer to this.

IPCC good practice principles

Countries should report estimates that are consistent with the five IPCC reporting principles:

- *Consistency* – Same definitions and methodologies used over time
- *Comparability* – *S*tandard methodologies and formats, provided by IPCC and agreed within UNFCCC
- *Transparency* – Assumptions and methodologies clearly explained and appropriately documented
- *Accuracy* – Estimates neither over- nor underestimated, uncertainties reduced as far as is practical
- *Completeness* – Estimates include all agreed categories, gases, and pools for all relevant geographical areas

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IPCC guidance on assessing activity data

Three approaches for assessing forest area changes, with increasing accuracy and precision

Approach 1	Approach 2	Approach 3
Total area for each land use category, but no information on conversions	Tracking of conversions between land-use categories, on nonspatially explicit basis	Tracking of land-use conversion on a spatially explicit basis
Only net changes between categories	Changes between categories	Changes between categories and within categories

- Assessment of remote sensing data (satellite images) for Approach 3

IPCC guidance on assessing emission factors

- Emission factor = change in C stock per unit area
- Stratification of carbon stocks into forest types with different C densities
- Assessment of 5 carbon pools per strata:
  - **Aboveground biomass** – trees and shrubs
  - **Belowground biomass** – root biomass
  - **Dead wood** – logs and fallen branches
  - **Litter** – fine woody debris, dead leaves and humus
  - **Soil organic matter** – carbon that has been incorporated into the mineral soil

IPCC guidance on assessing emission factors

Three tiers for estimating emission factors, with increasing accuracy and precision

Tier 1	Tier 2	Tier 3
IPCC default factors (i.e., biomass in different forest biomes, carbon fraction, etc.)	Country-specific data for key factors (e.g., from field inventories, permanent plots)	Detailed national inventory of key C stocks, repeated measurements of key stocks through time and modeling

Estimating C emissions from deforestation and forest degradation with use of disturbance matrix

- Retention, transfers, and releases of carbon can be tracked
- Impossible transfers are blacked out

From \ To	Above-ground biomass	Below-ground biomass	Dead wood	Litter	Soil organic matter	Harvested wood products	Atmo-sphere	Sum of row (must equal 1)
Aboveground biomass								
Belowground biomass								
Dead wood								
Litter								
Soil organic matter								

Source: IPCC 2006, AFOLU Guidelines

Country examples and exercises

Country examples

- Review of FCPF country REDD+ readiness preparation proposals
- Phased approach to improving greenhouse gas inventories in Mexico
- Experiences from annex I countries using tier 3 models for carbon accounting

Exercises

- Exercises will start in **Module 1.2.**

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Recommended modules as follow-up

- Module 1.2 as a continuation of the UNFCCC context within a country and to learn more about building a national forest-monitoring system for REDD+
- Modules 2.1 to 2.8 to continue with REDD+ measuring and monitoring
- Modules 3.1 to 3.3 to learn more about REDD+ assessment and reporting