

# Module 3.3 Guidance on reporting REDD+ performance using IPCC guidelines and guidance

## *Module developers:*

Giacomo Grassi, European Commission – Joint Research Centre

Erika Romijn, Wageningen University

Martin Herold, Wageningen University

## *After the course the participants should be able to:*

- Understand the general reporting and review principles
- Perform reporting of GHG emissions using the existing IPCC reporting tables
- Implement the conservative approach as a possible way to address potential overestimation of achieved mitigation



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# Background material

- GOF-C-GOLD. 2014. *Sourcebook*, section 2.9, “Guidance on Reporting.” <http://www.gofcgold.wur.nl/redd/index.php>
- GFOI. 2014. *Methods and Guidance from the Global Forest Observation Initiative* (GFOI MGD), section 5. <http://www.gfoi.org/methods-guidance-documentation>
- UNFCCC. 2003. Decision 17/CP.8. Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention. <http://unfccc.int/resource/docs/cop8/07a02.pdf>
- 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. 2010. Decision 1/CP.16. The Cancun Agreements. <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2>
- 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>



# Background material

- UNFCCC. 2013. Decision 13/CP.19. 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>
- UNFCCC. 2013. Decision 14/CP.19 Modalities for measuring, reporting and verifying.  
<http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf#page=39>
- World Bank FCPF. 2013. *Carbon Fund Methodological Framework. Final*.  
<https://www.forestcarbonpartnership.org/carbon-fund-methodological-framework>
- Grassi et al. 2008. "Applying the Conservativeness Principle to REDD to Deal with the Uncertainties of the Estimates."
- Grassi, Federici, and Achard. 2013. "Implementing Conservativeness in REDD+ Is Realistic and Useful to Address the Most Uncertain Estimates."



# Outline of lecture

1. Reporting and accounting REDD+ performance: UNFCCC reporting requirements
2. Guidance and modalities on reporting REDD+ performance from UNFCCC
3. Reporting principles under the UNFCCC: transparency, consistency, comparability, completeness, and accuracy
4. Structure of a GHG inventory (reporting tables, additional tables, inventory report)
5. Major challenges for reporting REDD+ by developing countries



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# Reporting: Basis to assess performance in REDD+

**Reporting:** Preparation and publication of information on anthropogenic greenhouse gas (GHG) estimates (emissions and removals), and on mitigation actions, in a GHG inventory, composed of estimates in common reporting format (CRF) tables + information on methods in a national inventory report (or similar)

**Accounting:** Use of the reported information to assess a party's performance as compared to its commitments (e.g., under Kyoto Protocol, KP) or reference levels (e.g., in REDD+) → basis for possible payments for results-based actions

The quality of GHG inventories relies not only on the credibility of the estimates, but also on the way the information is presented



# UNFCCC reporting requirements (1/5)

Reporting requirements differ for Annex I and non-Annex I:

- **Annex I:** National communications (NC, every 4yrs), GHG inventories (annual), biennial reports (BRs, 2yrs), all subject to *review*  
+ Forest management reference level (FMRL, under the KP)
- **Non-Annex I:** National Communications (NC, 4yrs), and biennial update reports (BURs, 2yrs)\*  
+ Forest reference emissions levels (FREL) and/or Forest reference levels (FRL) (voluntary, in the context of REDD+)

Guidelines on requirements are detailed for Annex I (especially for GHG inventories), but are more generic for non-Annex I parties.

\* Least developed/small island developing parties may submit NC and BUR at their discretion.



# UNFCCC reporting requirements (2/5)

## Reporting requirements for non-Annex I countries

### **National communications (NC):**

- Include information on national circumstances, the national GHG inventory,\* and information on strategies for mitigation
- Every 4 years, following adopted guidelines (Decision 17/CP.8) and IPCC methodologies (IPCC, 1996, Guidelines)\*\*

\* For the years 1994 (1<sup>st</sup> NC) and 2000 (2<sup>nd</sup> NC).

\*\* Countries are encouraged to use IPCC's (2003) *Good Practice Guidance* and may also use the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC 2006).





# UNFCCC reporting requirements (3/5)

Reporting requirements for non-Annex I:

## **Biennial update reports (BURs)**

- Include updated information on national circumstances, institutional arrangements,\* national GHGs estimates, including a national inventory report, and information on mitigation actions (i.e. NAMA and REDD+)
- Every two years (starting Dec 2014), following adopted Guidelines (Dec. 2/CP.17) and IPCC methodologies (including 2003 GPG for LULUCF)
- BURs are subject to a *technical assessment* as part of the international consultation and analysis (ICA)

\* This includes, for REDD+ activities, the national forest monitoring system and information on how the safeguards are addressed.



# UNFCCC reporting requirements (4/5)

**For REDD+ activities,** information to be reported include:

- **Forest Reference Emissions Levels (FREL)** and/or **Forest Reference Levels (FRL)**, prepared on the basis of agreed guidelines (Dec. 12/CP.17\*) and IPCC methodologies (including 2003 GPG for LULUCF)
- The information is subject to assessment according to Dec. 13/CP.19

\* Information in country submissions should be transparent, complete (i.e. allowing to reproduce FREL/FRL), accurate, consistent, and include:

- (a) Information used in constructing FREL/FRL, including historical data
- (b) Information on methods, data sets, approaches, models and assumptions used, and descriptions of relevant policies and plans
- (c) Pools/gases, and activities included in FREL and/or FRL and the reasons for any omission, noting that *significant* pools and/or activities cannot be excluded



# UNFCCC reporting requirements (5/5)

**For REDD+ activities**, information to be reported include  
(continued):

- **Information on safeguards** (decision 1/CP.16)
- For receiving payments for results-based actions, information on **forest-related emissions/removals resulting from REDD+** activities (prepared following agreed guidelines (see Dec. 12/CP.17 and Dec. 13/CP.19 and IPCC methodologies) is to be reported as annex to the BUR

The information is assessed as part of the ICA process



# Main COP decisions relevant to UNFCCC reporting by parties

	Decision/Document	Description
	Convention Text (UNFCCC)	It sets specific commitments for Parties to periodically and continually report information on their GHG emissions and removals and on mitigation actions implemented
<b>3/CP.5</b>	Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications	It establishes the structure of the NC; the information to be provided in the NC; the principles and methodologies to be applied to compile information and elaborate estimates
<b>15/CP.17</b>	Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories	It establishes the structure of the GHGI; the information to be provided in the GHGI; the principles; and methodologies to be applied to compile information and elaborate estimates
<b>24/CP.19</b>	Revision of the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention	It will replace the version provided in Decision 15/CP.17
<b>2/CP.17</b>	UNFCCC biennial reporting guidelines for developed country Parties	It establishes the information to be provided in the BR (noting that principles and methodologies to be applied to compile information and elaborate estimates are those applied for NC and GHGI)
<b>17/CP.8</b>	Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention	It establishes the structure of the GHGI; the information to be provided in the GHGI; the principles and methodologies to be applied to compile information and elaborate estimates.
<b>2/CP.17</b>	UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention	It establishes the information to be provided in the BUR (noting that principles and methodologies to be applied to compile information and elaborate estimates are those applied for NC and GHGI)
<b>12/CP.17</b>	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	It provides guidance on information to be submitted on how safeguards have been addressed and respected
<b>13/CP.19</b>	Guidelines for technical assessment of submissions of information on reference levels	It provides guidance on information to be submitted on how the reference levels have been constructed
<b>14/CP.19</b>	Modalities for measuring, reporting and verifying	It provides guidance on information to be submitted on how the results of activities have been estimated

# Main IPCC guidelines relevant to UNFCCC reporting by parties

Decision/Document	Description
<b>2013</b> Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol (KP Supplement) (adopted by decision 6/CMP.9)	It provides good practices to be followed, in addition to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, in order to ensure accuracy of estimates of KP-LULUCF activities
<b>2013</b> Supplement to the 2006 Guidelines for National Greenhouse Gas Inventories: Wetlands (Wetlands Supplement) (adopted by decision 23/CP.19)	It provides supplementary methods, to those provided in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, for collecting and compiling information and for preparing GHG estimates for wetlands and drained soils
<b>2006</b> IPCC Guidelines for National Greenhouse Gas Inventories (adopted by decision 15/CP.17)	It provides methods for collecting and compiling information and for preparing GHG estimates, which are consistent with the reporting principles (transparency, completeness, consistency, accuracy and therefore, comparability). This represents the most recent guidelines for national GHG inventories published by IPCC
<b>2003</b> IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (adopted by decisions 2/CP.17, 17/CP.18)	It provides good practices to be followed, in addition to the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, in order to ensure accuracy of LULUCF estimates
<b>2000</b> IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (adopted by decisions 2/CP.17, 17/CP.18)	It provides good practices to be followed, in addition to the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, in order to ensure accuracy of estimates
<b>Revised 1996</b> IPCC Guidelines for National Greenhouse Gas Inventories (adopted by decisions 2/CP.17, 17/CP.18)	It provides methods for collecting and compiling information and for preparing GHG estimates, which are consistent with the reporting principles

# Guidance from the Carbon Fund

## Methodological Framework

Methodological steps
Forest definition
Definition of forest classes
Choice of Activity Data and (pre-)processing methods
Choice of emission factors and description of their development
Estimation of emissions and removals, including accounting approach
Disaggregation of emissions by Sources and removals by Sinks
Estimation of accuracy, precision, and/or confidence level
Discussion of key uncertainties
Rationale for adjusting emissions
Methods and assumptions associated with adjusting emissions

Maps and/or synthesized data
Accounting area
Activity data
Emission factors
Average annual emissions over the Reference Period
Adjusted emissions
Any spatial data used to adjust emissions

Source: World Bank FCPF 2013.

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# Overview of the latest guidance and modalities on reporting REDD+ performance (1/5)

UNFCCC Decision 14 / CP.19, “Modalities for measuring, reporting and verifying”:

- **“measuring, reporting and verifying** anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes ... should be
- **consistent with the methodological guidance provided in decision 4/CP.15**, and any guidance on the measurement, reporting and verification of nationally appropriate mitigation actions by developing country Parties as agreed by the Conference of the Parties, and in accordance with any future relevant decisions of the Conference of the Parties”





# Overview of the latest guidance and modalities on reporting REDD+ performance (2/5)

- Results measured against the forest R(E)L should be **expressed in tonnes of carbon dioxide equivalent per year**
- Parties are encouraged to **improve data and methodologies over time** (phased approach), while maintaining consistency with the established or, as appropriate, updated, forest R(E)L
- Data and information used for estimating forest area changes and forest carbon stocks changes should be:
  - *Transparent*
  - *Consistent over time*
  - *Consistent with the established forest R(E)L*



# Overview of the latest guidance and modalities on reporting REDD+ performance (3/5)

- Data and information should be provided through **biennial update reports** by parties, taking into consideration the additional flexibility given to the least developed countries and small island developing states
- To obtain and receive payments for results-based actions, countries should supply **a technical annex** (this is voluntary)
- Data and information provided in the technical annex shall be **consistent with decisions 4/CP15 and 12/CP17 and follow the guidelines** provided in the annex



# Overview of the latest guidance and modalities on reporting REDD+ performance (4/5)

- In order to obtain and receive payments for results-based actions, the results need to be **verified by a technical team of experts**
- The technical team consists of two UNFCCC LULUCF experts, from a developing and developed country party, and will analyse the submitted data and information on the extent to which:
  - There is **consistency** in methodologies, definitions, comprehensiveness, and information provided between the assessed reference level and the results of the implementation of the activities
  - The data and information provided in the technical annex is **transparent, consistent, complete and accurate, and consistent with the guidelines**
  - The results are **accurate**, to the extent possible



# Overview of the latest guidance and modalities on reporting REDD+ performance (5/5)

- The party that submitted the technical annex and the technical team of experts may **interact** with each other to seek / provide **clarifications and additional information on the technical annex** to facilitate the analysis by the technical team
- The technical team will develop a **technical report** (published on the UNFCCC web platform), containing:
  - Technical annex submitted by the party
  - Analysis of the technical annex
  - Areas for technical improvement (on data, methodologies)
  - Any comments and/or responses by the party, including areas for further improvement and capacity-building needs



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# UNFCCC reporting principles

- Five general principles guide the estimation and the reporting of GHG under UNFCCC
- *Transparency, Consistency, Comparability, Completeness and Accuracy*
- These principles guide also the process of review or technical assessment of the estimates



# Transparency

- All the assumptions and the methodologies used in the inventory should be **clearly explained** and **documented**, so that anybody could verify its correctness
- GHG estimates are reported at a level of disaggregation which allows **verifying calculations**
- Most relevant background data are provided in the report



# Consistency

- The **same definitions and methodologies** should be used in different years
- This should ensure that differences between years and categories reflect real differences in emissions
- Under certain circumstances, estimates using different methodologies for different years can be considered consistent if they have been calculated in a transparent manner
- Recalculations of previously submitted estimates are possible to improve accuracy and/or completeness, providing that all the relevant information is properly documented





# Comparability

- Across countries:
- For this purpose, parties should follow the **methodologies** and **standard formats** (including the allocation of different source/sink category) provided by the IPCC and agreed within the UNFCCC
- Comparability is not mentioned in REDD+ related COP decisions; however, as long as estimates are transparent, consistent, complete and accurate, and follow IPCC guidance, they can be considered methodologically comparable



# Completeness

- Estimates should include—for all the relevant geographical coverage—all the agreed\* categories, gases, and pools
- When gaps exist, all the relevant information and justification on these gaps should be documented in a transparent manner

\* In REDD+ context, all *significant* pools/gases and activities should be included (see Module 2.7)



# Accuracy

- Estimates should be systematically neither over nor under the true value, so far as can be judged, and uncertainties should be reduced so far as is practicable
- Appropriate methodologies should be used, in accordance with the IPCC, to promote accuracy in inventories and to quantify the uncertainties in order to improve future inventories



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# Structure of a GHG inventory

A national inventory of GHG anthropogenic emissions and removals is typically divided into two parts:

- **Reporting tables:** A series of standardized data tables that contain mainly quantitative information (i.e., numerical estimates of emissions and removals)
- **Inventory report:** Comprehensive and transparent information about how estimates have been calculated



# Reporting tables

**Reporting tables** typically include columns for:

- The *initial and final land-use category*: Additional stratification is encouraged (subdivisions) according to criteria such as climate zone, soil type, vegetation type, ecological zones, etc.
- The *activity data* (AD, [see Modules 2.1 and 2.2](#)): area of land (in kha) subject, e.g., to gross deforestation, degradation, or forest management
- The *emission factors* (EF, [see Module 2.3](#)): The C stock changes per unit area, separated for each carbon pool
- *The total change in C stock*:  $AD \times EF$  ([see Module 2.5](#))
- *The total emissions* (expressed as CO<sub>2</sub>)

Documentation box: to provide references to relevant sections of the inventory report if any additional information is needed



# Example of reporting table

Example of a table reporting emissions from deforestation (modified from KP LULUCF tables for illustrative purposes only)

GREENHOUSE GAS SOURCE AND SINK CATEGORIES		ACTIVITY DATA	IMPLIED CARBON STOCK CHANGE FACTORS <sup>(2)</sup>					Implied emission/ removal factor per area <sup>(4)</sup>	CHANGE IN CARBON STOCK <sup>(3)</sup>					Net CO <sub>2</sub> emissions/ removals <sup>(3)</sup>
			Net carbon stock change per unit area in:						Net carbon stock change in:					
Land-Use Category	Sub- division <sup>(1)</sup>	Total area (kha)	biomass		dead org. matter		soils		Biomass		Dead org. matter		soils	
			above-ground	below-ground	dead wood	litter			above-ground	below-ground	dead wood	litter		
			(Mg C/ha)					(Mg CO <sub>2</sub> /ha )	(Gg C)					(Gg CO <sub>2</sub> )
A. Total Deforestation														
1. Forest Land converted to Cropland	(specify)													
	(specify)													
2. Forest Land converted to Grassland	(specify)													
	(specify)													

(1) Land categories may be further divided according to climate zone, management system, soil type, vegetation type, tree species, ecological zones, national land classification or other criteria.

(2) The signs for estimates of increases in C stocks are positive (+) and of decreases in C stocks are negative (-).

(3) According to IPCC, changes in C stocks are converted to CO<sub>2</sub> by multiplying C by 44/12 and changing the sign for net CO<sub>2</sub> removals to be negative (-) and for net CO<sub>2</sub> emissions to be positive (+).

# Notation keys reporting tables

- To ensure completeness, it is *good practice* to fill all cells of the table
- If emissions/removals have not been estimated or cannot be reported, the following qualitative “notation keys” should be used, along with supporting documentation

Notation key	Explanation
NE (not estimated)	Emissions / removals occur but have not been estimated or reported.
IE (included elsewhere)	Emissions / removals for this activity or category are estimated but included elsewhere (indicate where).
C (confidential information)	Emissions / removals are aggregated and included elsewhere in the inventory because reporting at a disaggregated level could lead to the disclosure of confidential information.
NA (not applicable)	The activity or category exists but relevant emissions and removals are considered never to occur.
NO (not occurring)	An activity or process does not exist within a country.



# Additional reporting tables

In addition to tables like the one in the example, other typical tables to be filled in a comprehensive GHG inventory include:

- Tables with emissions of other gases (e.g., CH<sub>4</sub> and N<sub>2</sub>O from biomass burning)
- Summary tables (with all gases and emissions/removals)
- Tables with emission trends (covering data also from previous inventory years)
- Tables for illustrating the results of the key category analysis, the completeness of the reporting, and recalculations



# Inventory report (1/2)

An inventory report typically includes:

- Overview of trends by gas and by category
- Description of the methodologies used, the assumptions, the data sources, and rationale for their selection
- In the context of REDD+ reporting, information on land-use definitions, land-area representation, land-use databases, and datasets on C stock gains and losses are essential
- A description of the key categories,\* including information on the level of disaggregation of the key category analysis

\* categories quantitatively most important in a GHG inventory (see IPCC 2003 GPG LULUCF, Ch. 5.4)



# Inventory report (2/2)

An inventory report typically includes (continued):

- Information on uncertainties (i.e., methods used and underlying assumptions), time-series consistency, recalculations (with justification for providing new estimates), quality assurance and quality control procedures, including verification, and archiving of data
- Description of the institutional arrangements for inventory planning, preparation, and management ([See Module 3.1](#))
- Information on planned improvements

Furthermore, all of the relevant inventory information should be archived, to allow reconstruction of the inventory



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# Challenges in relation to reporting principles

*What difficulties can be expected by developing countries when reporting REDD+ following the five principles outlined above?*

- **Transparency, consistency, and comparability:** Achievable by most countries (after adequate capacity building if needed)
- **Completeness:** From official reports (NC, FAO FRA) only a few countries currently report data on soil carbon, although these emissions following deforestation are likely to be “significant”
- **Accuracy:** According to IPCC, *key categories and significant pools* should be estimated with higher tiers (2 or 3), i.e., country-specific data stratified by climate, forest, soil, and conversion type at a fine/medium spatial scale → big challenge



# Challenges for reporting REDD+

*If a country produces incomplete and/or highly uncertain estimates (e.g., if Tier 1 EF are used for a key category) what could be the consequences?*

Three possible options:

- 1) Allow the country to access result-based payment anyway?  
→ *Maybe OK for early stages, but **possible** lack of comparability with other countries using higher tiers*
- 2) Exclude the country from accessing REDD+? → *leakage*
- 3) Allow the country to access REDD+ with some “discount”?  
*How?*



# In summary

- Non-Annex I countries should report REDD+ performance through national communications and biennial update reports which include national GHG inventories
- Five principles guide the estimation and the reporting of GHG under the UNFCCC, as well as the process of review or technical assessment of estimates: *Transparency, Consistency, Comparability, Completeness, and Accuracy*



# Country examples and exercises

## Country examples

- Annex 1 country example of GHG inventory reporting (LULUCF)
- Applying the conservativeness approach to the DRC example (matrix approach)  
(See Module 2.7 Country Example)

## Exercises

- Reporting GHG emissions and removals using IPCC reporting tables
  1. Land transition matrix
  2. Emissions from deforestation





# References

- IPCC (Intergovernmental Panel on Climate Change). 1996. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. Geneva, Switzerland: IPCC. <http://www.ipcc-nggip.iges.or.jp/public/gl/invs4.html>.
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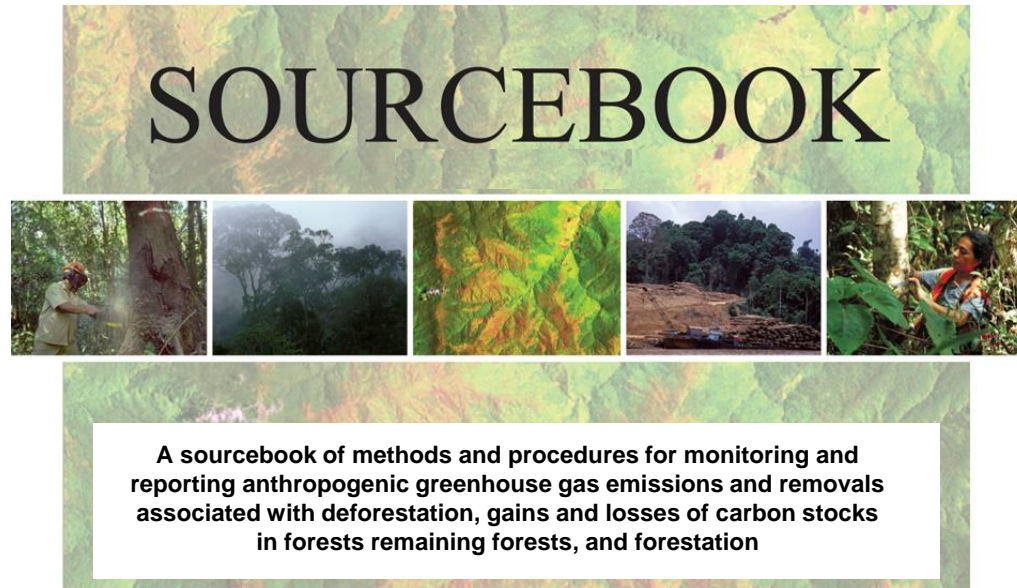
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- GOFC-GOLD (Global Observation of Forest Cover and Land Dynamics). 2014. *A Sourcebook of Methods and Procedures for Monitoring and Reporting Anthropogenic Greenhouse Gas Emissions and Removals Associated with Deforestation, Gains and Losses of Carbon Stocks in Forests Remaining Forests, and Forestation*. (Often GOFC-GOLD Sourcebook.) Netherland: GOFC-GOLD Land Cover Project Office, Wageningen University. <http://www.gofcgold.wur.nl/redd/index.php>.
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- UNFCCC, 2005. "Background documentation on the conservativeness factors for the completion of the technical guidance on adjustments." Working Paper No.2.  
[http://unfccc.int/files/national\\_reports/accounting\\_reporting\\_and\\_review\\_under\\_the\\_kyoto\\_protocol/application/pdf/cf\\_wp\\_sb22\\_for\\_web\\_final\\_\\_2may.pdf](http://unfccc.int/files/national_reports/accounting_reporting_and_review_under_the_kyoto_protocol/application/pdf/cf_wp_sb22_for_web_final__2may.pdf)
- UNFCCC COP (United Nations Framework Convention on Climate Change Conference of the Parties) Decisions. This module refers to and draws from various UNFCCC COP decisions. Specific decisions for this module are listed in the "Background Material" slides. All COP decisions can be found from the UNFCCC webpage "Search Decisions of the COP and CMP."  
<http://unfccc.int/documentation/decisions/items/3597.php#beg>.
- World Bank FCPF. 2013. *Carbon Fund Methodological Framework, Final*. Washington, DC: World Bank.  
<https://www.forestcarbonpartnership.org/carbon-fund-methodological-framework>.



# GOFC-GOLD Sourcebook training materials for REDD+ monitoring and reporting



<http://www.gofcgold.wur.nl/redd/index.php>

This was the final lecture of the training materials under component 3:

## **3. REDD+ assessment and reporting**

