

GOFC-GOLD

Global Observation of Forest and Land Cover Dynamics



REDD sourcebook development: background, status, next steps



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What is GOFC-GOLD?

- GOFC-GOLD is a coordinated international effort:
 - to ensure a continuous program of space-based and on-the-ground forest and land cover observations for global monitoring of terrestrial resources and the study of global change.
- A technical panel of the Global Terrestrial Observing System (GTOS)
- A network of participants implementing coordinated research, demonstration and operational projects
- A vision to share data, information and knowledge, leading to informed action and decision support
- A long term process of building an improved match between Observations, Data Products and User Needs
- GOFC-GOLD operates through:
 - Executive committee, Science and technical board
 - Implementation teams and 3 project offices (CA, US, Germany)
 - Dedicated working groups (i.e. on REDD, GEO etc.)
 - 6 Regional networks

Reducing emissions from deforestation

- UNFCCC by itself provides neither a mandate nor an incentive for reducing emissions from deforestation in developing countries
- Need for building national carbon accounting capacities
- 2005: Establishment of GOFC-GOLD REDD working group
- 3 GTOS submissions to UNFCCC/SBSTA (2006, 2007, 2008):
 - *Promote satellite monitoring as objective and efficient approach in developing countries*
 - *Forest changes can be monitored with confidence for assessing and comparing historical and future rates of deforestation*
 - *Consensus technical guidance are in development (REDD sourcebook)*

UNFCCC and earth observations of land cover

Requirements	UNFCCC (Art. 3 / 12) Reporting obligations & sustainable development	UNFCCC (Art. 5 / 10) Research & systematic observations	UNFCCC (COP11 / AI6) Reducing emissions from deforestation in developing countries
Implementation framework	Kyoto Protocol	GCOS Implementation Plan	Post-Kyoto commitments
Implementation guidelines	IPCC GPG LULUCF / AFOLU	Tasks for land cover observations ECV standards	Technical protocols for measuring and monitoring GHG emissions
Operation and Application	National LULUCF reporting (Annex I) & CDM A/Reforestation	Evolving global programs	National case studies

REDD implementation: Bali SBSTA decision

Indicative guidance

1. Demonstration activities should be undertaken with the approval of the host Party;
2. Estimates of reductions or increases of emissions should be results based, demonstrable, transparent, and verifiable, and estimated consistently over time;
3. The use of the methodologies described in paragraph 6 of this decision is encouraged as a basis for estimating and monitoring emissions;
4. Emission reductions from national demonstration activities should be assessed on the basis of national emissions from deforestation and forest degradation;
5. Subnational demonstration activities should be assessed within the boundary used for the demonstration, and assessed for associated displacement of emissions;
6. Reductions in emissions or increases resulting from the demonstration activity should be based on historical emissions, taking into account national circumstances;
7. Subnational¹ approaches, where applied, should constitute a step towards the development of national approaches, reference levels and estimates;
8. Demonstration activities should be consistent with sustainable forest management

6. *Encourages* the use of the most recent reporting guidelines¹ as a basis for reporting greenhouse gas emissions from deforestation, noting also that Parties not included in Annex I to the Convention are encouraged to apply the *Good Practice Guidance for Land Use, Land-Use Change and Forestry*;²

Ensure contribution through participation

GOFC-GOLD
working group est.

GTOS/GOFC
report

1. REDD Source-
book draft

1st GOFC-GOLD
workshop



2nd GOFC-GOLD
workshop



3rd GOFC-GOLD
workshop

ED/GOFC
SBSTA
side event

ESA/GOFC
Side event +
booth

ESA/GOFC-
GOLD
side event

WINROCK/
GOFC-GOLD
side event

GTOS/GOFC
-GOLD
side event

GTOS
submission I

GTOS
submission II

GTOS
submission III

COP11
Montreal

SBSTA 24

COP12
Nairobi

SBSTA 26

COP13
Bali

SBSTA 28

COP14
Poznan

SBSTA 30

1st SBSTA
workshop

2nd SBSTA
workshop

3rd SBSTA
workshop



Subm. of view
by parties I

Subm. of view
by parties II

Subm. of view by
parties III + IV

2005

2006

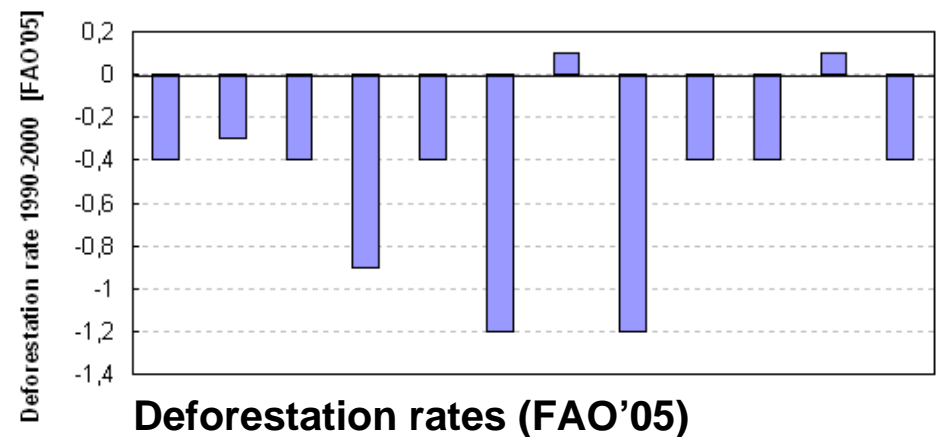
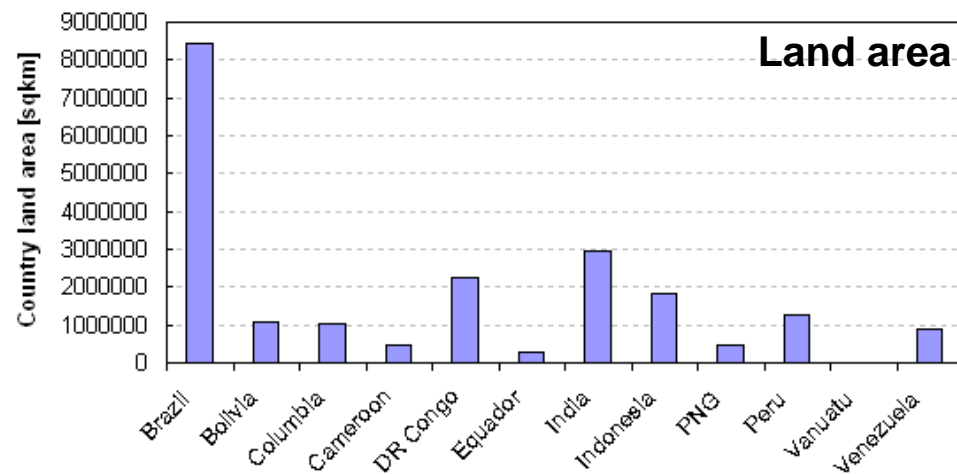
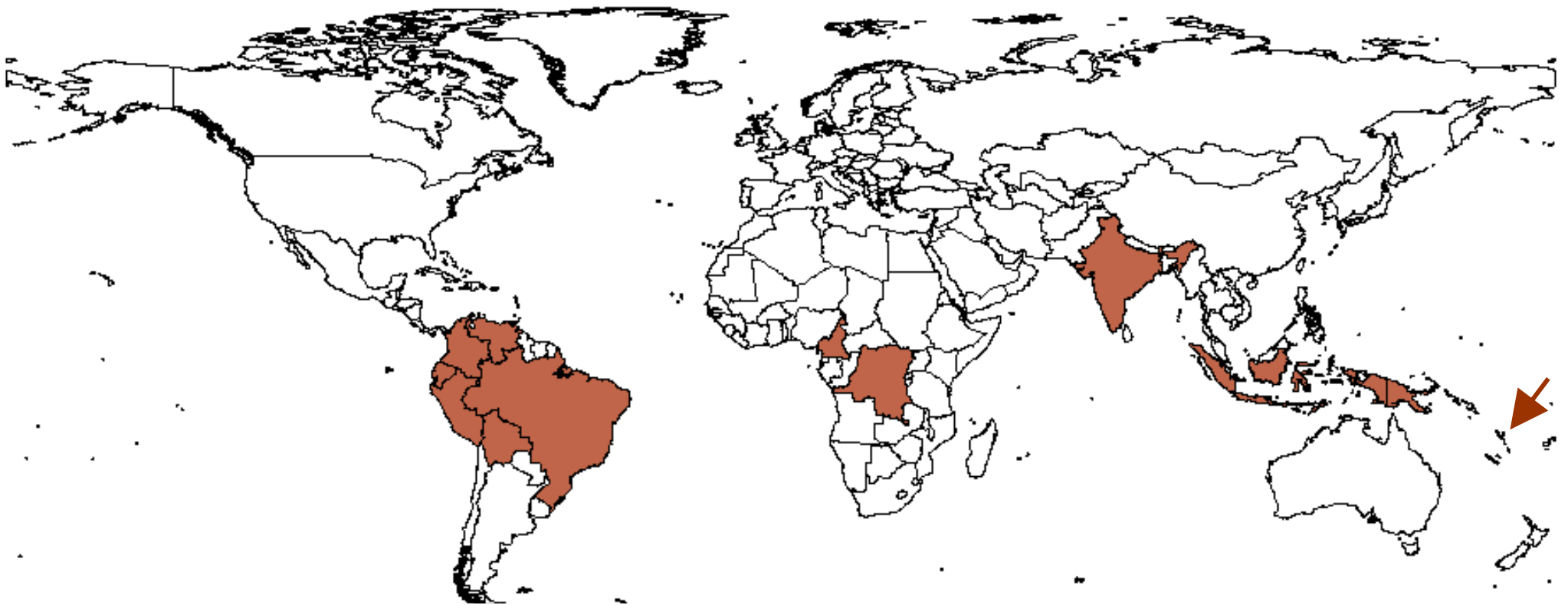
2007

2008

2009

GOFC-GOLD

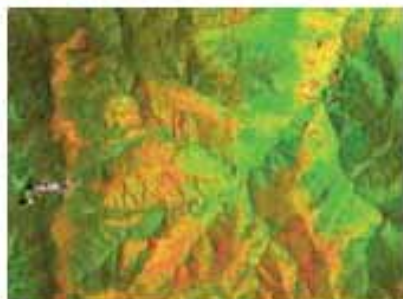
GOFC-GOLD workshop Bolivia, April 2007



Sourcebook cover



SOURCEBOOK



Reducing Greenhouse Gas Emissions from Deforestation and
Degradation in Developing Countries: A Sourcebook of Methods
and Procedures for Monitoring, Measuring and Reporting

Sourcebook rationale

1. Consensus perspective from earth observation & carbon measurement and accounting experts:
 - 1. draft (Dec. 07): 14 authors from 11 organizations
 - GOFC-GOLD platform to formulate scientific and technical consensus
 - User-friendly synthesis of technical procedures
2. Bali status of negotiations and UNFCCC approved methodologies and definitions

Sourcebook objectives

1. to provide transparent methods that are designed to produce estimates of changes in forest area and carbon stocks from deforestation and degradation
 - with low uncertainty
 - in a format that is user-friendly
2. to complement the IPCC GPG-LULUCF (2003) and IPCC Guidelines-AFOLU (2006) by providing additional explanation, clarification and enhanced methodologies for obtaining and analyzing key data
3. to support REDD early actions and readiness mechanisms

Gross carbon emissions (concept)

Gross carbon
emissions

Gross deforestation

Gross degradation

$$C_{gr_em} = \left(\sum_{i=1}^m A_{loss(i)} \cdot C_{loss(i)} \right) + \left(\sum_{j=1}^n A_{dgr(j)} \cdot C_{dgr(j)} \right)$$

A_{loss} = Area of deforestation (ha)

C_{loss} = Carbon emission from deforestation (t/ha)

} for forest types $i \dots m$

A_{dgr} = Area affected by degradation (ha)

C_{dgr} = Carbon emission from degradation (t/ha)

} for degrad. types $j \dots n$

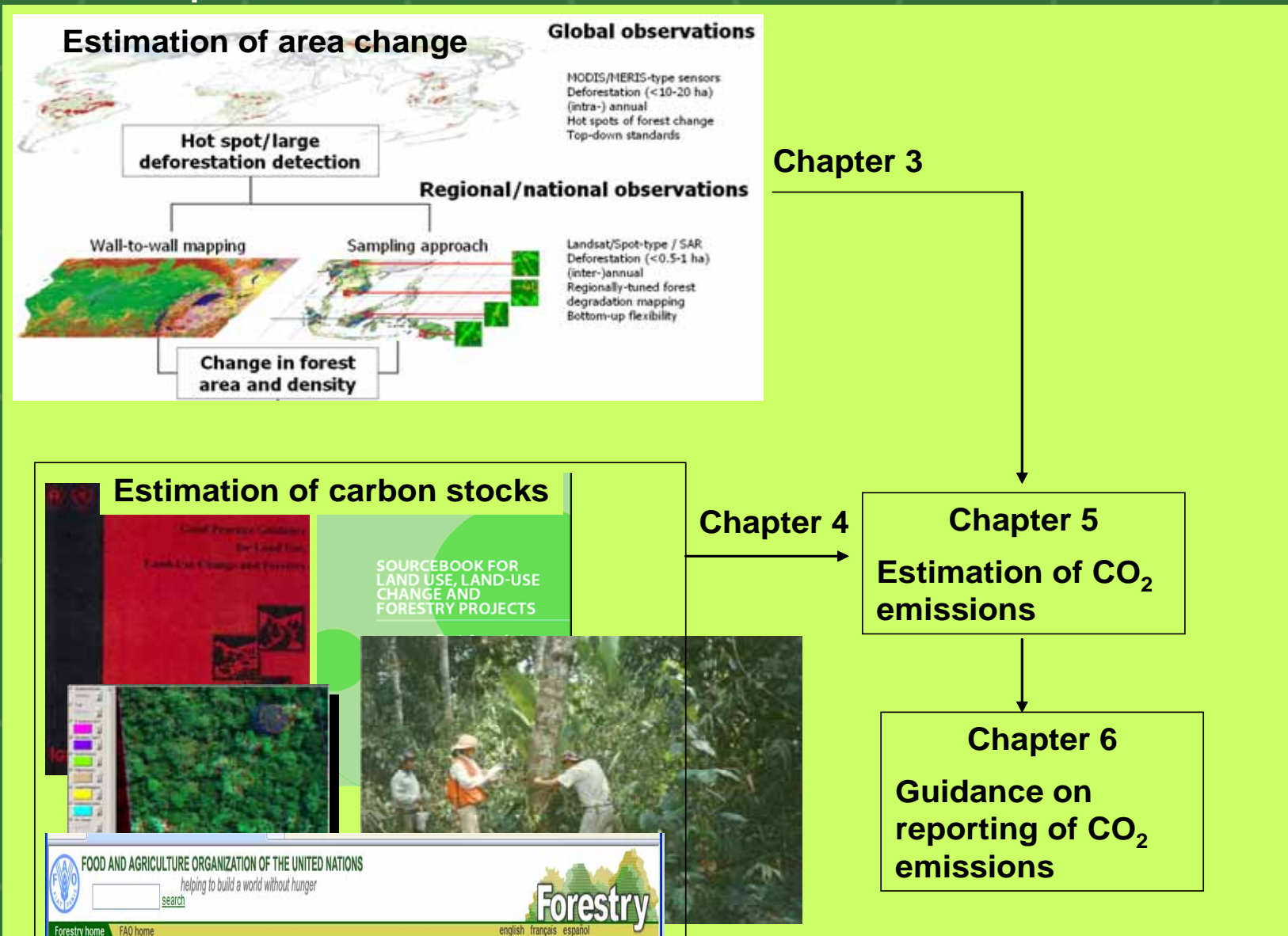
Area change is most dynamic: needs to be observed
from satellite !

Foundations of the sourcebook

1. Historical reference can be done consistently from 1990s onwards with confidence:
 - As minimum use 1990/2000/2005 Landsat for historical reference
2. Global applicability; national conditions require use of different sensors, methods, and capacity building
3. Account for carbon emission in forest areas on a national basis:
 - Satellite data analysis to estimate forest area change
 - Data on carbon stocks (ground-based)
4. Measurement and monitoring system should be simple and provide conservative estimates

Sourcebook format

Chapter 1 and 2: Introduction and definitions



Sourcebook format

Table of Content (current)

1 Purpose and Scope of the Sourcebook

2 Issues and Challenges

3 Guidance on Monitoring of Gross Changes in Forest Area

Monitoring of Gross Deforestation

Monitoring of Forest Degradation

4 Estimation of Carbon Stocks

Overview of carbon stocks, and issues related to C stocks

Which Tier Should be Used?

Stratification by Carbon Stocks

Estimation of Carbon Stocks of Forests Undergoing Change

Uncertainty

5 Methods for estimating CO₂ Emissions from Deforestation and Forest Degradation

Linkage to 2006 IPCC Guidelines

Organization of this Chapter

Fundamental Carbon Estimating Issues

Estimation of Emissions from Deforestation and Forest Degradation

Estimation of uncertainties

6 Guidance on Reporting

Issues and challenges in reporting

Overview of reporting principles and procedures

What are the major challenges for developing countries?

The conservativeness approach

Sourcebook status

1. Current draft presented in Bali for open review:
 - www.gofc-gold.uni-jena.de/redd (Registration required)
 - Experts are invited to provide feedback
2. Starting point for discussing and defining an appropriate monitoring framework, and to support early actions
3. Revision is ongoing:
 - Address comments and feedback received
 - Add and update sections (national inventories, fire, evolving technologies, soil carbon, accuracy assessment)
4. Further methods and technical details may be specified and added with evolving negotiations and decisions
5. Next side event anticipated for June 2008 at SBSTA 28

REDD Sourcebook & GEO

1. The earth observation community has been engaging with the UNFCCC on REDD technical and methodological issues since the initiation of the process in 2005:
 - National to global monitoring projects are ongoing
 - Development of technical guidance (Sourcebook)
2. REDD sourcebook development contributes to GEO task DA-07-02:
 - Development ongoing and evolve GEO endorsement for process
 - GEO secretariat provided initial feedback on sourcebook draft
3. Utilize experiences and links with GEO task FAO-FRA 2010 survey (AG-06-04) and Forest Community of Practice (US-06-02)
4. GEO to foster continuity & consistency for observations:
 - Archived data, mid-decadal and decadal survey (Task: DA-07-03)
 - Integration with in-situ and statistical data
5. Engaging forest and climate change related user communities having little or no involvement yet in earth observation (capacity building)
6. Particular need for further technical guidance in critical areas such as accuracy assessment, observations of forest degradation, and on evolving technologies

Web resources

- **Global Terrestrial Observing System (GTOS):**
 - <http://www.fao.org/gtos/>
- **GOFC-GOLD:**
 - <http://www.fao.org/gtos/gofc-gold/>
- **GOFC-GOLD land cover project office:**
 - <http://www.gofc-gold.uni-jena.de/>
- **EO and reducing emissions from deforestation:**
 - <http://www.gofc-gold.uni-jena.de/sites/deforest.php>
- **GOFC-GOLD REDD sourcebook:**
 - <http://www.gofc-gold.uni-jena.de/redd>

Next GOFC-GOLD symposium

3rd GOFC-GOLD Land Cover Symposium , 13-17. Oct. 2008, Jena, Germany

Agenda overview

Day	Morning	Afternoon
Monday, 13 October	Workshop on Monitoring Tropical Deforestation and Degradation (REDD)	Workshop on Monitoring Boreal Forests
Tuesday, 14 October	GOFC-GOLD/CEOS Workshop on Land Cover Change Accuracy Assessment	GOFC-GOLD Strategic Meeting - Review
Wednesday, 15 October	Land Cover Symposium	
Thursday, 16 October	Land Cover Symposium - Break out group discussions	Land Cover Implementation Team Meeting (internal) GOFC-GOLD Strategic Meeting - Conclusion
Friday, 17 October	LCCS and harmonization workshop & Regional Network Meeting	

More info: www.gofc-gold.uni-jena.de/

