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# 5th UN-REDD Regional Lessons Learned Workshop

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## Forest Reference (Emission) Levels (FRELs) for REDD+: Presentation 2

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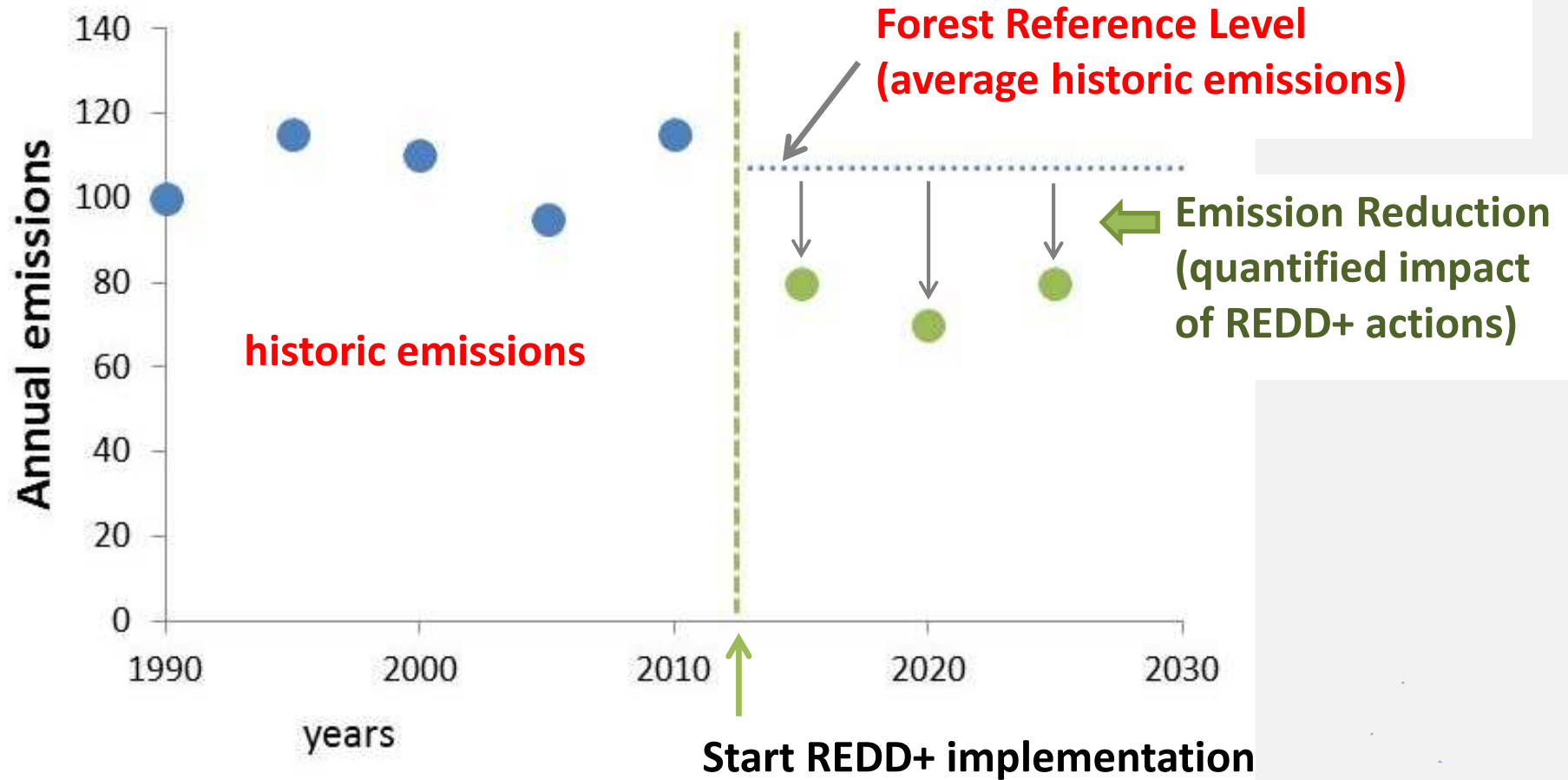
# Presentation 2

## Focus on

- FREL considerations;
  - 1) Forest definition
  - 2) Scope
  - 3) Scale
  - 4) Data and Methodologies
- FREL and National Circumstances
- Submission and technical assessment of FREL by UNFCCC
- Bringing it all together



# FREL/FRL graphical example



# FRL consideration 1: Forest Definition

Forest Reference (Emission) Levels (FRLs) for REDD+

# Forest definition: UNFCCC Guidance

- When submitting a FREL/FRL to the UNFCCC, a country must provide a definition of forest used in its construction
- If there is a difference with the definition used in the national GHG inventory or in reporting to other international organizations, an explanation of why and how the definition was chosen is required



# Forest definition

## Thresholds currently provided by the Kyoto Protocol:

- Minimum tree crown cover between 10 and 30%
- Minimum land area between 0.05 and 1 hectare
- Minimum tree height between 2 and 5 meters

**These apply to CDM but not to REDD+**



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# Forest definition

## Minimum height

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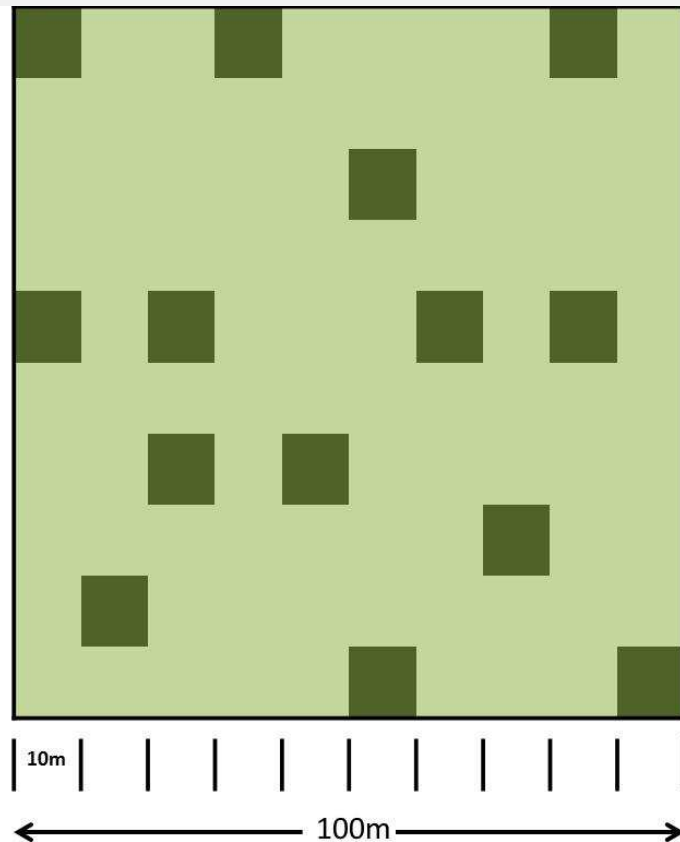


**Grassland or Forest?**



# Forest definition

## Minimum crown cover



-> 10% threshold: this is forest

->30% threshold: this is not forest (e.g. other wooded land)

**Is the REDD+ strategy aiming at reducing emissions in open forests?**

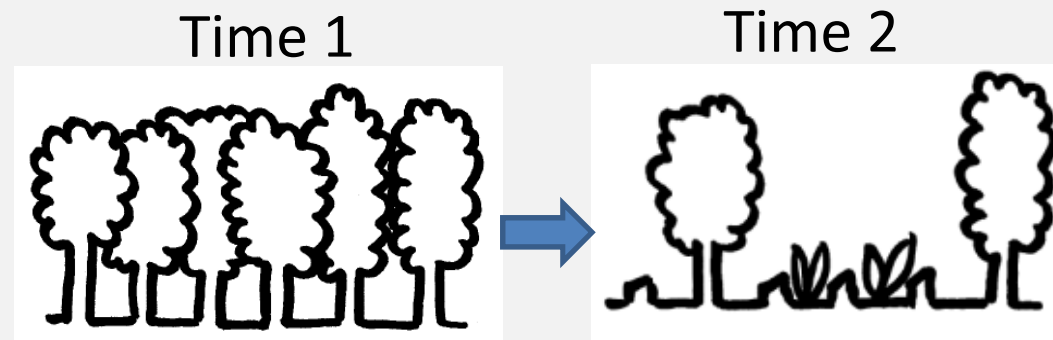




# Forest definition

## Minimum crown cover

A lower threshold does not necessarily result in broader REDD+ participation



>30% cover:

→  
deforestation

>10% cover:

→  
degradation



# Forest definition

## Minimum area

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# Forest definition

## Minimum area

Setting a very low minimum area may:

Increase participation in REDD+, but...

- ...increase the cost of MRV: high resolution imagery may be needed

- ...capture little additional carbon?

- ...may be too demanding, technically not feasible to monitor

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# Forest definition: Considerations

- Is there a forest definition and is it suitable for REDD+?
  - Are important REDD+ processes captured?
- Consistency with definitions in use
  - UNFCCC reporting (e.g. national GHG inventory or CDM)
  - National forest management and inventories
  - FAO definition
- Availability of methods and resources to measure and monitor emissions from forest-related activities.
  - Technical capacity and feasibility
  - Cost-effectiveness (keeping in mind future MRV of results which needs be consistent)



## FRL consideration 2: scope

Forest Reference (Emission) Levels (FRLs) for REDD+

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# Which activities to include in the FRL?

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The UNFCCC has defined 5 activities for REDD+:

- Reducing emissions from **deforestation**
- Reducing emissions from **forest degradation** (e.g. timber harvesting, fuelwood collection, overgrazing, etc.)
- **Sustainable management of forests** (often similar activities to reducing degradation)
- **Enhancement of forest carbon stocks** (e.g. reforestation)
- **Conservation** of forest carbon stocks (in this case, a country would likely need to demonstrate and quantify increasing pressures on forests and therefore emissions)



## Which activities to include in the FRL?

The **UNFCCC** does not say which activities a country should choose, but does say that:

- Significant pools and/or activities should not be excluded
- Reasons for omitting a pool and/or activity must be provided
- If limited data is available about a significant pool can use IPCC default factors

What does significant mean?

## Which activities to include in the FRL?

A country may consider:

- **Mitigation potential.** Assessment of the relative magnitude of emissions reductions/removals
- **REDD+ strategy.** What policies and measures are planned and which activities are they targeting?
- **Technical capacity.** What can be measured with reasonable accuracy and at acceptable cost?





# Example: Brazil

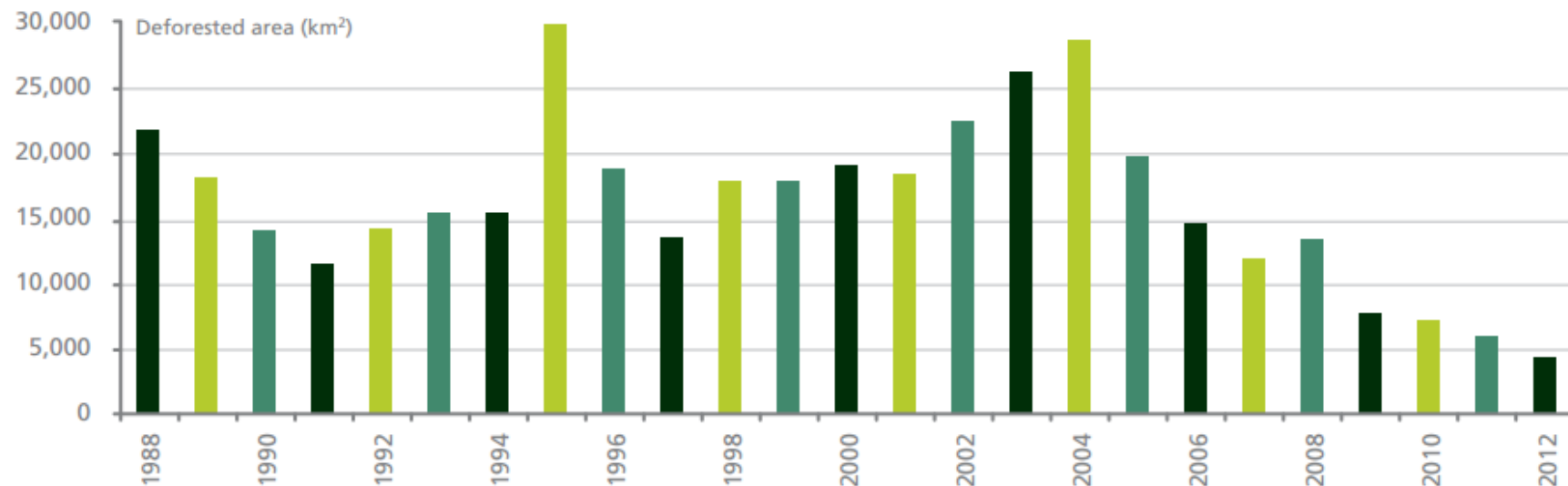
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Brazil's Amazon Fund only includes deforestation

- Simple
- Good measurements for deforestation (annual data available)
- Less confidence in degradation measurements
- Deforestation = significant mitigation potential

CHART 1: ANNUAL DEFORESTATION IN LEGAL AMAZON, BY CLEAR CUTS (IN KM<sup>2</sup>)



## Example: Republic of Congo

Deforestation historically low, emissions mainly from degradation (timber extraction)

Degradation approximated based on:

- Official timber harvest records
- Registered logs exported



Provides  
incentives  
SFM &  
conservation



# Scope: Activities

Some demonstration activity examples:

	Reduce emissions from deforestation	Reduce emissions from degradation	Enhancement of forest carbon stocks
Brazil	X		
Chile	X	X	X
Costa Rica	X		X
DRC	X		
Ghana	X		
Guyana	X		
Mexico	X		
Nepal	X	X	X
Republic of Congo	X	X	
Vietnam	X	X	X

**Main consideration:  
technical capacity to  
monitor**

# Scope: Carbon pools

## Some demonstration activity examples:

	Pools included
Brazil	AGB, BGB
Chile	AGB, BGB, DOM (e.g. for some degradation emission estimates using DOM for AGB and BGB)
Costa Rica	AGB, BGB, litter (accumulating deadwood)
Dominican Republic	AGB, BGB, litter (accumulating deadwood)
Ghana	AGB, BGB
Guyana	AGB
Mexico	AGB, BGB, dead wood, litter, SOC
Nepal	AGB, BGB
RoC	AGB
Vietnam	AGB, BGB

**Brazil UNFCCC submission:  
AGB, BGB, litter**

## FRL consideration 3: scale

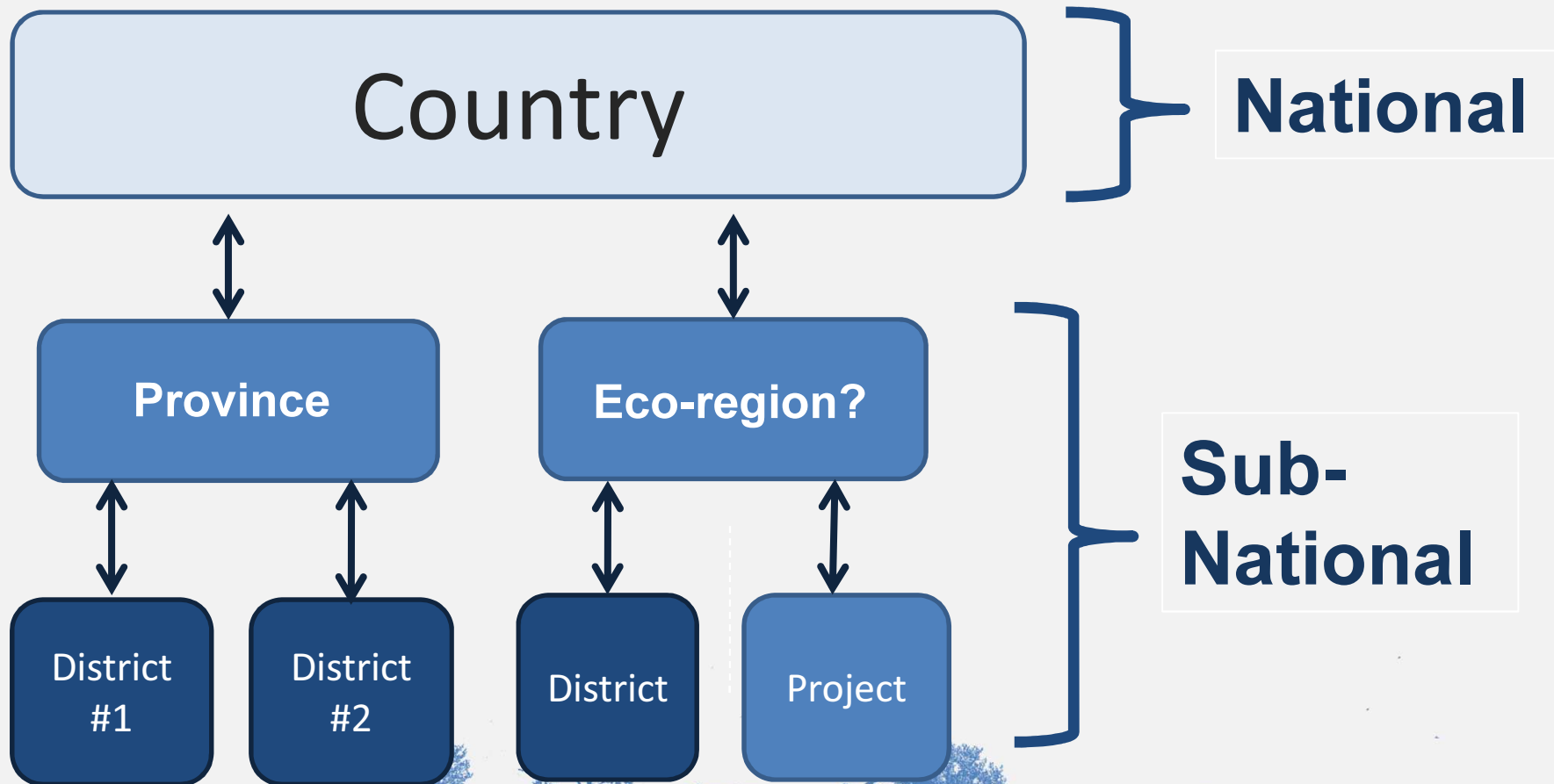
Forest Reference (Emission) Levels (FRLs) for REDD+

## UNFCCC Guidance

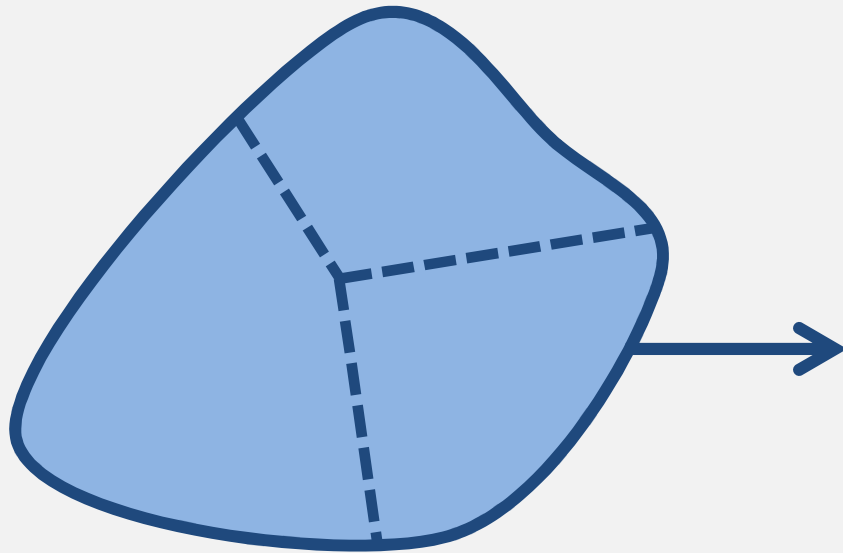
- The objective for all countries is to develop a national level FREL/FRL.
- Subnational FREL/FRLs are acceptable as an interim measure.



# REDD+ can be implemented at multiple levels



## REDD+ can also be accounted at different scales



**National scale FREL/FRL**

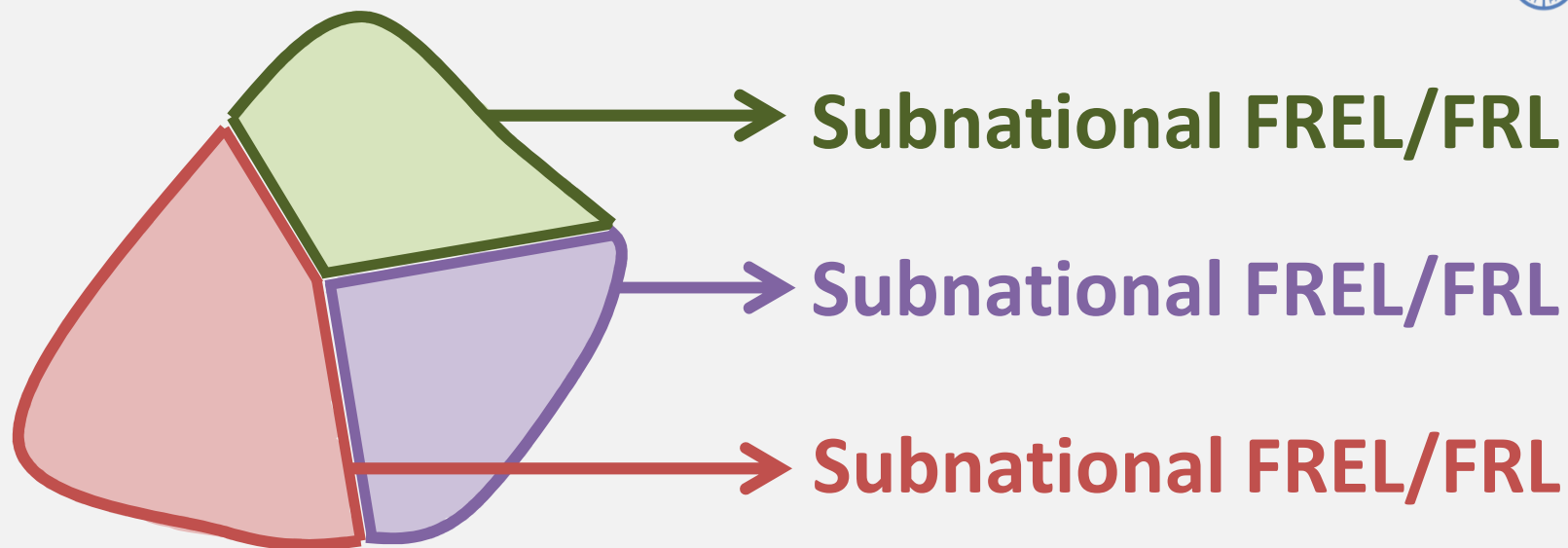
- + Consistent data, construction approach, scope
- + No leakage within country boundaries
- + Understand effect national policies

If spatial data available may allow for subdivision





## REDD+ can also be accounted at different scales

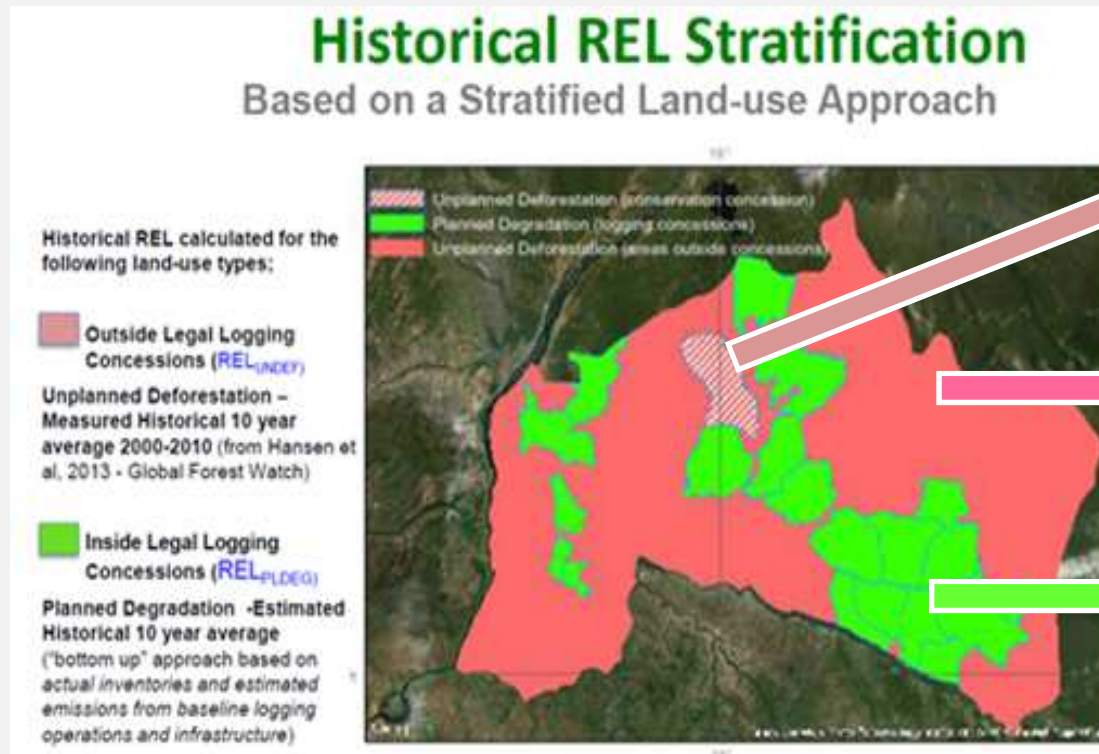


- + Better understanding of drivers (e.g. per ecozone)
- + Authority for land-use at subnational level
- Consistency may be issue; leakage if scope differs



# Example: DRC

Different methodology and different data for each stratum



Conservation  
concession

Unplanned  
deforestation

Logging  
concessions

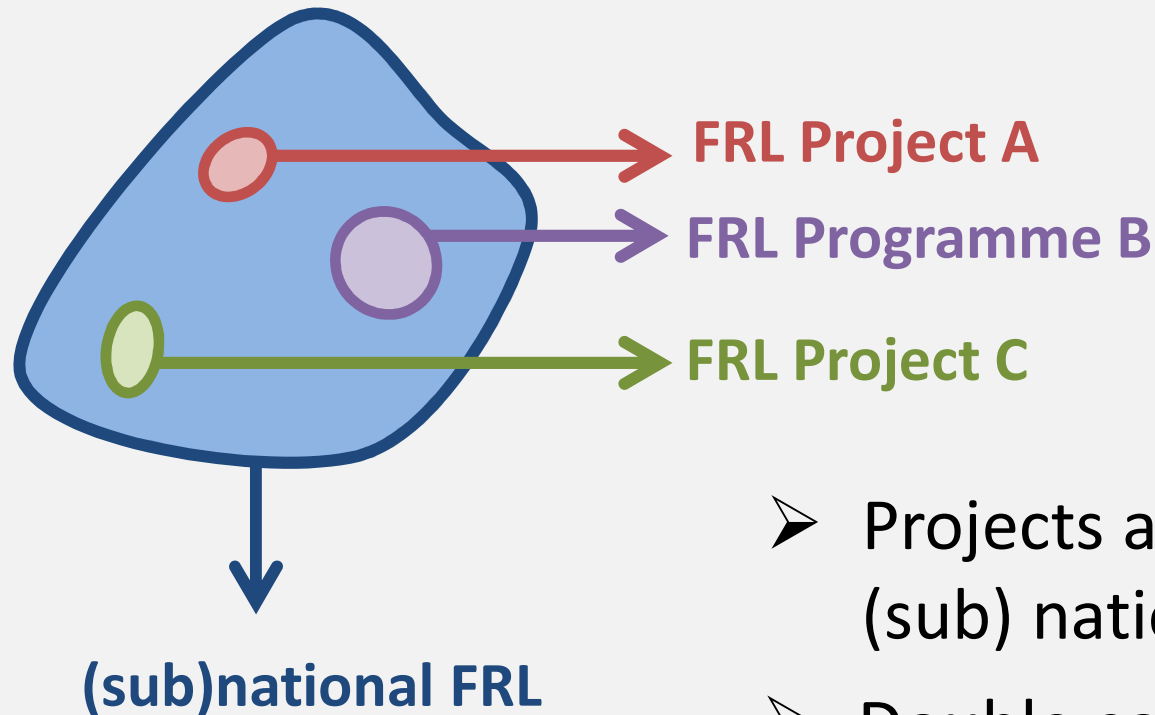
$$REL = REL_{UNDEF} + REL_{PLDEG} + REL_{AR} + REL_{CC} + \text{Adjustment}$$

## Considerations for scale of FREL/FRLs:

- Location, scale and nature of drivers
- Capacity to implement activities
- Availability and applicability of data
- Potential for success
- Scalability, i.e. whether the jurisdiction can offer lessons learned for the country more generally

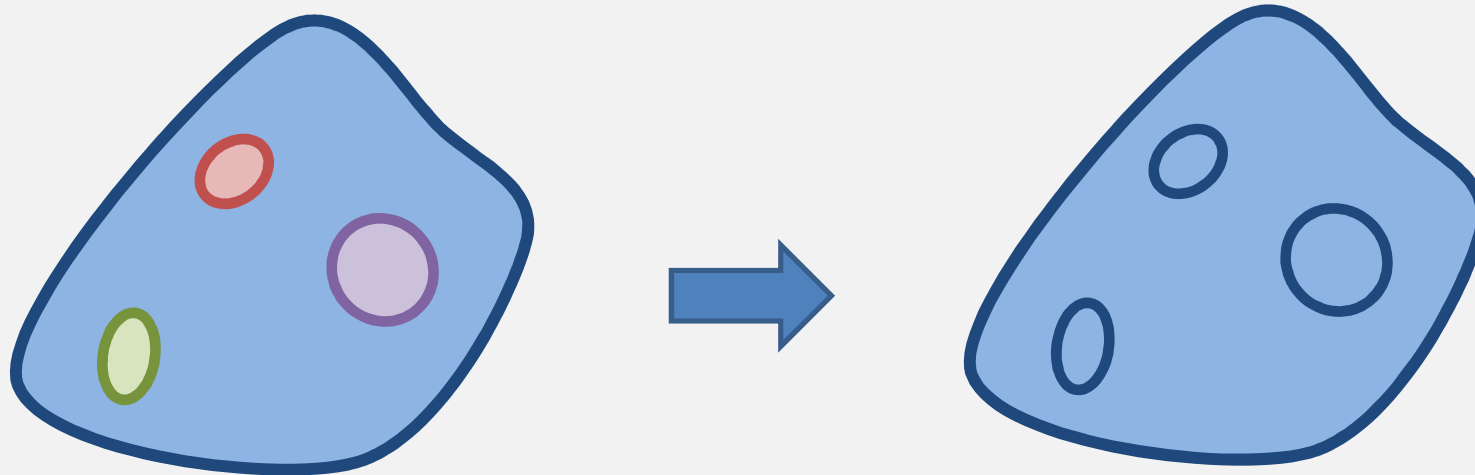


## In many countries REDD+ projects exist before (sub)national FREL/FRL creation



- Projects are “nested” within (sub) national FRL
- Double counting
- Inconsistent approaches

A registry may provide guidance for the harmonization of data and construction approach



## Additional considerations

- The more FRLs in a country, the more complex the system
- There are technical challenges and potentially higher costs associated with choosing smaller units
  - Need to manage leakage and prove additionality
  - Monitor and validate results of multiple units
  - National data may not provide acceptable accuracy to develop FREL/FRLs at the smaller scales
  - Implications if only a limited number of districts participate



# Scale of FRELs/FRLs

Some demonstration activity examples:

	Scale
Guyana	National
Brazil-Amazonia	Legal Amazonia
Rep. of Congo	Sangha + Likouala
Ghana	Ecological zone, superimposed on 5 regional administrations
Chile	Ecological zone, superimposed on 5 regional administrations
Nepal	Terai landscape
Mexico	5 states
DRC	Mai Ndombe region
Chile	VCS-JNR: Mediterranean Ecoregion (3 regions) FCPF: temperate forest (5 regions)



**Brazil's UNFCCC submission:  
Amazon Biome**



# Scale of FRELs/FRLs

Some demonstration activity examples:

	Programme area (ha)	% of country
Guyana	21.5 M	100 %
Brazil-Amazonia	520 M	60 %
R. of Congo	M	36 %
Ghana	M	25 %
Chile	Brazil's UNFCCC submission: 420 M	22 %
Nepal		15 %
Mexico		15 %
DRC	12.6 M	5.5 %
Chile	16.5 M	22 %





# FRL consideration 4: data and methodology

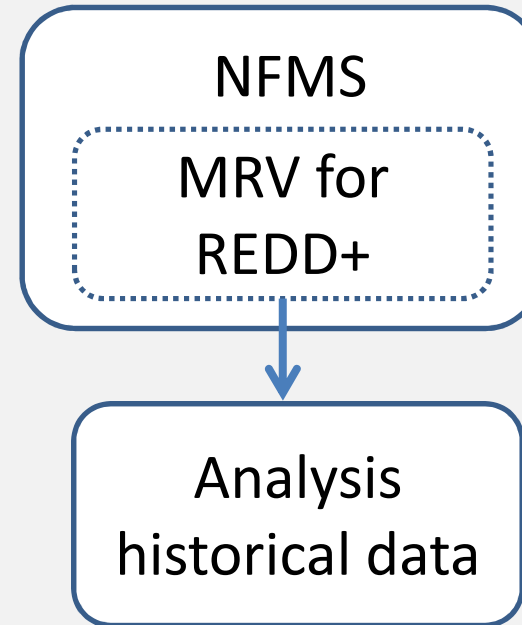
Forest Reference (Emission) Levels (FRLs) for REDD+

# UNFCCC Guidance

take into account **historic data** ... (Dec 4/CP.15)

maintain consistency between MRV and  
FREL/FRL (Dec 14/CP.19)

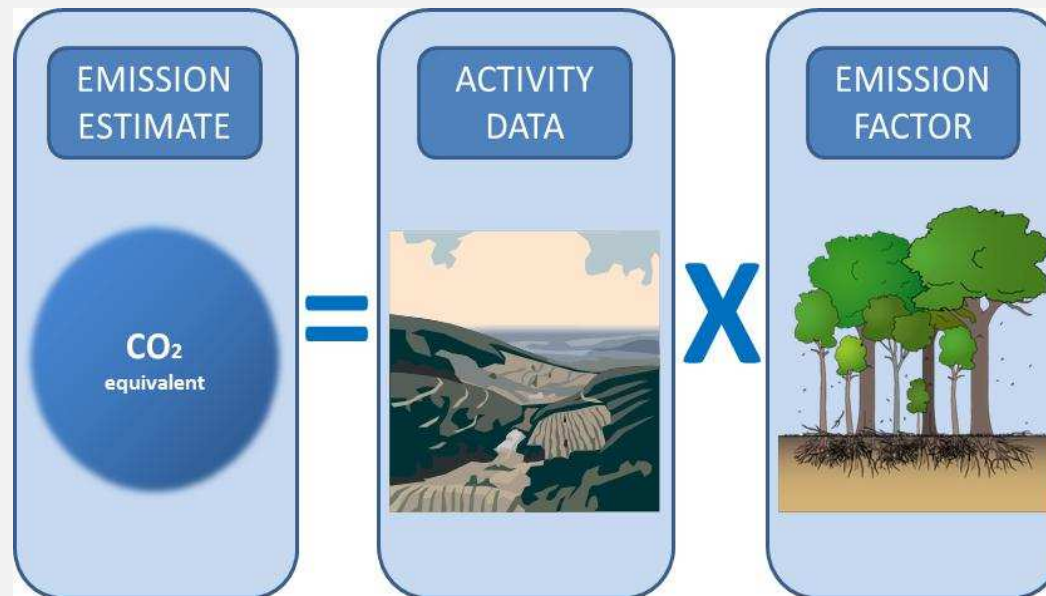




Historic emissions from forest in the country?  
Is there a trend?

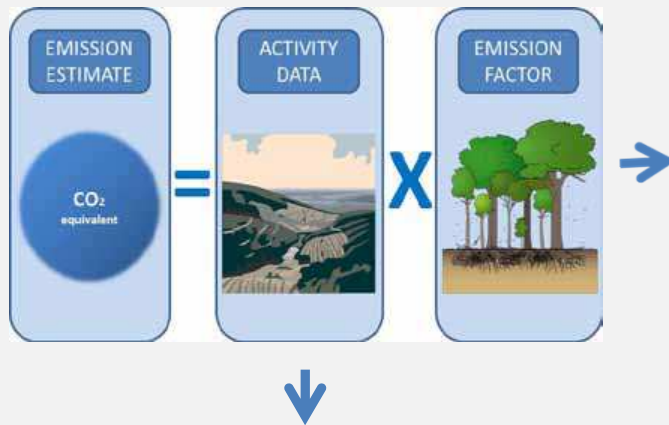
# Data

Historic emissions (from MRV)



# Data

- FREL/FRL methodology should be guided by the most recent IPCC guidelines



**3 tiers and 2 methods for Emission Factors**  
 1) Stock-change  
 2) Gain-Loss

**3 approaches for Activity Data**

**Activity based reporting (IPCC 1996)**  
**Land based reporting (IPCC 2003/2006)**



## Activity data

What historical period to analyse?

- data availability
- relevance of the reference period as a predictor of the future

Some demonstration activity examples:

	historical period used for FRL
<b>Brazil Amazon Fund</b>	10-year rolling average, updated every 5 years
<b>Ghana</b>	2000-2010 (10 yrs)
<b>Chile</b>	1998-2012 (15 yrs)
<b>Nepal</b>	1999-2011 (12 yrs)
<b>Mexico</b>	1990-2012 (12 yrs)
<b>DRC and RoC</b>	2000-2010 (10 yrs)

## Activity data

Most countries use *Approach 3* for land representation (spatially explicit) for deforestation

General challenge: How to include forest degradation data in an accurate and cost-effective way?



# Emission Factors

Some demonstration activity examples:

	Tier used	Number of EFs
Brazil	Tier 1-2	One conservative estimate
Chile	Tier 2	At least 2 (natural forest-plantations)
Costa Rica	Tier 2	Multiple (age-classes)
DRC		
Ghana		
Guyana		
Mexico	Tier 3	Carbon stocks are simulated with a carbon dynamics model (i.e. multiple EFs)
Nepal	Tier 2 and 3	12 (combination forest type and density classes)
RoC	Tier 1-2	3 (primary, secondary and swamp forest)
Vietnam	Tier 2	12 (combination type of forest and structure classes)

Brazil UNFCCC submission:  
Tier 2-3  
Carbon map (multiple EFs)



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# Emission Factors

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- Diversity in the use of the 3 *Tiers*: some countries combine Tier 2 and Tier 3 according to the data available
- Stratification: according to forest type and/or structure/state of forest



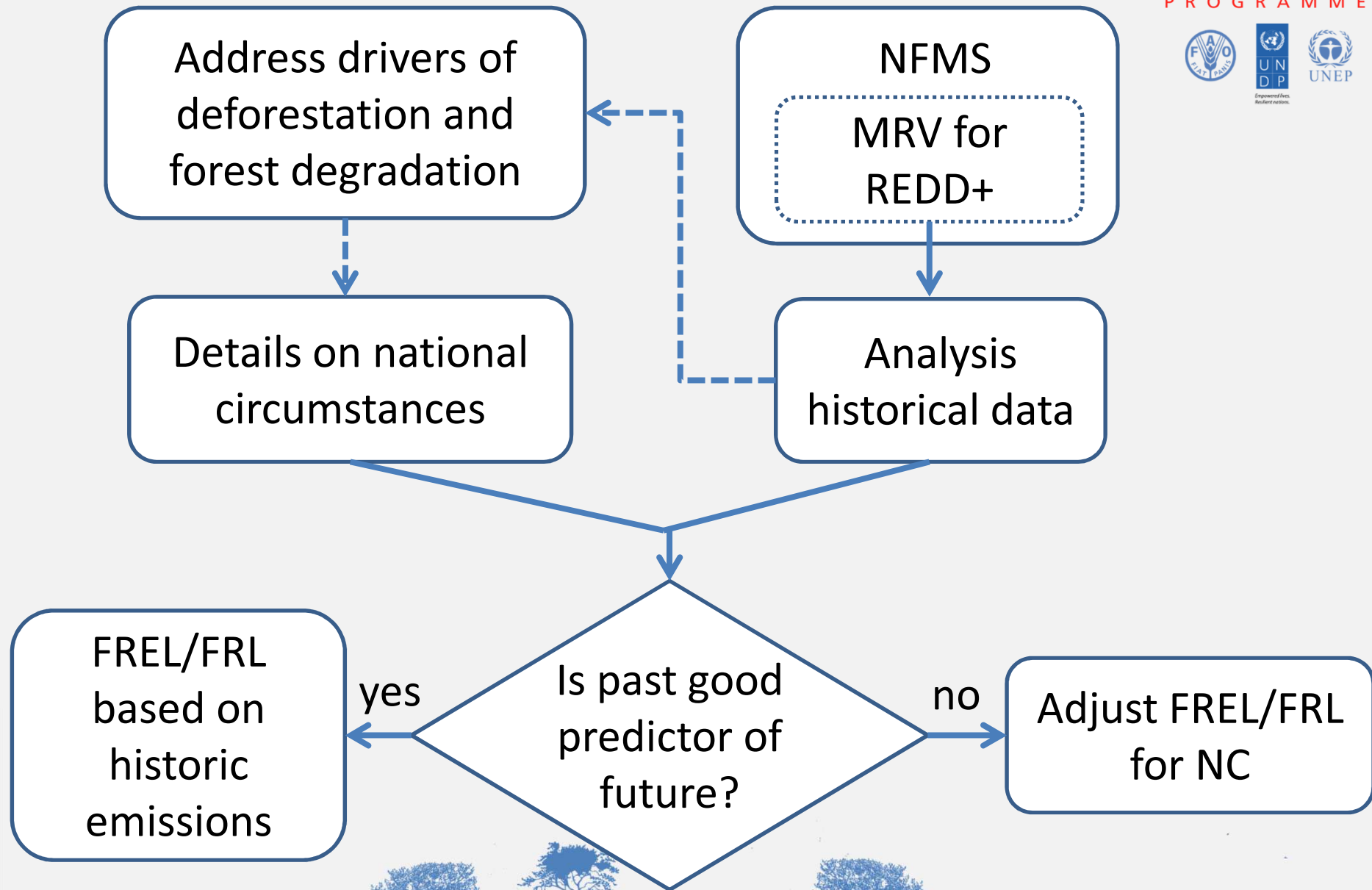
# Methodology

How to construct the FREL/FRL

# UNFCCC Guidance

take into account **historic data**, and adjust for **national circumstances** (Dec 4/CP.15)





# UNFCCC Guidance

take into account **historic data**, and adjust for **national circumstances** (Dec 4/CP.15)

description of data sets, approaches, models, if applicable and assumptions used (Dec 12/CP.17)

descriptions of relevant policies/plans (Dec 12/CP.17)



# National Circumstances

- National circumstances are a reporting requirement for all UNFCCC parties in National Communications
- No UNFCCC guidance on how National circumstances can be used in FREL/FRL methodology
- However, we know the scope of National circumstances as defined by the UNFCCC



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# FREL/FRL adjustments based on National Circumstances

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- Using a historic average deforestation for FREL/FRL construction may not always reflect “business as usual” in the future
- Adjustments for National circumstances are acceptable and following UNFCCC guidance need to be justifiable and transparent. The level of justification is undefined, but would probably require reasonable proof and third party assessment
- A justifiable, transparent and robust approach to FREL/FRL adjustment for National Circumstances is in line with UNFCCC guidance



# Methods to construct FREL/FRLs

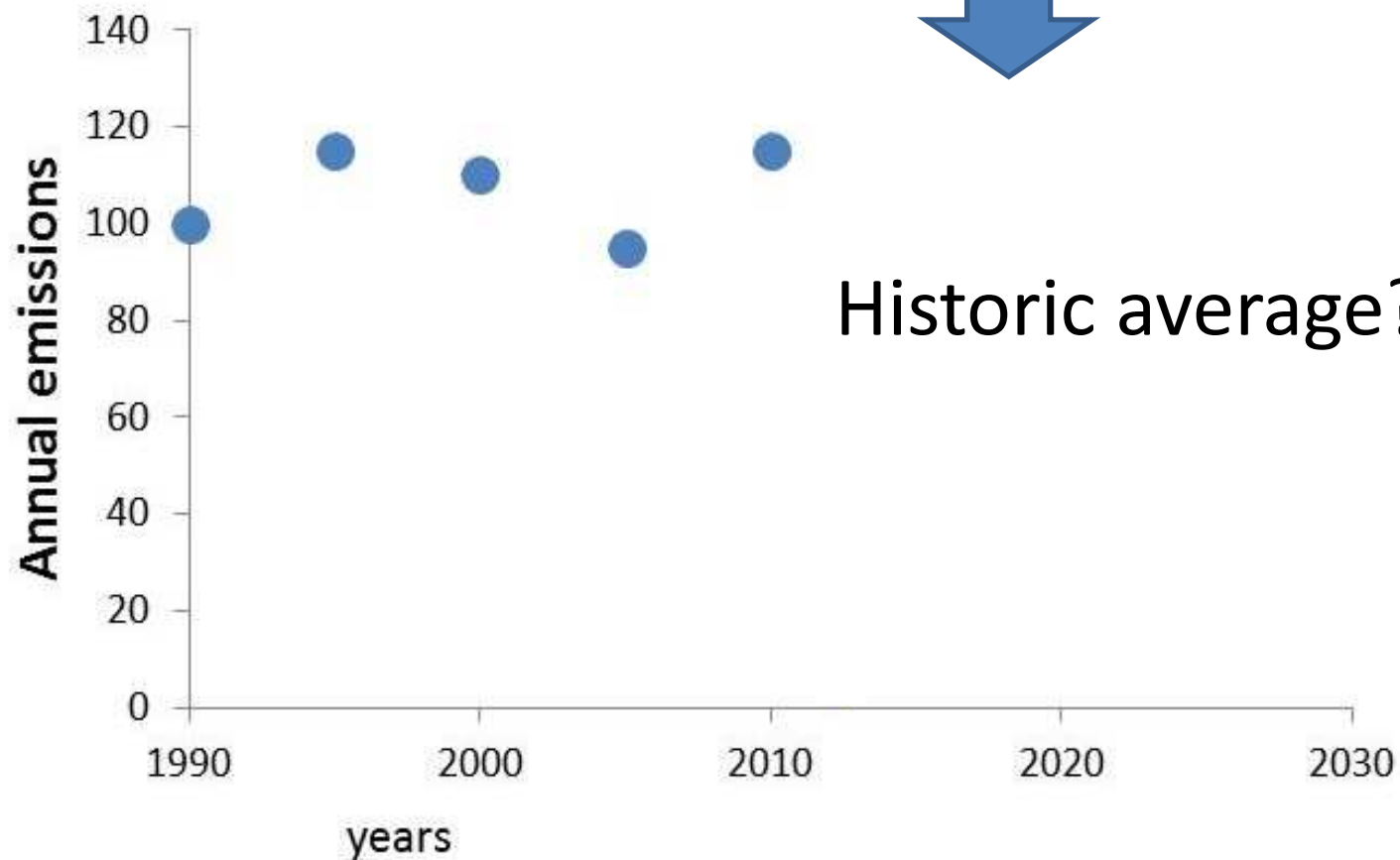
Some demonstration activity examples:

Method	Country	Historical rate of deforestation
Historical average	Brazil	High
	Ghana	High
	Mexico	High
	Nepal	High
	Vietnam	High
Adjusted or projected	DRC	Low
	Guyana	Very low



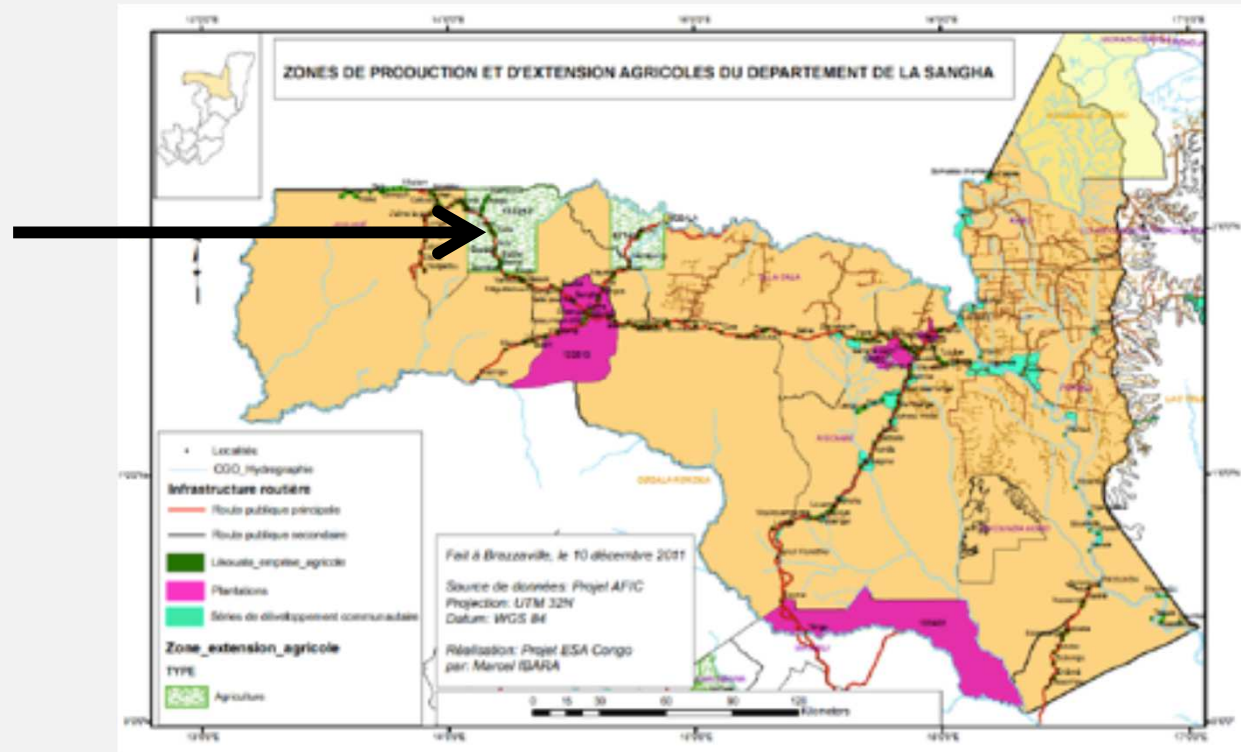


no trend in historic emissions?  
no future changes expected (eg unprecedented large-scale infrastructure plans)?



# Example: Republic of Congo

Calculates adjustment based on **planned** macro-agricultural zones (oil palm) from **Agricultural sector development plan 2012**



# What is the UNFCCC FRL submission process?

Forest Reference (Emission) Levels (FRLs) for REDD+

# UNFCCC FREL submission

Decision 13/CP.19 provides guidelines for FREL submission and assessment;

- FREL can be submitted anytime (12/CP.17) and will be assessed in the next scheduled assessment session (once a year)
- Assessment team (AT) comprising 2 LULUCF experts from UNFCCC roster of experts will conduct the assessment
- AT will conduct a comprehensive assessment of the submitted FREL following set timelines for assessment session in Bonn, clarifications, revisions, and compilation of an expert report on the FREL
- Expert report will be published on the web platform of the UNFCCC



## FRELS, NCs, BURs and MRV?

- FREL submission and review is independent of National communications (NCs) and Biennial Update Reports (BURs)
- Countries report results of REDD+ implementation through BURs while information on safeguards is reported through NCs
- A technical annex of the BUR will be used for **Reporting** REDD+ results against an approved FREL (following the UNFCCC submission process)
- UNFCCC has guidelines for submission of NCs and BURs
- **Verification** of REDD+ **Reporting** in the BUR follows another UNFCCC review process (Decision 14/CP.19)
- **Verification** will allow countries to receive Results Based Payments for REDD+ Results Based Actions



# Visualizing elements in the UNFCCC context



## PHASE 1

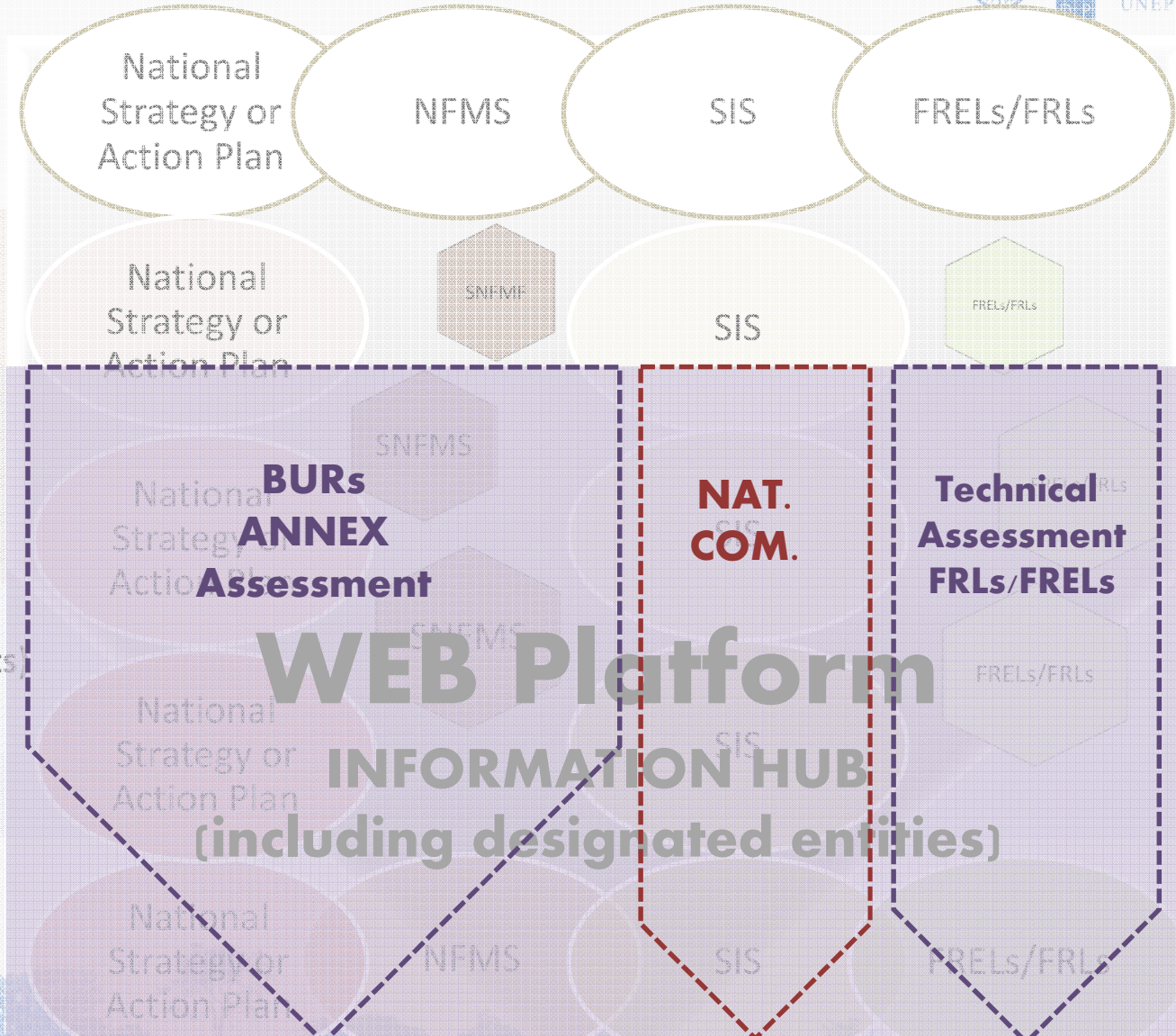
CB, devel. NS/AP  
PAMs

## PHASE 2

Implement. NS/AP, PAMs  
Demonstration activities  
(incl. result base payments)

## PHASE 3

Full implementation  
Result based payments



# Summary – Bringing it all together

- Forest Reference (Emission) Levels (FREL/FRLs) and their relationship to NFMS and GHG reporting
- UNFCCC Methodological Guidance for FRL has been shared
- FREL considerations;
  - 1) Forest definition
  - 2) Scope
  - 3) Scale
  - 4) Data and Methodologies
- FRL and National circumstances



## Summary – Bringing it all together

- To participate in REDD+ countries are required to develop and define a FREL/FRL as a benchmark to assessing performance in implementing REDD+ activities
- UNFCCC provides a framework for the construction of FREL/FRLs for REDD+
- Some methodological elements are clearly defined, while other elements remain undefined to allow flexibility at a country implementation level
- Emerging examples of FREL/FRL illustrate the diversity of possible approaches
- Clear guidelines and procedures for submission and technical assessment of FREL/FRL have been provided by the UNFCCC





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# Introduction to the collaborative exercise 2 on FREL

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- According to your table examine the provided fictional country data
- Examine the guidance document and discuss among the group the different questions
- During the discussion designate a note-taker to compile a list of priorities for technical work for your country that will allow you to construct a FREL for submission to the UNFCCC
- At the end of the exercise consider your priority actions and reflect among the group
- If you need any guidance on the exercise please ask a facilitator
- Enjoy!