GEO Forest Carbon activities, from FCT to GFOI

(from demonstrations to the implementation of an operational framework to support countries)

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Space Data Coordination Group Meeting 1
(SDCG-1)
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The GEO Forest Carbon Tracking Task

GEO established in 2008 the Forest Carbon Tracking (FCT) task to demonstrate that coordinated Observations from satellites, validated by in situ measurements and properly linked to carbon modeling can provide reliable, accurate, consistent and continuous information to address the monitoring component of national MRVs for REDD+.

The FCT overall goals are

1.to show the feasibility of performing coordinated, large scale satellite observations and

2.to test and compare the use of various observations, models, tools and methodologies in order to provide options, advice and guidelines to Countries willing to implement national systems.

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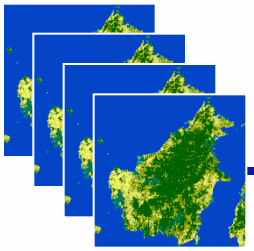
Support to Countries for REDD+ reporting

Support in the construction of consistent time series of observations and of comparable land use/land use conversion products, as well as in improving the determination of emission factors, will enable Countries to build their baselines and to report yearly on land use and carbon stock changes, so to address all REDD+ current objectives.

Reporting on land use changes



Time series

Land Cover / Land Use Changes

Forest Land use changes
Deforestation / Afforestation

Forest remaining forest
Degradation
Conservation
Sustainable management
Enhancement of carbon stocks

Forest Land is the focus of the yearly reporting on land-use conversions.

Reporting on carbon stock changes

Assessment of carbon stock changes is based, according to IPCC guidelines, on land use changes ("activities") and emission factors.

Emissions estimation / Carbon stock change

=

Activities x *Emission Factor*

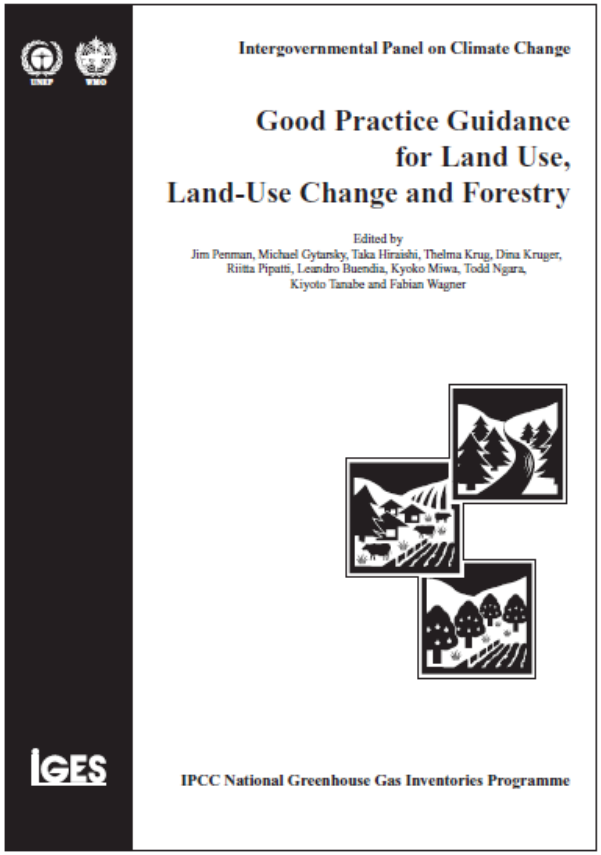
Area change

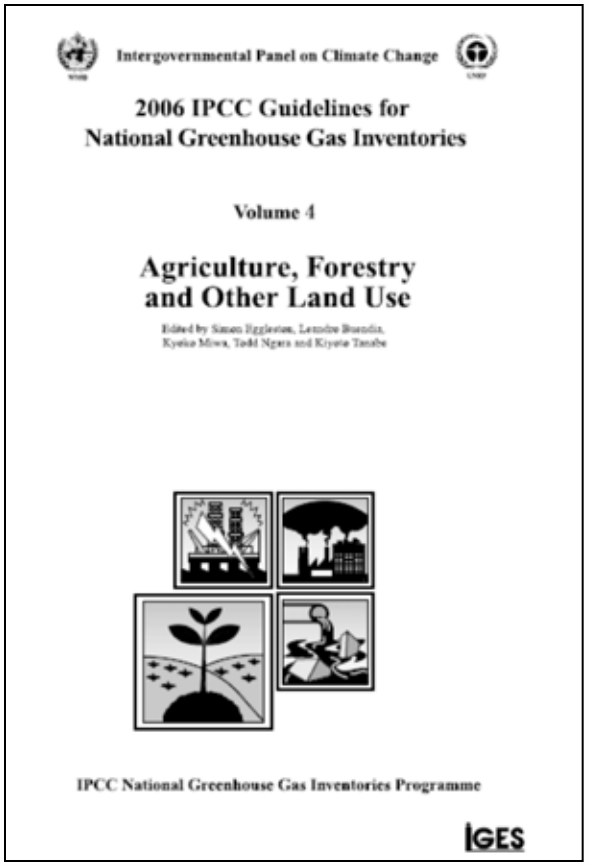
Carbon content

Forest Carbon Tracking

IPCC Reporting Guidance

- 2003 IPCC Good Practice Guidance (LULUCF)
- 2006 Reporting Guidelines (AFOLU)





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Monitoring approach and Information Generation steps

IPCC approach 3 (spatially explicit) for Land use-Land use change representation and Tier 2 and 3 for carbon stock changes are explicitly addressed.

1. Satellite observations
2. In situ observations
   - Ground
   - Airborne
3. Satellite Data processing
4. Production of Maps -Land Cover/Land Use and change Forest/ Non Forest and Forest Change
5. Production of Land use change matrices
6. Modelling of carbon pools
7. Determination of the emission factors to be used
8. Emissions estimation

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FCT logic and activities

GEO FCT has built a cooperating framework, which has progressively involved the scientific and technical community, the space community and countries willing to implement MRV systems for REDD+.
FCT is currently organized along four main lines of activities:

- **Research & Development**, definition of R&D topics, R&D plan, development of Guidance Documents, requirements for demonstration planning, with a yearly review cycle to feed back demonstrations results into Guidance Documents
- **Satellite data** coordinated acquisitions and data provision, as needed by the demonstration campaigns
- **Demonstration campaigns,** through the involvement of countries, the NDs, the appointment of a dedicated Product Development Team and processing of FCT products over the ND's
- **Associated Capacity Building actions**

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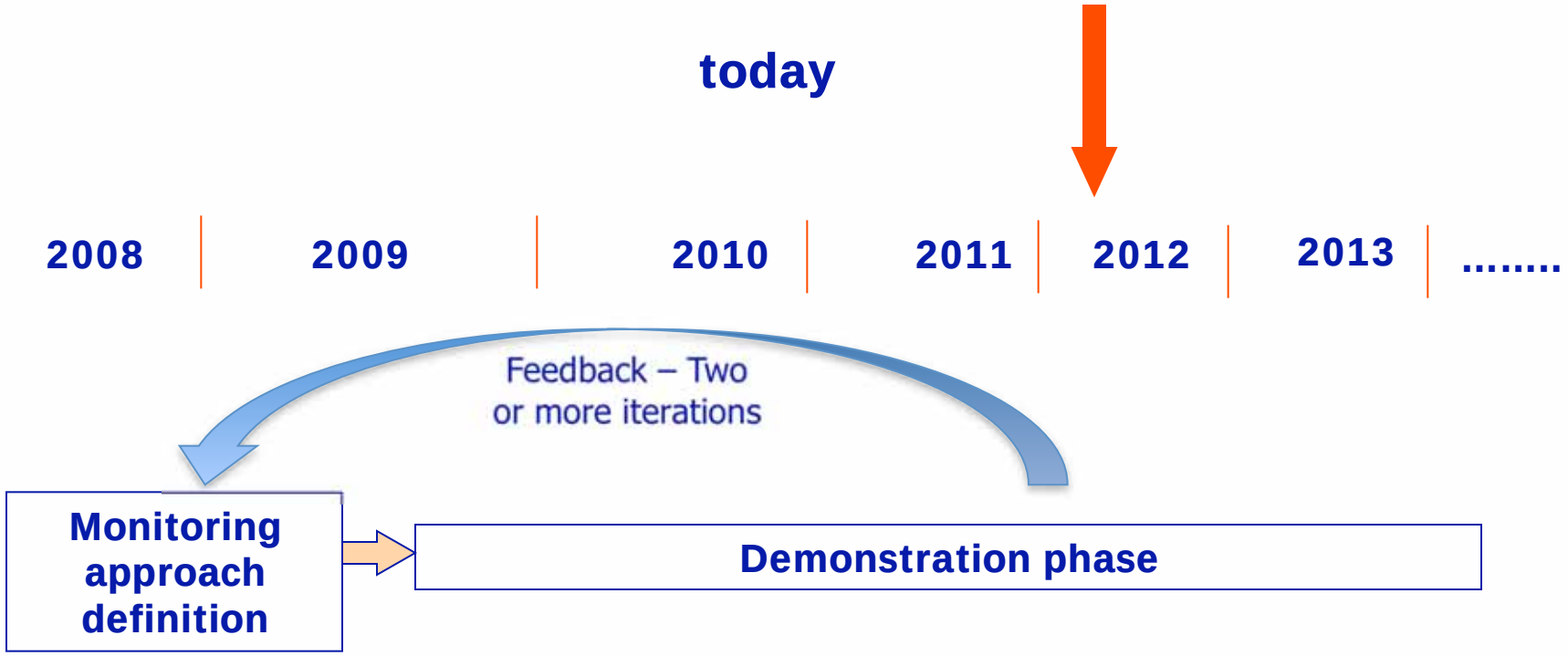
Task Implementation Logic



Guidance Documents

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Guidance Documents

Guidance documents identify the monitoring approach and the options associated with the main processing steps.

Documents under preparation

- Satellite Forest Information Product Specification
- Forest Information Product development guidelines
- *In Situ* Forest Measurements Standards and Protocol
- Uncertainty assessment on carbon estimation
- Linking of In Situ Forest Measurements, Remote Sensing and Carbon Models

FCT Task Team

Co-leads

- Norway (NSC)
- Japan (JAXA)
- Australia (Department of Climate Change & CSIRO)
- Canada (CFS-CSA)
- USA (USGS)
- FAO
- CEOS (ESA)

Additional partners contributing space and forest research data and expertise are Brazil, France, the Netherlands, United Kingdom, European Commission and GOFC-GOLD.
The GEO Secretariat supports activities coordination and facilitate their execution.

Including the 11 National Demonstrators, Organizations from more than 30 Countries are contributing to the GEO task.

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FCT Network of “National Demonstrators”

11 ND Countries

- Australia (Tasmania)
- Brazil
- Cameroon
- Colombia
- DR Congo
- Guyana
- Indonesia (Sumatra, Kalimantan)
- Mexico
- Nepal
- Peru
- Tanzania.

From 2009
- Brazil
- Guyana
- Mexico
- Indonesia (Kalimantan)
- Australia (Tasmania)
- Cameroon
- Tanzania

From June 2010
- Colombia
- DR Congo
- Peru, and
- adding Sumatra to Indonesia

From June 2011
- Nepal

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From FCT to GFOI
Towards sustained capabilities

- Significant progress was made in 2009, 2010 & 2011
- …. but need to move from preliminary activities to more comprehensive, consistent and continuous forest observations, setting up permanent solutions to issues like data policies, satellite availability, transition from demonstration to operations, ...

the implementation of the Global Forest Observations Initiative (GFOI) was approved in November 2011 by GEO VIII Plenary

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GFOI objectives

- fostering the sustained availability of observations in support of national forest information systems
- supporting countries in the use of observations in national forest information systems – respecting national choices of data and tools

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GEO FCT and GFOI

- The Global Forest Observation Initiative (GFOI) extends the current GEO Forest Carbon Tracking (FCT) task.
- The FCT is focuses on national demonstrators and on developing methods and protocols
- The operationally-focused GFOI will build on the FCT science and demonstration activities and aims to enable and support the worldwide development of national forest information systems.
- FCT activities are part of GFOI and they are directly supporting its implementation.

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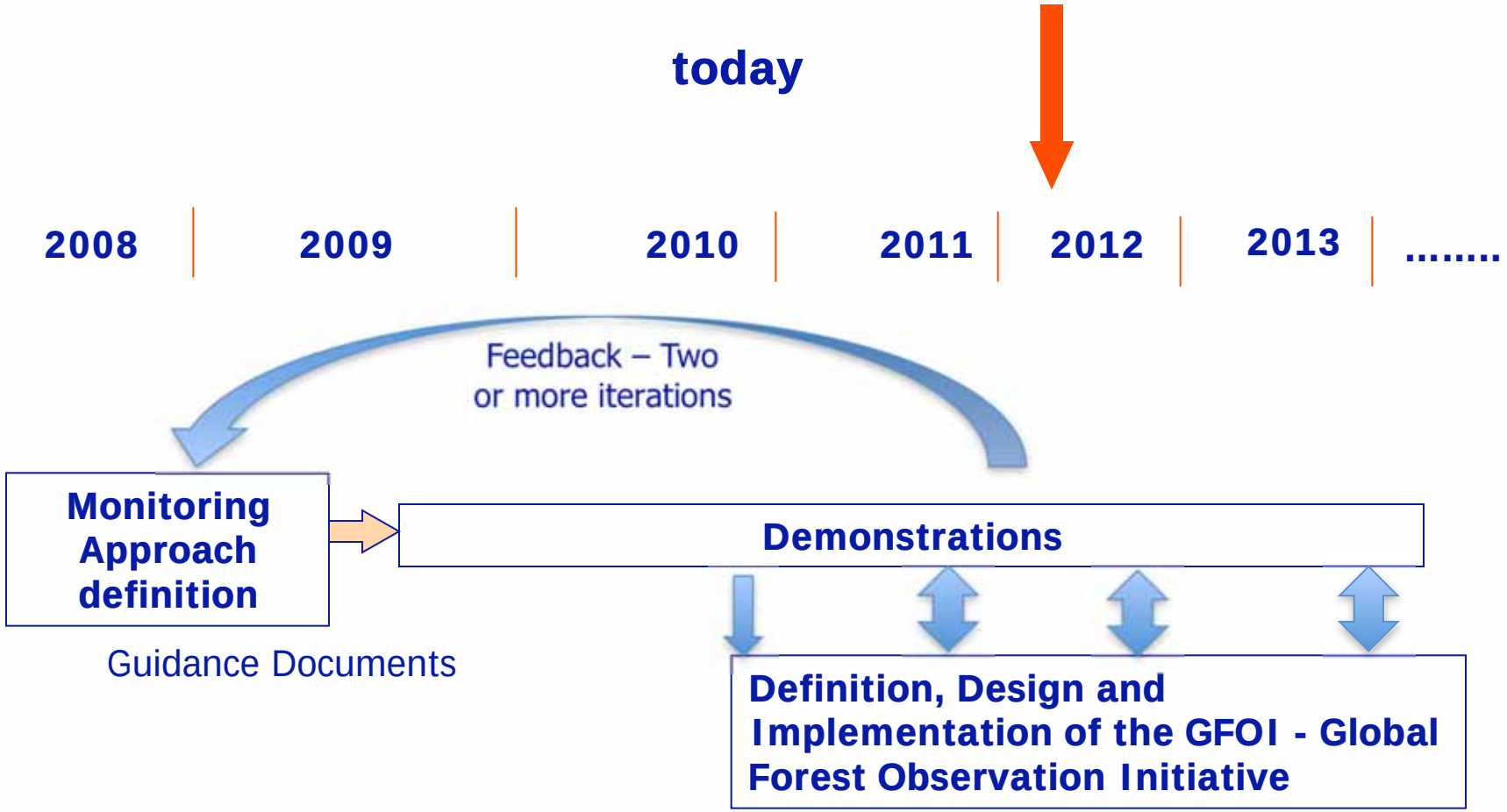
Task Implementation Logic



SDS-3 Outcome (1)

- The GEO FCT Science and Data Summit (SDS) meetings are organised annually to review technical status of he activities and provide inputs for their continuation.
- This 3rd SDS meeting was was held on 6-10 February 2012 in Arusha, hosted by the Tanzanian MNRT, with support of the NSC and was attended by almost 90 participants, representing institutions from about 25 countries, out of which 15 developing countries 8 in Africa).
- Several prototype “products”, including forest and forest change mapping and initial carbon assessments, were produced with the support of dedicated Product Development Teams (one per country) that the GEO FCT task has established.
- The R&D Plan approach was presented, technical and scientific questions where thoroughly discussed as well as Guidance Document(s) content and development timeline

SDS-3 Outcome (1)

- Synergies with UN-REDD, World Bank FCPF and FAO-FRA were discussed and further coordination planned.
- The meeting was followed by a Workshop that, in the GFOI implementation perspective, had the main objective of starting interactions with countries in assessing and quantifying their support needs for National Forest Monitoring Systems implementation, in terms of satellite and ground measurement data, relevant processing tools and methodologies, as well as associated training and capacity building.
- The Workshop allowed sharing of lessons learned and was the occasion to present, to five African Countries, not already involved in the FCT activities, the GEO initiatives and the kind of support that GFOI is planning to provide in the near future.

SDS-3 Outcome (1)

- The preliminary results show quite a different level of progress in the different ND countries, both for what concerns overall readiness for REDD+ implementation and for advancement of FCT activities. The end-to-end process (from observations to carbon assessment) is covered in few countries, while for others intermediate products have been produced.
- “New” Countries showed a very positive reaction to the GEO initiative, which was considered very relevant in addressing their needs and also covering “unique” aspects not specifically addressed by other international support actions.
- In summary and including near term planning in each country, the overall progress can be considered more than fair and, looking forward, very valuable inputs were acquired to plan the continuation of the FCT activities and to finalize the approach of the GFOI actions.

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GFOI priorities for 2012

- Establishment of the GFOI Project office
- Strengthening/establishment of relationships with international organizations ("User Organizations"/ Capacity building/Donors):
- Continue working with the NDs countries:
- Develop a Research and Development (S&T/R&D) Plan
- Continue working on Data with CEOS, commercial data providers, and data processing providers
- Produce the first issue of the Guidance Document(s) and ND Brochure
- Prepare of a revised GFOI Implementation Plan for submission to the GEO-IX Plenary.

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Timetable

- 2008 FCT establishment
- 2010 GFOI Concept plan
- 2011 GFOI Implementation plan
- November 2011: Accepted by the GEO-VIII Plenary
- 2012: Start-Up Phase
- 2013: Commencement of operations Phase
- 2014+: Operations Phase

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Forests play a key role in Societal Benefit Areas

Forest Carbon Tracking

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Thank you

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www.earthobservations.org

www.geo-fct.org