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Climate Change and REDD+

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UNFCCC - Climate change

- In response to the scientific findings that the *earth is getting warmer* and *may lead to irreversible adverse impacts*, in 1992 the United Nations Framework Convention on Climate Change (UNFCCC) was adopted as the basis for a global response to the problem.

- The Convention took effect in 1994 and with 194 Parties it has near-universal membership.

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UNFCCC – Scope, Article 2.

- The ultimate objective of the Convention is to *stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system*

- Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner

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UNFCCC – Guiding principles

- The lack of full scientific certainty should not be used as an excuse to postpone action (precautionary principle)
- The “common but differentiated responsibilities” of countries assigns the lead to developed countries in combating climate change
- Promote a supportive and open international economic system that would lead to sustainable economic growth and development

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Forests

Forests store 25% of terrestrial carbon.

In addition, forests contributes with:

- The world's richest bank of terrestrial biodiversity.
- The livelihoods of some 1.6 billion people.
- Important water-related ecosystem services.
- Non-timber forest products that generate 4 million person-years of employment annually.
- Tourism, with international ecotourism in 2009 earning about US $60 billion.
- Resilience to environmental changes.

The Bottom Line: The ecosystem services provided by forests are worth a lot of money and are essential for continued human well-being

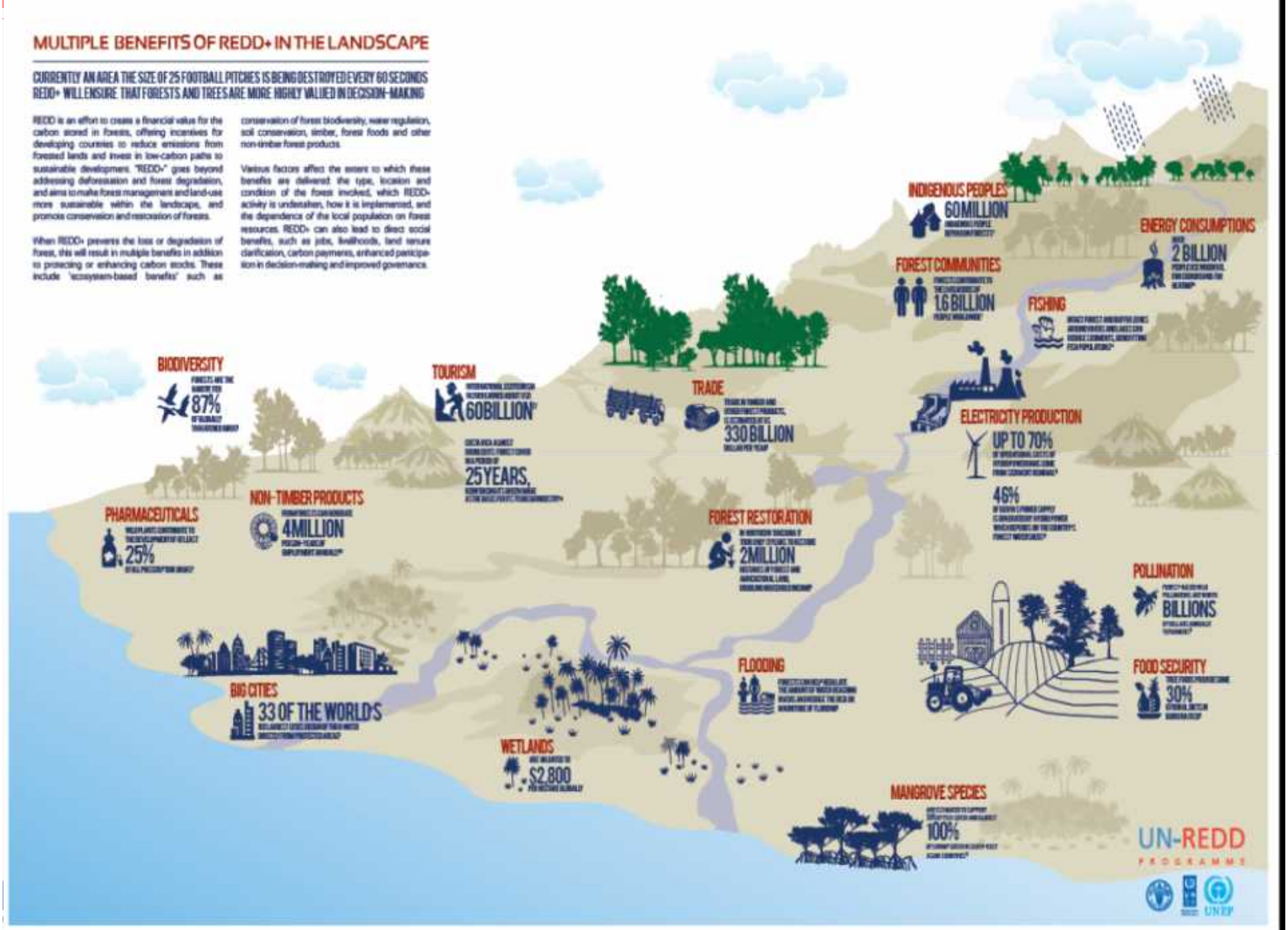
MULTIPLE BENEFITS OF REDD+ IN THE LANDSCAPE

CURRENTLY AN AREA THE SIZE OF 25 FOOTBALL PITCHES IS BEING DESTROYED EVERY 60 SECONDS REDD+ WILL ENSURE THAT FORESTS AND TREES ARE MORE HIGHLY VALUED IN DECISION-MAKING

REDD is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. "REDD+" goes beyond addressing deforestation and forest degradation, and aims to make forest management and land-use more sustainable within the landscape, and promote conservation and restoration of forests.

When REDD+ prevents the loss or degradation of forest, this will result in multiple benefits in addition to protecting or enhancing carbon stocks. These include 'ecosystem-based benefits' such as conservation of forest biodiversity, water regulation, soil conservation, timber, forest foods and other non-timber forest products.

Various factors affect the extent to which these benefits are delivered: the type, location and condition of the forest involved, which REDD+ activity is undertaken, how it is implemented, and the dependence of the local population on forest resources. REDD+ can also lead to direct social benefits, such as jobs, livelihoods, land tenure clarification, carbon payments, enhanced participation in decision-making and improved governance.



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Deforestation and forest degradation

However:

- Forests have effectively disappeared from 25 countries and more than 90 percent of the former forest cover has been lost in a further 29 countries.
- Globally, the tropical forests are not being managed sustainably, with a total forest loss averaging about 13 million hectares per year between 2000 and 2010.
- Clearing of forest contributes 12-20 percent of global emissions of carbon dioxide to the atmosphere.
- Only fossil fuel is a bigger contributor of carbon dioxide to the atmosphere.

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REDD+

- Reducing Emissions from Deforestation and Forest Degradation (**REDD**) in Developing Countries
  - An effort to create a financial value for the carbon stored in forests,
  - Offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.
- "**REDD+**" goes beyond deforestation and forest degradation, and includes:
  - **+** Conservation of forest;
  - **+** Sustainable management of forests; and
  - **+** Enhancement of forest carbon stocks.

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REDD+ - Goals

- Collectively aim to slow, halt and reverse forest cover and carbon loss, in the context of the provision of adequate and predictable support to developing country Parties *[section C Introduction of Cancun Accord]*
- Promote broad country participation in all phases, including through the provision of support that takes into account existing capacities *[section C Introduction of Cancun Accord]*
- Find effective ways to reduce the human pressure on forests that results in greenhouse gas emissions, including actions to address drivers of deforestation *[paragraph 68 of Cancun Accord]*
- Activities should be carried out in accordance with guidance and safeguards *[paragraph 69 and Annex I of Cancun Accord]*

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REDD+

- **Phase 1:** Development of national REDD+ Strategies (REDD+ readiness)
- **Phase 2:** Result-based demonstration activities
- **Phase 3:** Result-based actions (fully measured, reported and verified)

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REDD+

Principles

Country-driven

National circumstances

Consistent with development goals

Consistent with adaptation needs

Equitable etc. financing

Results-based

Emission activities

Deforestation

Forest Degradation

Conservation

Sustainable management

Enhancement

Safeguards

Consistent

Transparent & Effective Governance

Rights of Communities

Stakeholder Participation

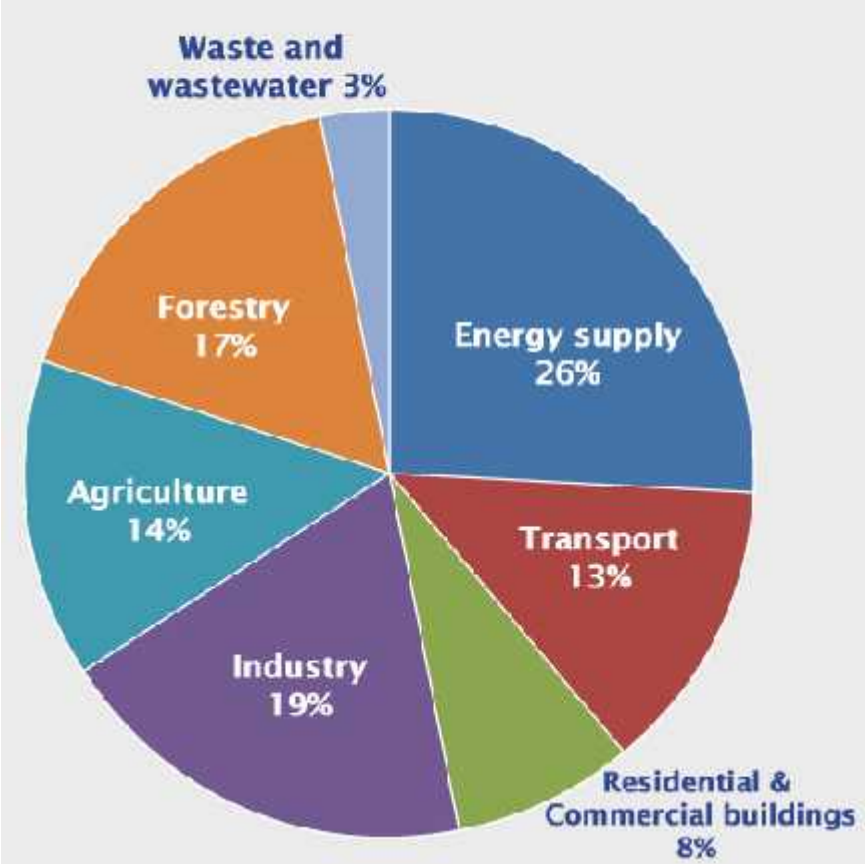
Biodiversity

Reversals

Displacement

Global greenhouse gas (GHG) emissions (IPCC, 2007)

Because of the significant amounts of GHGs emissions from deforestation & forest degradation (17%), policy makers under UNFCCC designed a global mechanism known as REDD+ to provide positive incentives to developing countries through "reward-for-efforts" towards reduction of emissions from forests, and for enhancing and sustainably managing their forests.



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REDD+ and Activities

- Under REDD+ mechanism, countries are encouraged to implement the following activities (or mitigation actions) in the forestry sector (depending on their capabilities and national circumstances) :
    - Reducing emissions from deforestation
    - Reducing emissions from forest degradation
    - [+]
    - Conservation of carbon stocks
    - Sustainable management of forests, and
    - Enhancement of forest carbon stocks

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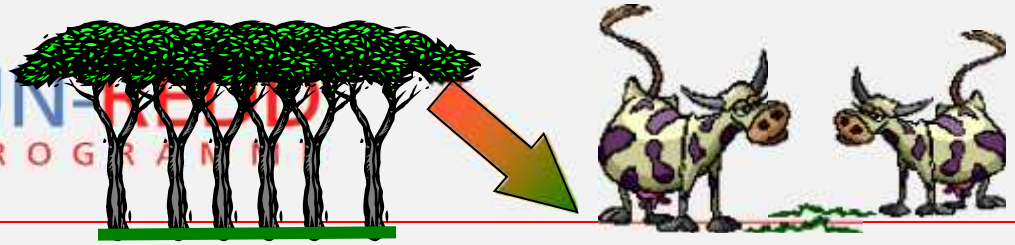
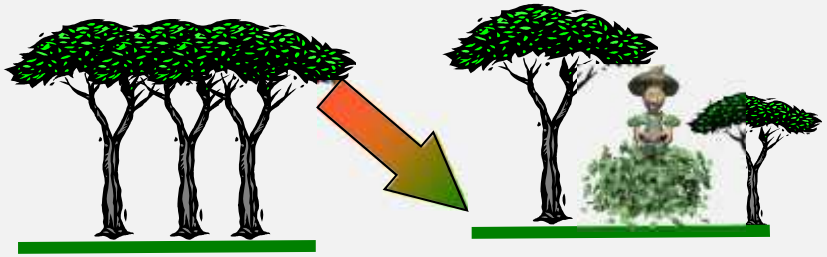
Illustration of REDD+ Activities

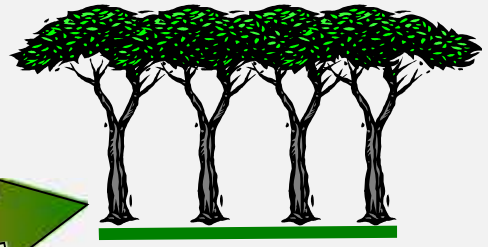


Reduced deforestation

Sustainable Management of Forest



Reduced forest degradation



Enhancement of forest C stock

Forest conservation

Phased Approach to REDD+ Implementation

REDD+ PHASES

Phase I
- Capacity building
- Design of National Plans, policies & measures

Phase II
- Implementation of national policies and action plans, demonstration activities

Phase III
- Positive incentives for verified performance

READINESS

FULL IMPLEMENTATION

Choice of REDD+ activities will depend on **national circumstances**

Demonstration activities must be "**results-based**" – they have to result in positive outcomes

Activities are implemented and monitored at the **national level**

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REDD+ Implementation: Phased Approach

Phases	Main actions	Brief description
Phase 1	Readiness	• Capacity building • Stakeholder engagement and national dialogue • Development of national strategies or action plans • Identification of policies (reforms & new) and measures
Phase 2	Policy measures, strategy implementation & results-based funding	• Implementation of national policies and measures, national strategies or action plans , REL/RL" development • Operational Satellite Land Monitoring System (SLMS) for monitoring of demonstration activities • Further capacity-building • Technology development/transfer • Results-based demonstration activities and investments
Phase 3	Payments for verified performance	• Evolution into performance-based actions that should be fully measured, reported and verified

REDD+-Readiness Process

- Any country wishing to undertake REDD+ Readiness Activities is requested to:
    1. Develop a national strategy and action plan for REDD+
    2. Design & implement a national forest monitoring system for monitoring & reporting on REDD+ activities
    3. Develop a national forest emissions level or forest reference levels
    4. Develop a benefit-sharing system
    5. Develop a system to ensure that safeguards are addressed and respected

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Components of REDD+ Readiness

Components of REDD+ Readiness

Coordination & stakeholder engagement
- Coordination, consultation and decision-making
- Participation, training, consensus
- Analysis + consultation + experiments

REDD+ Strategy
- Drivers of deforestation
- Transformative vision
- Cost estimates and options
- Reference emission levels

REDD+ institutional framework
- MRV
- Safeguards, FPIC
- Multiple benefits
- Payment distribution system
- Nat'l REDD+ finance mechanism

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National REDD+ Strategy

- UNFCCC Decision 4/15 on "Methodological guidance to REDD+ Strategy" recommends:
    1. The identification of drivers of deforestation and forest degradation and the means to address them;
    2. The identification of activities that result in reduced emissions and increased removals and stabilization of forest carbon stocks;
    3. The establishment of a robust and transparent national forest monitoring systems, using a combination of remote sensing and ground-based forest carbon inventory approaches; and
    4. Monitoring systems that provide transparent, consistent and accurate estimates, with reduced uncertainties, and results which are readily available for review by the UNFCCC.

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National Forest Monitoring System

- The objective of the MRV System is to enable the assessment of national GHG emissions and removals in the forestry sector and to report this to the UNFCCC, in a transparent, accountable and verifiable manner.
- Countries are requested to establish, according to national circumstances and capabilities, robust and transparent national forest monitoring systems that:

1. Use a combination of remote sensing and ground-based forest carbon inventory approaches for estimating, 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;

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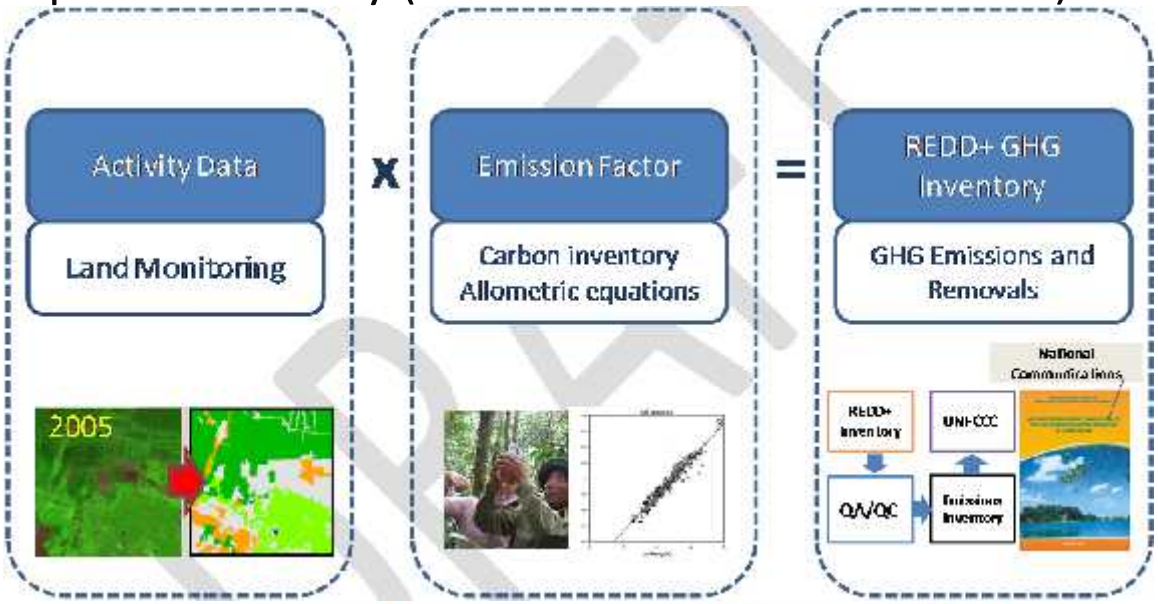
Methodological Guidance for MRV Systems

- Following the IPCC's Good Practice Guidelines (IPCC, 2003) and the Guidelines for National GHG Inventories (IPCC, 2006), the simplest methodological approach for MRV consists of combining information on the extent of human activities (called 'activity data' or AD) with coefficients that quantify emissions or removals per unit activity (called 'emission factors' or EF)



$$Emissions = AD \times EF$$

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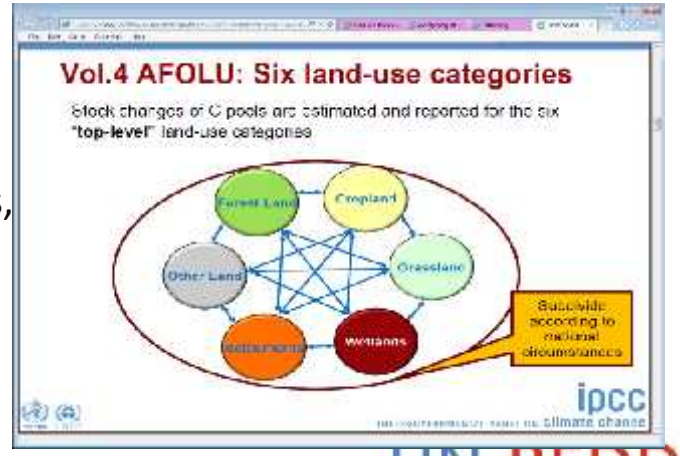
REDD+ MRV System: Activity Data (AD)

- Activity Data for the REDD+ MRV System can be generated primarily from remote sensing data, and needs to comply to the IPCC (2006) guidance.
- An operational “wall-to-wall” system based on Approach 3 of the IPCC (2006) is preferable.
- Ideally a consistent land representation of 20 years is expected in order to capture lands that have been Forest Land for more than the transition period required.
- Remote sensing image analysis usually results in a stratification of the country into different land use categories, and the production of transition-matrices.
- Countries have been using different classification systems, but its good to align this with that prescribed by UNFCCC & IPCC.

Table 1. Example of land use change matrix



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REDD+ MRV: Emission Factors (EF)

- REDD+ MRV System also requires information on GHG emission factors (EF) for forest lands and each of the forest-related land use change types.
- National Forest (Carbon) Inventories are needed, including development of allometric equations and Conversion/expansion factors.
- The generation of EFs require extensive field-based data collection, and can be undertaken for specific ecological regions and land uses (e.g. Mangrove Ecosystems).
- Estimates have to be made for different carbon pools (*to be detailed in a subsequent presentation*).

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REDD+ MRV: GHG-Inventory

- With the full development and operation of the two elements (AD and EF) of the MRV system a country can generate its REDD+ related National GHG-I, for reporting to the UNFCCC (*in Phase III of REDD+*).
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- The National GHG-I for REDD+ is incorporated into the National GHG-I, which will be submitted every four years as its National Communication (NC) to UNFCCC.
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- Under Articles 4 and 12 of the UNFCCC, all Parties are required to prepare NCs.
- Information reported in GHG-I represents an essential link between science and policy, and provides the means by which the Conference of Parties (COP) can monitor progress made by Parties in meeting their commitments and in achieving the Convention's ultimate objectives.

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Reference Emission Levels/RL

- CP.17 fixed modalities for forest reference emission levels and forest reference levels

- Forest reference emission levels and/or forest reference levels are benchmarks for assessing each country's performance in implementing the activities referred to in decision 1/CP.16, paragraph 70;
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- **Reference emissions level** (REL) is the amount of gross *emissions* from a geographical area estimated within a reference time period (REDD)

- **Reference level** (RL) is the amount of net/gross *emissions and removals* from a geographical area estimated within a reference time period (REDD+)
- [**REDD-UNFCCC Expert Meeting on "Methodological Issues relating to Reference Emission Levels" (Bonn, 23-24 March 2009)**]

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A. Stepwise approach

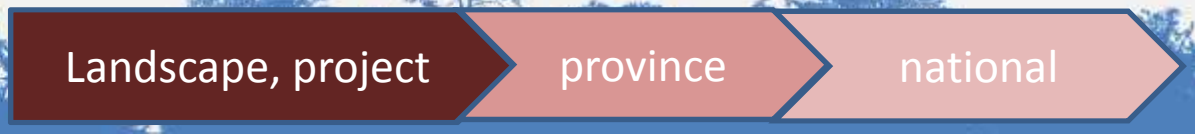
10. *Agrees that a step-wise approach to developing REL/RL may be useful, enabling Parties* ***to improve*** *the forest reference emission level and/or forest reference level* ***by incorporating better data****, improved methodologies and, where appropriate, additional pools, noting the importance of adequate and predictable support as referenced by decision 1/CP.16, paragraph 71;*

12. *Agrees that a developing country Party should update a forest reference emission level and/or forest reference level periodically as appropriate, taking into account new knowledge, new trends and any modification of scope and methodologies;*

Progressive inclusion of C pools, if appropriate

Progressive inclusion of vegetation forms

Progressive inclusion of geographical areas



REDD+: Ensuring Multiple Benefits

- REDD+, has the potential to deliver [**ecosystem-based & social**] benefits beyond carbon if properly planned & implemented

Ecosystem-based benefits:

- Conservation of biodiversity
- Water regulation
- Soil conservation
- Timber production
- Forest food and other NTFPs

Social Benefits:

- Forest-based employment opportunities
- Livelihoods & incomes
- Carbon credit payments
- Enhancement in decision-making
- Better governance

UNFCCC encourages countries to promote & support the **Cancun Safeguards**, which require that REDD+ activities be undertaken while respecting the knowledge & rights of indigenous peoples, including the effective participation of stakeholders.

UN-REDD Programme has agreed on a set of Social and Environmental Principles & Criteria (**SEPC**) that can assist countries in developing a national safeguards system.

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Monitoring Governance Safeguards

- While initial emphasis or MRV had focused on carbon; governance, livelihood & ecosystem service issues are now emerging as requisite elements of MRV systems

- Good & efficient governance of forest resources & distribution of benefits are central to the success of REDD+ strategies; as demonstrated in Copenhagen negotiations where 3 out of 7 safeguards supported REDD+ activities related to governance.

- Core governance parameters to be monitored for REDD+ include:

    1. Clear & coherent policy, legal, institutional & regulatory frameworks (e.g. land tenure/carbon ownership & use rights),

    2. Effective implementation, enforcement and compliance (e.g. cooperative enforcement of REDD+ relevant laws..)

    3. Transparent & accountable decision-making and institutions (e.g. stakeholder participation in REDD+ design and implementation)

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Community-Engagement

- The Cancun Agreements of CoP16 requested Parties to ensure full and effective participation of Indigenous Peoples and local communities in REDD+ (probably not in monitoring per se)

- At Bonn (SBSTA30 Bonn, June 2009) the need for full and effective

engagement of indigenous peoples and local communities in, and potential contribution of their knowledge to, monitoring and reporting of activities relating to (REDD+) was emphasized and, furthermore, encouraged the development of guidance for effective engagement of indigenous peoples and local communities in monitoring and reporting.

- Decision 4/CP15 (Copenhagen, December 2009) refers directly to the role of communities in monitoring, in article 3, in which the,

"….. *encourages as appropriate, the development of guidance for effective engagement of indigenous peoples and local communities in monitoring and reporting*".

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Community-Based Forest monitoring

- Research by the Kyoto: *Think Global, Act Local* program has already shown that communities may be trained to use standard forest inventory protocols for carbon stocks following IPCC recommended procedures, and that this is as reliable, but very much cheaper than, expert inventories, meaning that the transaction costs of REDD+ may be reduced if communities do the monitoring themselves

- Community-based monitoring can be reliable and economic (cost effective), can enhance ownership and motivation, and can greatly enrich the national forest accounting database.

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Thank You

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