MRV to support REDD+ implementation in DCR

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Structure of the presentation

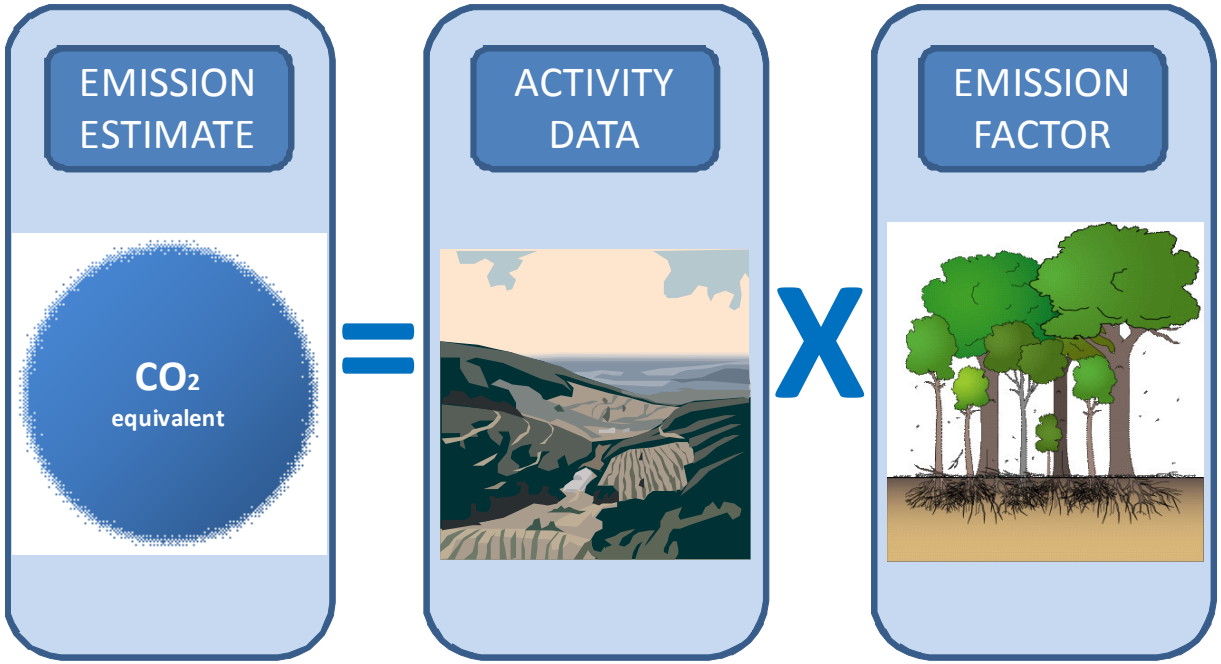
- MRV in the UNFCCC/IPCC/REDD+ context;
- MRV in DRC;
- A regional MRV approach?

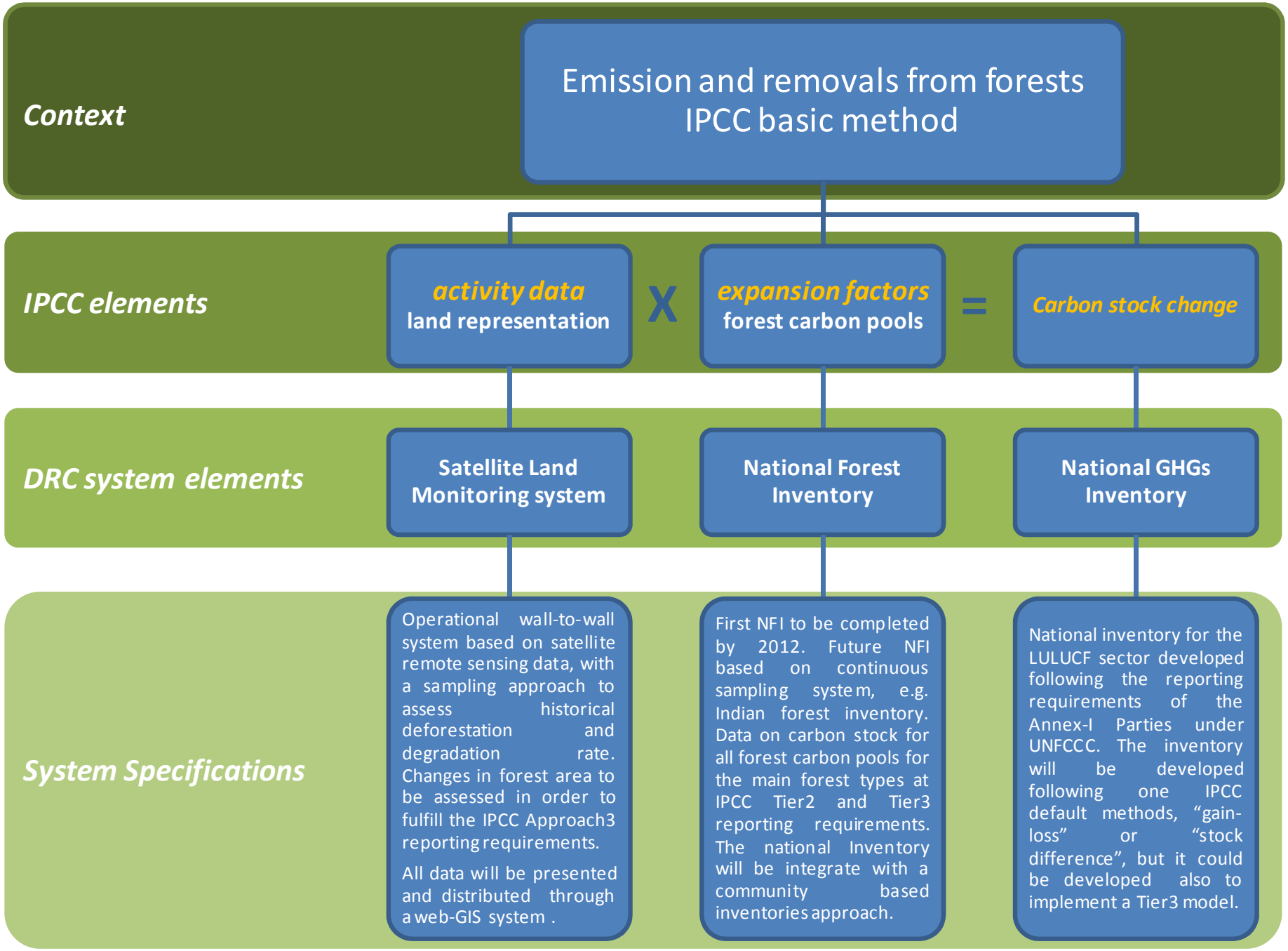
REDD+ in a UNFCCC/IPCC: Rules of the Game

- Methods: Gain-Loss or Stock Difference?
- Key Category Assessment;
- The Tier levels (Emission factor);
- The 'Managed land' as a proxy for human induced emissions;
- Land-use categories (Forest, Grassland, Wetland, Cropland, Settlement, Other) and sub-land-use categories (forest type, forest use etc);
- The Five Carbon pools (aboveground biomass, belowground biomass, dead wood, litter and soil organic matter);

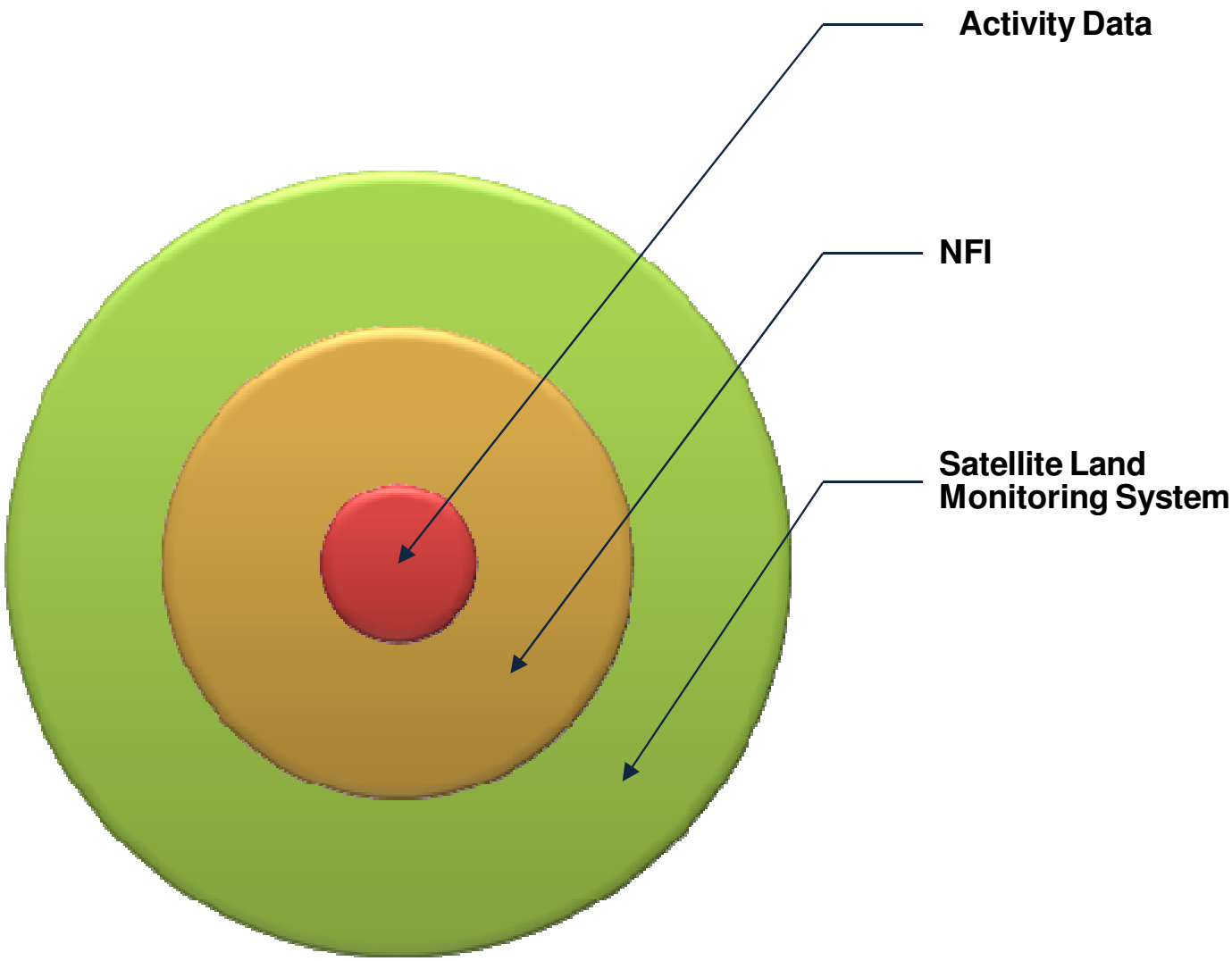
REDD+ in a UNFCCC/IPCC context

- SBSTA decision in COP 15 on REDD+ methodological issues;
- Basic IPCC equation:




Context
Emission and removals from forests
IPCC basic method
IPCC elements
activity data
land representation
X
expansion factors
forest carbon pools
=
Carbon stock change
DRC system elements
Satellite Land Monitoring system
National Forest Inventory
National GHGs Inventory
System Specifications
Operational wall-to-wall system based on satellite remote sensing data, with a sampling approach to assess historical deforestation and degradation rate. Changes in forest area to be assessed in order to fulfill the IPCC Approach3 reporting requirements.
All data will be presented and distributed through a web-GIS system .
First NFI to be completed by 2012. Future NFI based on continuous sampling system, e.g. Indian forest inventory. Data on carbon stock for all forest carbon pools for the main forest types at IPCC Tier2 and Tier3 reporting requirements. The national Inventory will be integrate with a community based inventories approach.
National inventory for the LULUCF sector developed following the reporting requirements of the Annex-I Parties under UNFCCC. The inventory will be developed following one IPCC default methods, “gain-loss” or “stock difference”, but it could be developed also to implement a Tier3 model.

MRV – AD



DRC – Emission Factor: Game Tactics

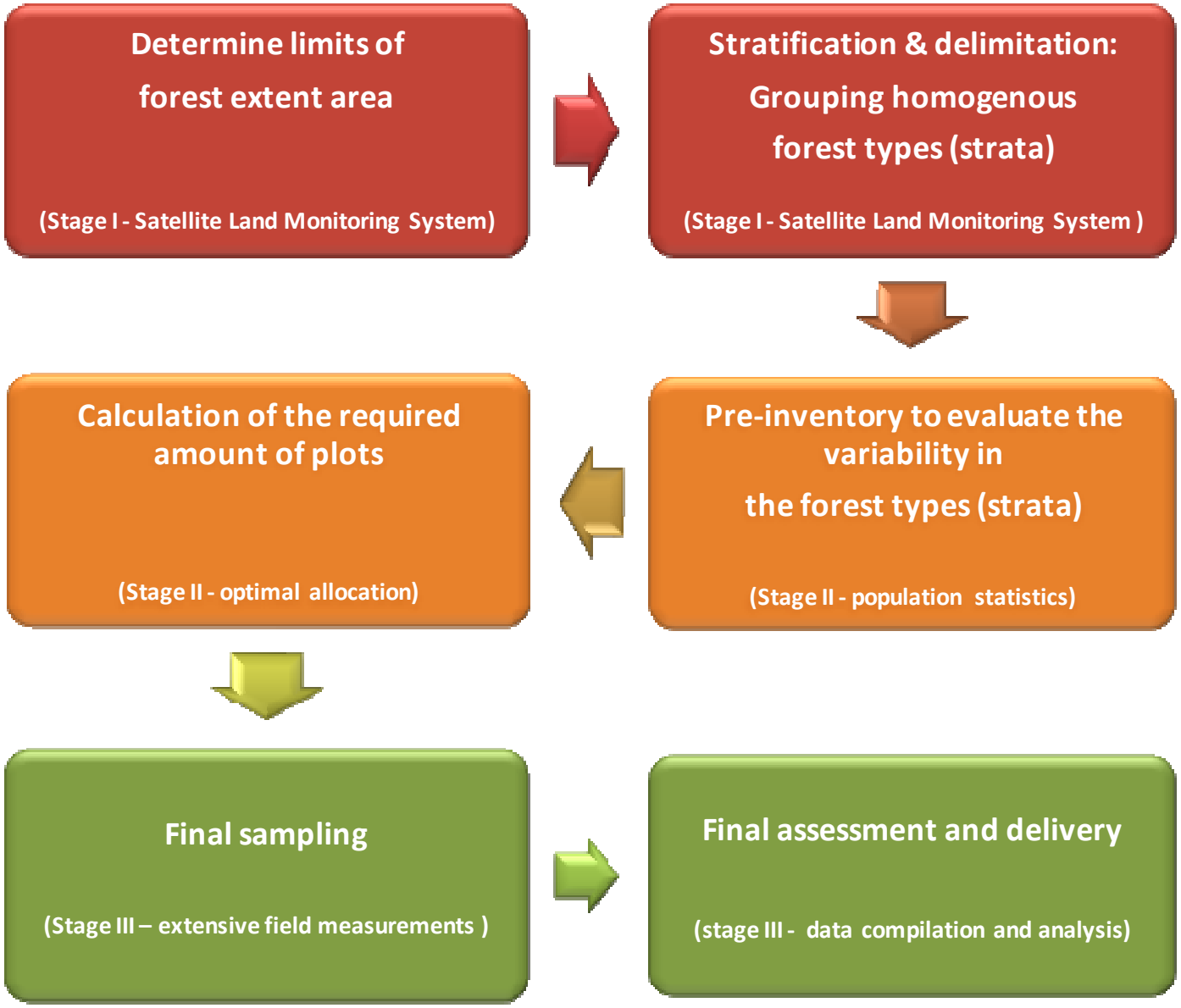
- Three Stages:

- I: Stratification and forest area pre-assessment:
  - Forest types;
  - Intact Forest |Landscape.

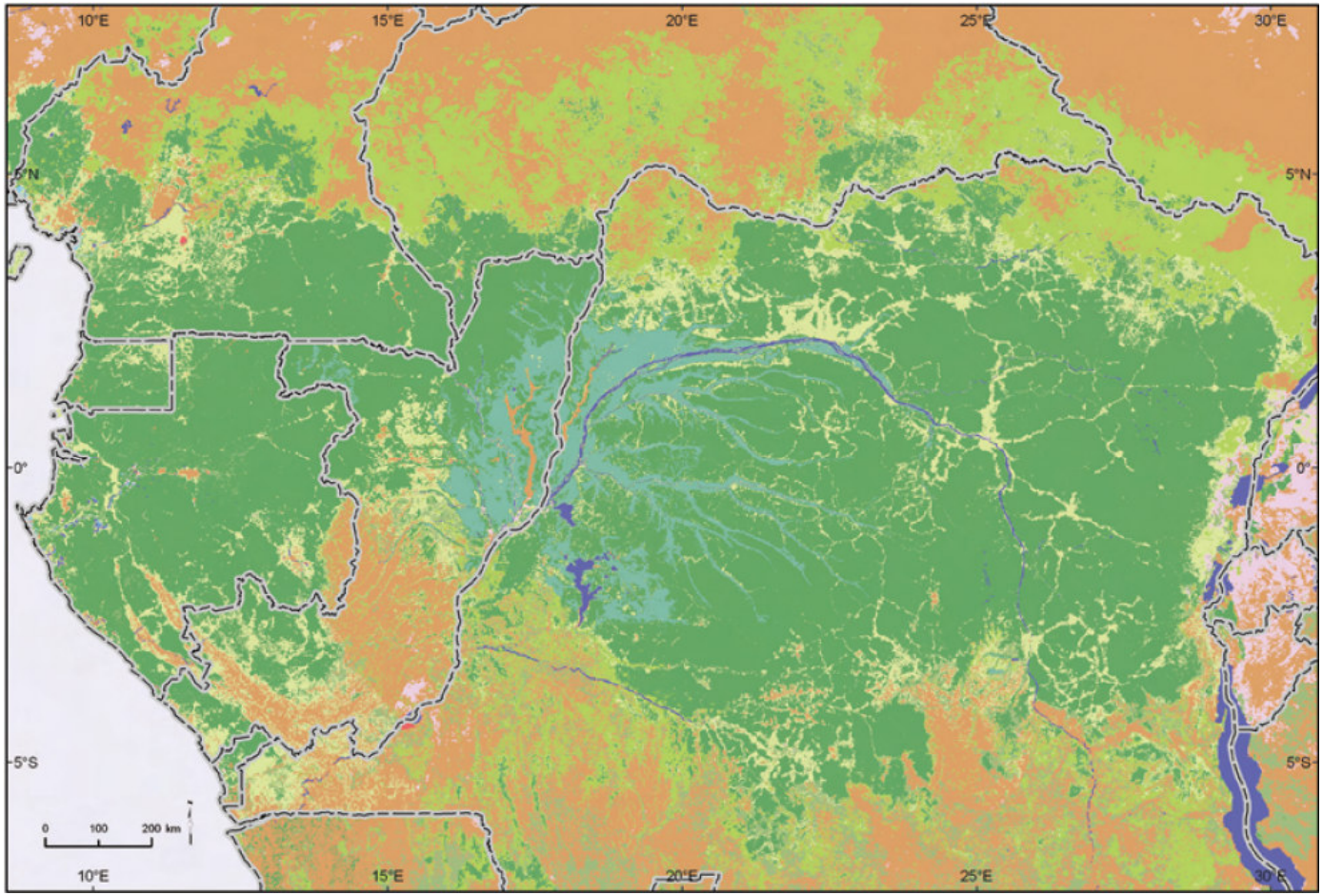
- II: Pre-sampling
  - Field inventory with temporary plots to obtain population statistics (AGB);

- III: Final sampling and assessment
  - Field inventory with temporary and permanent plots based on Statistics from Stage II.

I. Three Stage Approach



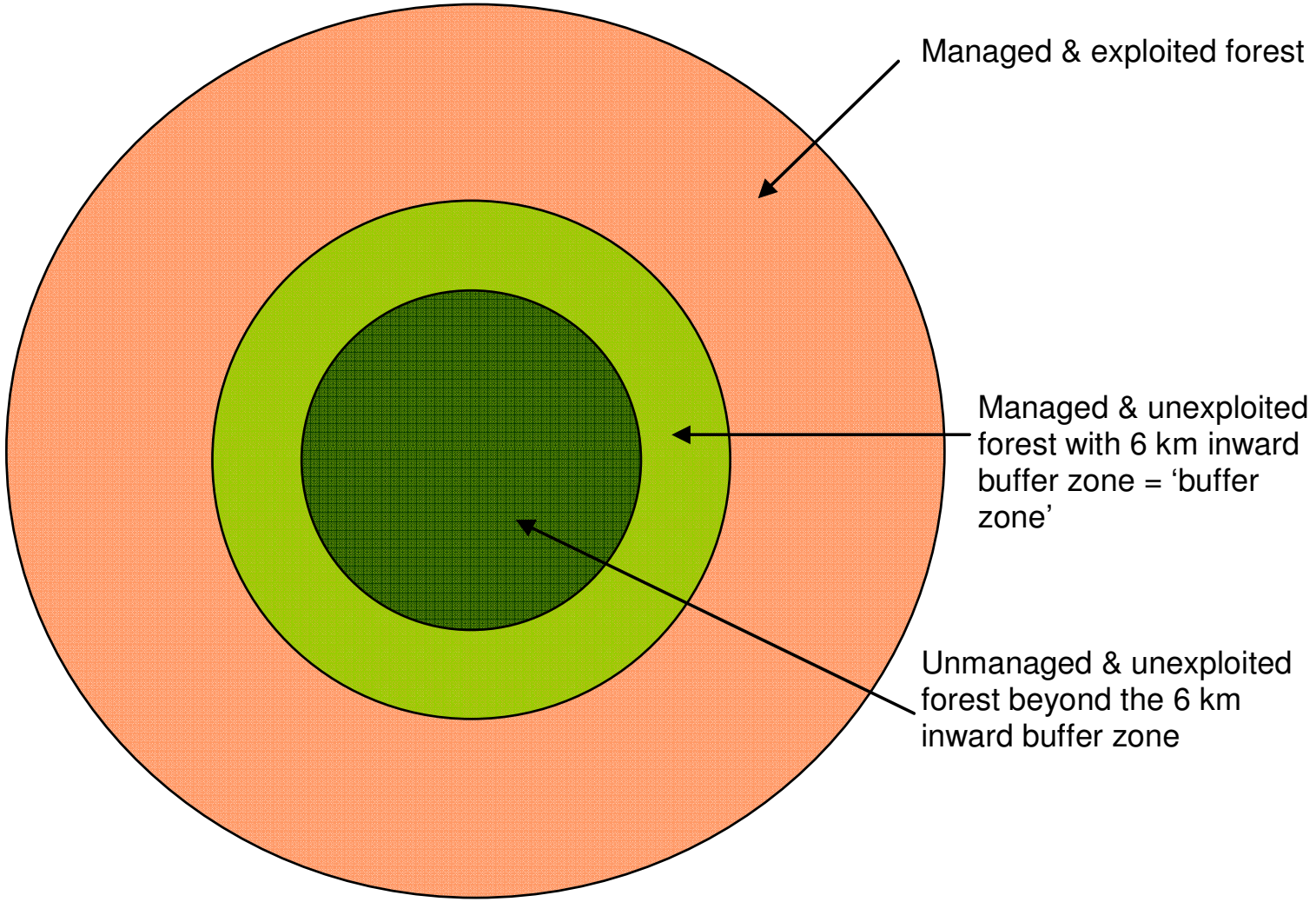
I. Stratification and limits of forest area



Source: State of the Forest 2008 (2009)

I. Stratification

I. Stratification concept



I. Stratification

	Stratum	M / UM	E / UE	Area
	Closed evergreen lowland forest	-managed -Unmanaged	- exploited - unexploited	83,761,542
	Submontane forest (900 – 1,500 m)	-managed -Unmanaged	- exploited - unexploited	5,995,494
	Montane evergreen forest (> 1,500 m)	-managed -Unmanaged	- exploited - unexploited	955,071
	Swamp forest	-managed -Unmanaged	- exploited - unexploited	8,200,098
	Mangrove	-managed -Unmanaged	- exploited - unexploited	<<
	Mosaic forest / croplands	-Managed	- exploited	21,144,384
	Mosaic forest / savannah	-Managed	- exploited	28,592,334
	Closed deciduous forest (Miombo)	-managed -Unmanaged	- exploited - unexploited	28,023,714
Non-forest	Other types of vegetation (grassland, woodlands and shrublands)	- managed	- exploited	50,825,421
	Land under cultivation (agriculture)	- managed	- exploited	825,390

Between 550 and 700 plots to measure in pre-sampling

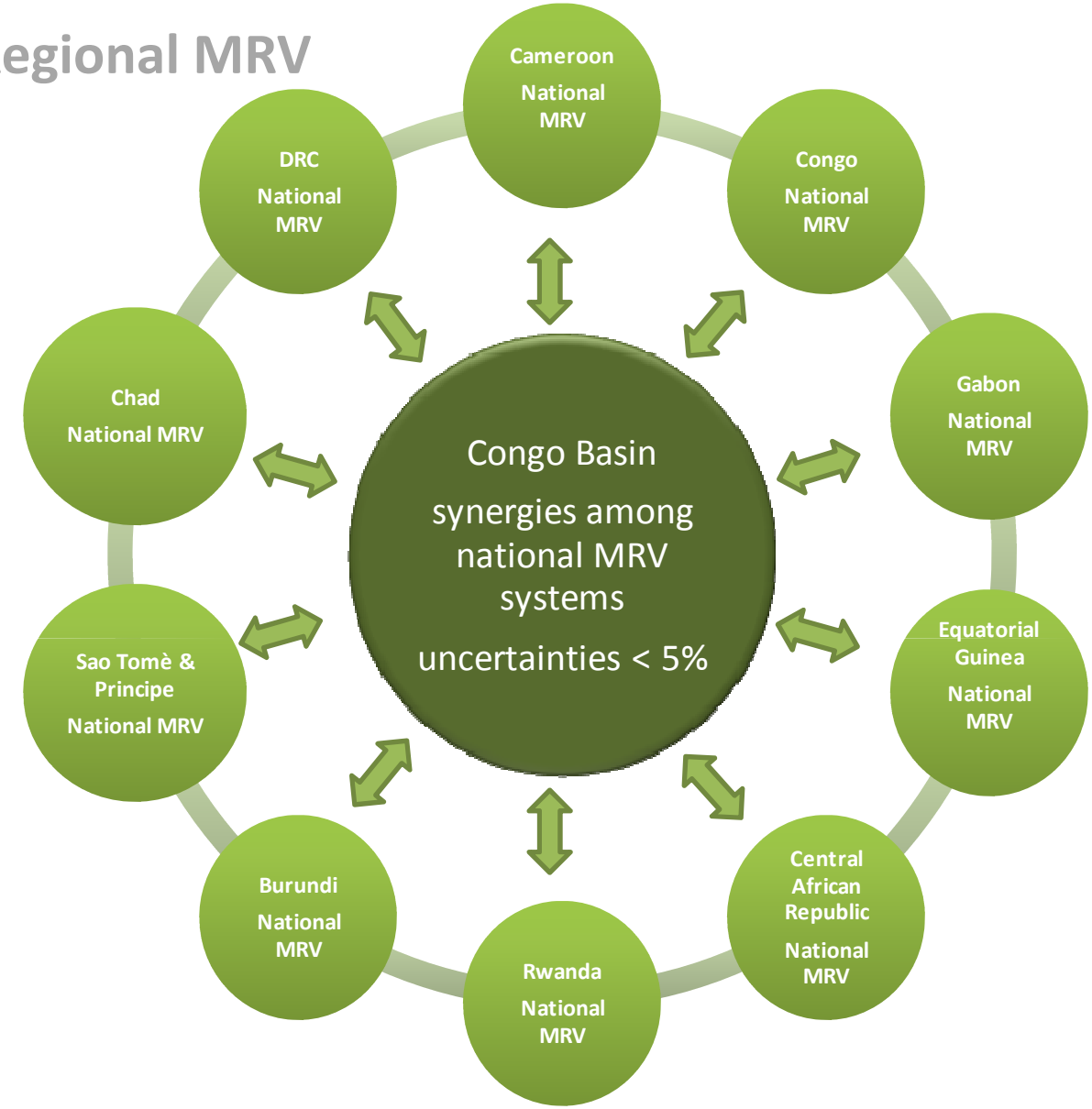
II. Pre-sampling

- Population statistics → number of plots required for each stratum for desired accuracy;
- Statistics will include a cost and accessibility factor (non-equal probability sampling);
- Test of plot design in different strata;
- Temporary plots →
  - Each stratum divided into 25-30 area equivalent units;
  - 1 km UTM grid on the country;
  - In each area equivalent unit for each stratum, randomly choose a point.
- 'Fast'
- Learning by doing process.

III. Final Sampling and assessment

- As a result of the pre-sampling:
  - calculated the required number of plots for each stratum for a given accuracy at a given CI – accuracy will be different among strata;
  - improved stratification;
  - an indication of true costs and practical constraints;
  - Optimal allocation
  - → re-assess sampling design.
- Using the same division of 25 equal area equivalent units and the 1 km UTM grid system as a layer over the country and its stratification – design the sampling scheme for the inventory.
- Approach to use a combination of temporary and permanent plots
  - Stratum → Plot → Species:
  - Information on commercial species, potentially rare species, etc.
- Can simultaneously collect data on wildlife observations and other things that may be of interest

A Possible Regional MRV



Graphical scheme for national MRV systems with full regional integration for the Congo Basin. All countries will have their own national MRV system that should be able to provide GHGs estimates with uncertainties below 20%. Through the integration with at least two other national systems, each country will be able to reduce its uncertainties below 5%.

A Possible Regional MRV – POLICY PRINCIPLES

- 4 key policy principles that should be incorporated:

1. **National policies:** Countries will be expected to fully integrate REDD+ under the UNFCCC and a national MRV system to support REDD+ into their national policies and legislation. Such policies and legislation would also take into account the regional approach for the Congo Basin Forest countries.

2. **Autonomy:** Countries should be able to undertake the MRV by themselves.

3. **Responsibility:** Countries and their identified implementing agencies will be fully responsible for the implementation of their national MRV system and subsequent reporting.

4. **Safeguards:** Countries will have to incorporate the 'Safeguards' that are incorporated into the LCA draft text for REDD+: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MRV – Emission Factors → Tier levels:

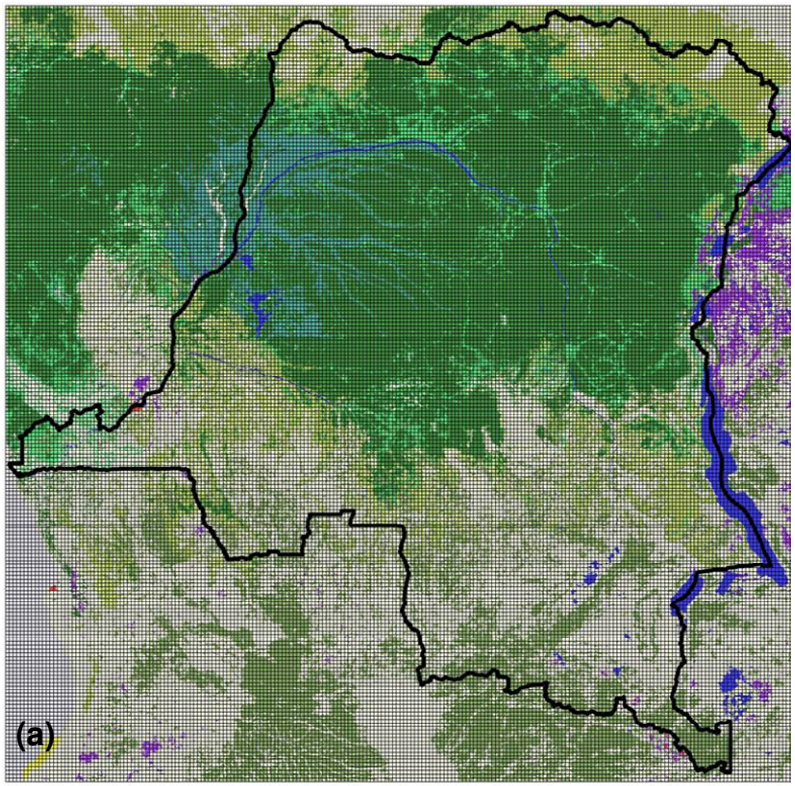
- Regarding carbon stocks, a NFI should provide the basis for assigning emission factors and stock change factors at least for forest land;

- A NFI may support any IPCC carbon stock estimation approaches such as gain and loss, stock difference and models and may deliver data;

- For the forest land-use category, carbon stock changes are estimated for all strata or subdivisions of forest land area (*e.g.* climate zone, forest type, management regime, *etc.*);

- Carbon stock changes within a stratum are estimated by considering carbon cycle processes between the five carbon pools.

- It is important that a NFI methodology will allow data collection for both continuous and discrete processes.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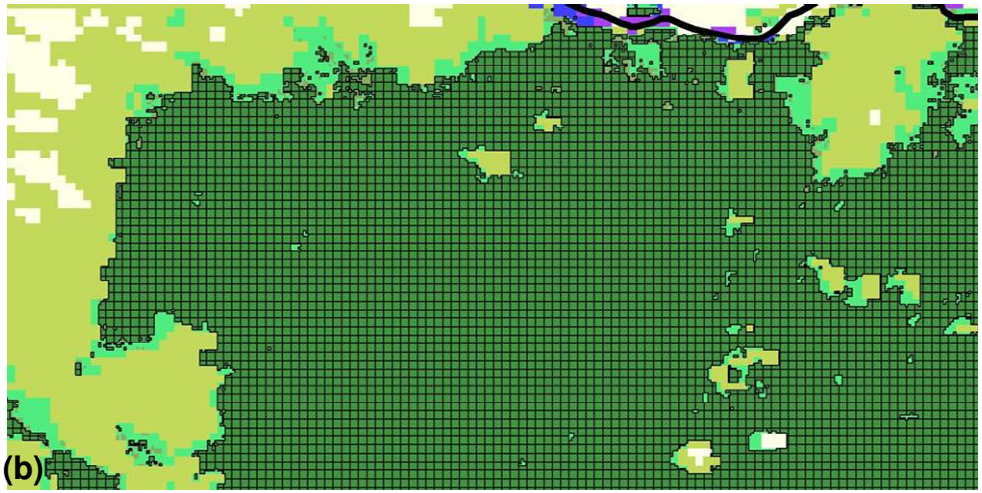
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A Possible Regional MRV – TECHNICAL PRINCIPLES

- **Technical Principles: learning by doing process with set milestones and deliverables**

1. **National MRV systems** will have to be robust, transparent and country driven;
2. **Incorporating basic IPCC methods into the MRV system**. In order to be able to respond to this, the Monitoring and Reporting components of the MRV system will consist of the following three components:
   a) **Remote sensing** for activity data;
   b) **Field inventories** for emission factors;
   c) **GHG inventories** (reporting) for emissions.
3. **The regional approach** will be based on a **three-stage approach**:
   - Stage I: establish and test the MRV system (1-2 years). At the end of the first year, it is expected that the countries could deliver/obtain historical data;
   - Stage II: preliminary and operational MRV system (2-4 years) that will support an interim fund (*e.g.* Amazon fund);
   - Stage III: fully operational MRV system for mitigation actions under the UNFCCC (4-5 years).
4. **Synergy:** Working together will reduce the number of plots each country will have to do;
5. **Results:** System will be result-based system;
6. **Implementation**
7. **Critical mass:** Trained technicians within and between the counties → regional training workshops;
8. **Safeguards:**
9. **Communication:** Countries and technicians should communicate within and between.

MRV - Activity Data → Approaches:

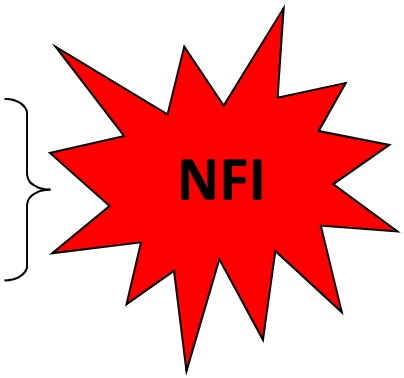
IPCC indication: *Countries should characterize and account for all relevant land areas in a country consistently and as transparently as possible. Data should reflect the historical trends in land-use area*.

IPCC 2003 LULUCF Guidance suggests three Approaches*:

Approach 1: Basic land-use data

Approach 2: Survey of land use and land-use change

Approach 3: Geographically explicit land use data



In almost all the developing countries there are no NFIs that could be use to assess historical trends in land-use area, the only way to represent land in a consistently and transparently approach with a time frame of 20 years backward is the use of satellite remote sensing data which allows to follow the Approach 3. Thus NFI will not be directly used to assess activity data.

* The Approaches are not presented as hierarchical tiers and do not imply any increase or decrease in accuracy but reflect collection methods and attributes and, therefore, appropriate ways to use the data.