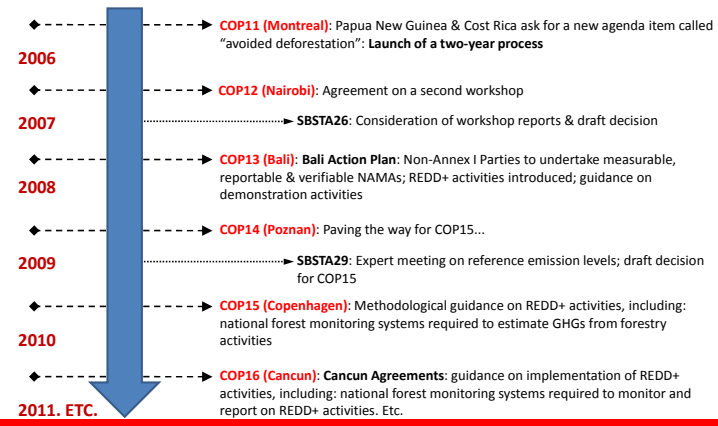**CAMBODIA REDD+ PROGRAMME**

- **Presentation Title: National Forest Monitoring System and REL in the context of REDD+**
- **Location: 2nd Taskforce meeting**

- Date: 28 November 2013

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Background: Road to REDD+

2005

COP11 (Montreal): Papua New Guinea & Cost Rica ask for a new agenda item called "avoided deforestation": **Launch of a two-year process**

2006

COP12 (Nairobi): Agreement on a second workshop

2007

SBSTA26: Consideration of workshop reports & draft decision

COP13 (Bali): Bali Action Plan: Non-Annex I Parties to undertake measurable, reportable & verifiable NAMAs; REDD+ activities introduced; guidance on demonstration activities

2008

COP14 (Poznan): Paving the way for COP15...

2009

SBSTA29: Expert meeting on reference emission levels; draft decision for COP15

COP15 (Copenhagen): Methodological guidance on REDD+ activities, including: national forest monitoring systems required to estimate GHGs from forestry activities

2010

COP16 (Cancun): Cancun Agreements: guidance on implementation of REDD+ activities, including: national forest monitoring systems required to monitor and report on REDD+ activities. Etc.

2011. ETC.

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Outline

National Forest Monitoring System and REL in the context of REDD+

1. Background
   - Key decisions UNFCCC related to REL & NFMS
2. National Forest Monitoring System (NFMS)
   - Monitoring function
   - Measurement, Reporting & Verification (MRV) function
3. Reverence Emission Levels (REL)

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Background: The five REDD+ activities

Developing countries are encouraged to implement **five activities** eligible under the REDD+ (Cancun – Decision 1/CP.16, paragraph 70):

1. Reducing emissions from deforestation
2. Reducing emissions from forest degradation   **REDD**
3. Conservation of forest carbon stocks
4. Sustainable management of forests   **+**
5. Enhancement of forest carbon stocks

- Countries can focus on activity/ies most relevant to their **national circumstances**
- **National level** (sub-national level only as a temporary measure)
- **Voluntary participation** by developing countries only

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The Cancun Agreements Decision 1/CP.16

Elements requested to be developed":

"….requested developing country Parties aiming to undertake the REDD+ activities, in the context of the provision of adequate and predictable support, including financial resources and technical and technological support, in accordance with national circumstances and respective capabilities, to develop:

1. *A national strategy or action plan*
2. *Forest reference emission level and/or forest reference level*
3. *A robust and transparent national forest monitoring system for the monitoring and reporting of REDD+ activities*
4. *A system for providing information on how the safeguards are being addressed and respected"*

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The Warsaw REDD+ framework x/CP.19

- **National forest monitoring systems (NFMS)** should be guided by the most recent Intergovernmental Panel on Climate Change **(IPCC) guidance and guidelines**, as appropriate, as a basis for estimating anthropogenic forest-related greenhouse gas emissions by sources, and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes;

  - The data and information estimation should be provided through the **biennial update reports (BURs)** with some flexibility to the least developed countries and small island developing States;
  - The NFMS should **build on existing systems**, as appropriate
  - Enable the **assessment of different types of forest** in the country
  - Allow for improvement, reflecting when possible the **phased approach** of REDD+

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The Copenhagen Accords Decision 4/CP.15

- *"To establish, according to national circumstances and capabilities, robust and transparent national forest monitoring systems and, if appropriate, sub-national systems as part of national monitoring systems that:*

  1. Use a **combination** of **remote sensing** and **ground-based forest carbon inventory** approaches for estimating, as appropriate, anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks, forest carbon stocks and forest area changes;
  2. Provide estimates that **are transparent, consistent**, as far as possible accurate, and that reduce uncertainties, taking into account national capabilities and capacities; (**i.e. follow IPCC guidance – so that results from different countries can be compared**)
  3. Are transparent and their **results are available** and suitable **for review** as agreed by the Conference of the Parties;"

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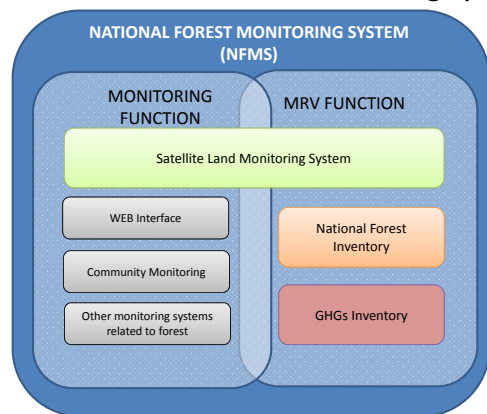

The Warsaw REDD+ framework x/CP.19

Recalling decision 12/CP.17, developing countries may, on a voluntary basis and when deemed appropriate, submit a proposed forest Reference Emission Level and/or forest Reference Level (REL/RL)

- RL/REL submissions are subject to a **technical assessment** by a UNFCCC roster of technical experts, who will look at:
  1. Extent to which the information, is **transparent, consistent, and accurate**;
  2. Whether a description of relevant **policies and plans** has been provided;
  3. Whether **assumption of future changes to domestic policies** have been included;
  4. **The carbon pools and activities** included;
  5. The **forest definition** used;

- Assessment sessions will be organized once a year

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NFMS - National Forest Monitoring system

NATIONAL FOREST MONITORING SYSTEM (NFMS)

MONITORING FUNCTION

MRV FUNCTION

Satellite Land Monitoring System

WEB Interface

Community Monitoring

Other monitoring systems related to forest

National Forest Inventory

GHGs Inventory

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I. **Monitoring** function of NFMS

Objectives:

- To deliver a comprehensive assessment of the outcome of REDD+ Policies and Measures
- To include carbon stocks plus other information requirements to assess performance and safeguards e.g: Forest health and condition, Biodiversity, Socio-economic functions
- To develop efficient, equitable resource allocation mechanisms
- To provide information necessary for non-REDD+ purposes, for wider forestry and land use sector objectives

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National Forest Monitoring system (NFMS)

NFMS has **two functions** in REDD+ context:

I.   **Monitoring** (M) of Policies and Measures
II. **Measurement, Reporting and Verification** (MRV) of emissions & removals

NFMS will be developed in a stepwise approach:

- Develop the NFMS in a stepwise approach through 3 Phases of REDD+ (1. Readiness, 2. Result-based demonstration, 3. Result-based actions)
- Fully operational in Phase 3, to allow for positive incentives under an international mechanism

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I. **Monitoring** function of NFMS

Practice:

- The monitoring function of NFMS can be defined only broadly. Its components will vary depending on national circumstances. Therefore primarily a tool to allow countries to assess and refine Policies and Measures
  - implementation and performance
  - Indicators to track implementation of a specific policy or measure – proxy indicators for forest carbon e.g volume of timber harvested through an SFM measure, as a proxy for impact on carbon
- Using existing tools where possible (e.g. network of forestry officers) and new tools where necessary (e.g. satellite remote sensing system)
  - Need to Harmonize existing tools with new tools and with newly required capacities for MRV

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II. **MRV** function of NFMS

Objectives:

- To **M**easure the emissions coming from forests and land use change as outcomes of REDD+ activities
- To **R**eport these emissions to the UNFCCC following the most recent methodological guidance of the Intergovernmental Panel on Climate Change (IPCC)
- To **V**erify the results by making the emissions inventory available for review by the UNFCCC

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II. **MRV** function of NFMS

The satellite land monitoring system (SLMS)
> To collect Activity Data (AD)

- **Activity Data (AD)** shows the extent and magnitude of a particular human-induced activity e.g. Land area changes, Area / forest cover change in hectares per year
- Achieved using SATELLITE REMOTE SENSING and GIS

- **Three approaches** to AD collection for land area, recommended by IPCC
  1. Net change in total areas of land categories within a defined spatial unit (e.g. a country)
  2. Tracks land use conversions between categories
  3. Tracks conversion between categories on a spatially-explicit basis

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II. **MRV** function of NFMS

Practice:

The MRV function will always consist of three (3) main components also called **'pillars':**
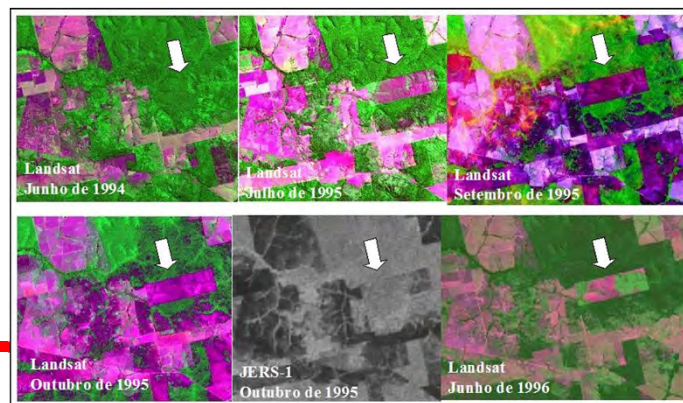
1. **The satellite land monitoring system (SLMS)**
   To collect Activity Data (AD)
2. **The national forest inventory (NFI)**
   To gather information for obtain emission factors (EFs)
3. **The national GHG inventory (GHG-I)**
   To provide emissions & removals estimates for national report
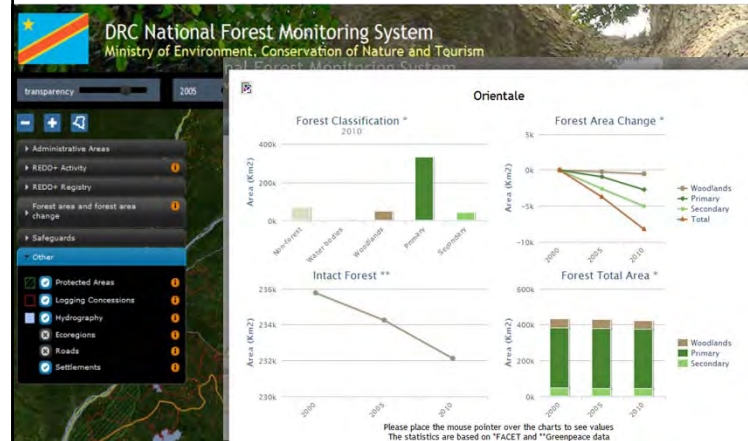
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II. **MRV** function of NFMS

The satellite land monitoring system (SLMS) Approach 3: Spatially explicit information on land use changes and the conversions among land uses
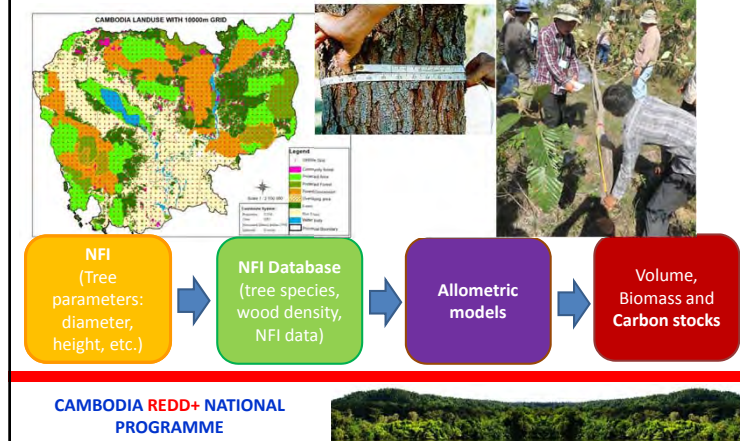

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II. **MRV** function of NFMS

The satellite land monitoring system (SLMS)

II. **MRV** function of NFMS

The national forest inventory (NFI)

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II. **MRV** function of NFMS

The national forest inventory (NFI)

To gather information for obtain emission factors (EFs)

- **Emission Factors (EFs)** are coefficients that quantify emissions or removals of GHGs per unit of a specific human-induced activity e.g. tCO2e per ha of forest cleared. It is an average value, an estimate.

- IPCC identifies **3 'tiers' of methods** to obtain estimates, with increasing accuracy
  1. Use IPCC default EF data (EF database); (not eligible under REDD+)
  2. Apply country- or region-specific EFs which allow more disaggregated AD
  3. Regular, detailed inventories used to create very specific EFs and models

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II. **MRV** function of NFMS
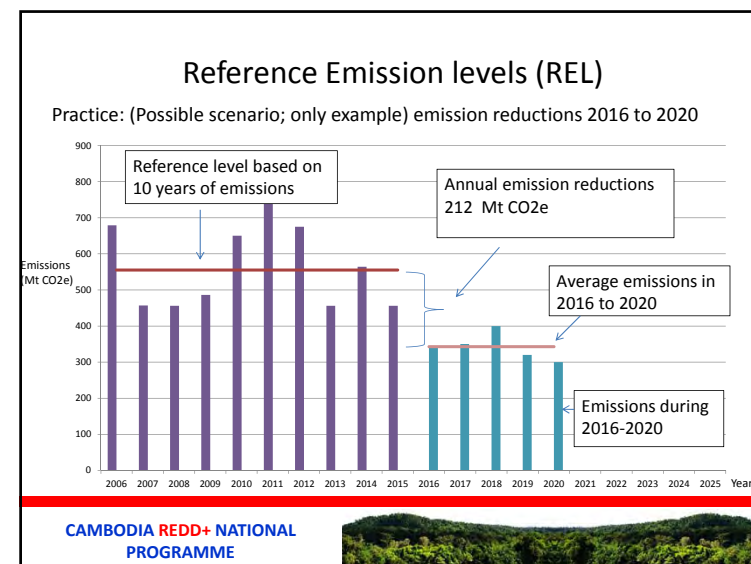
The national GHG inventory (GHG-I)

To provide emissions & removals estimates for national reports

- Countries submit GHG inventories as part of their **"National Communications"** to the UNFCCC Secretariat
  - Countries have to report only on human induced emissions and removals (managed land as proxy to identify human interventions)
  - IPCC has published guidelines on how to prepare and compile a GHG Inventory (http://www.ipcc-nggip.iges.or.jp/public/index.html)

By decision 1/CP.16, , the COP decided that non-Annex 1 Parties should submit their national communications every 4 years. In the Durban outcome, it was further decided that non-Annex 1 Parties would submit **Biannual Update Reports (BURs)** every 2 years.

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II. MRV function of NFMS

The national GHG inventory

2005

CO_2

Area change data from satellite remote sensing

Forest carbon stock data from a national forest inventory

Inventory of greenhouse gas **emissions** from the forest sector

| ACTIVITY DATA | EMISSION FACTOR | EMISSIONS ESTIMATE |

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Reference Emission levels (REL)

Practice: (Possible scenario; only example) emission reductions 2016 to 2020

Reference level based on 10 years of emissions

Annual emission reductions 212 Mt CO2e

Average emissions in 2016 to 2020

Emissions during 2016-2020

Emissions (Mt CO2e)

Years

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Reference Emission levels (REL)

Objectives:

- Reported GHG emissions and removals are compared to **reference emission levels and/or forest reference levels (REL/RLs)** expressed in tonnes of carbon dioxide equivalent per year, are benchmarks for assessing each country's performance

- Developing countries can submit a proposed forest Reference Emission Level and/or forest Reference Level (REL/RL) to be technically assessed
  - Historical data should be taken into account; however no decision on Reference Period to be adopted
  - No guidance provided on the period to update the REL/RL level.

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Reference Emission levels (REL)

Practice: (Possible scenario; only example) emission reductions 2021 to 2025

New reference level for 2021 to 2025

Average emissions during 2021-2025

Emission reductions 210 Mt CO2e a

Emissions (Mt CO2e)

Years

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