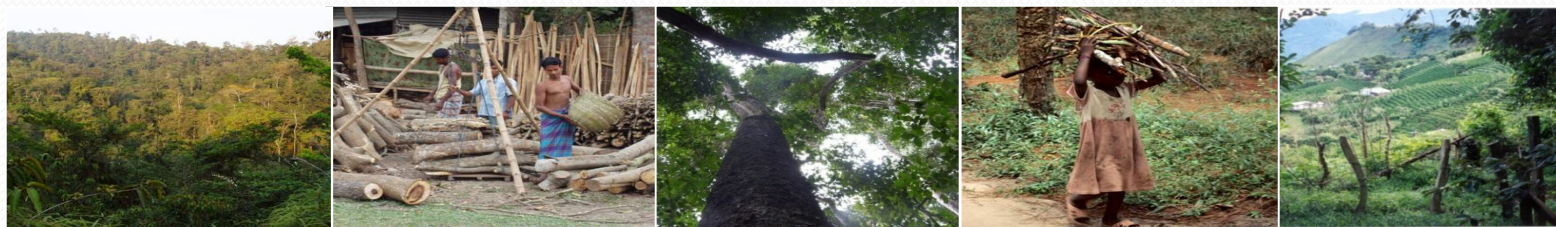
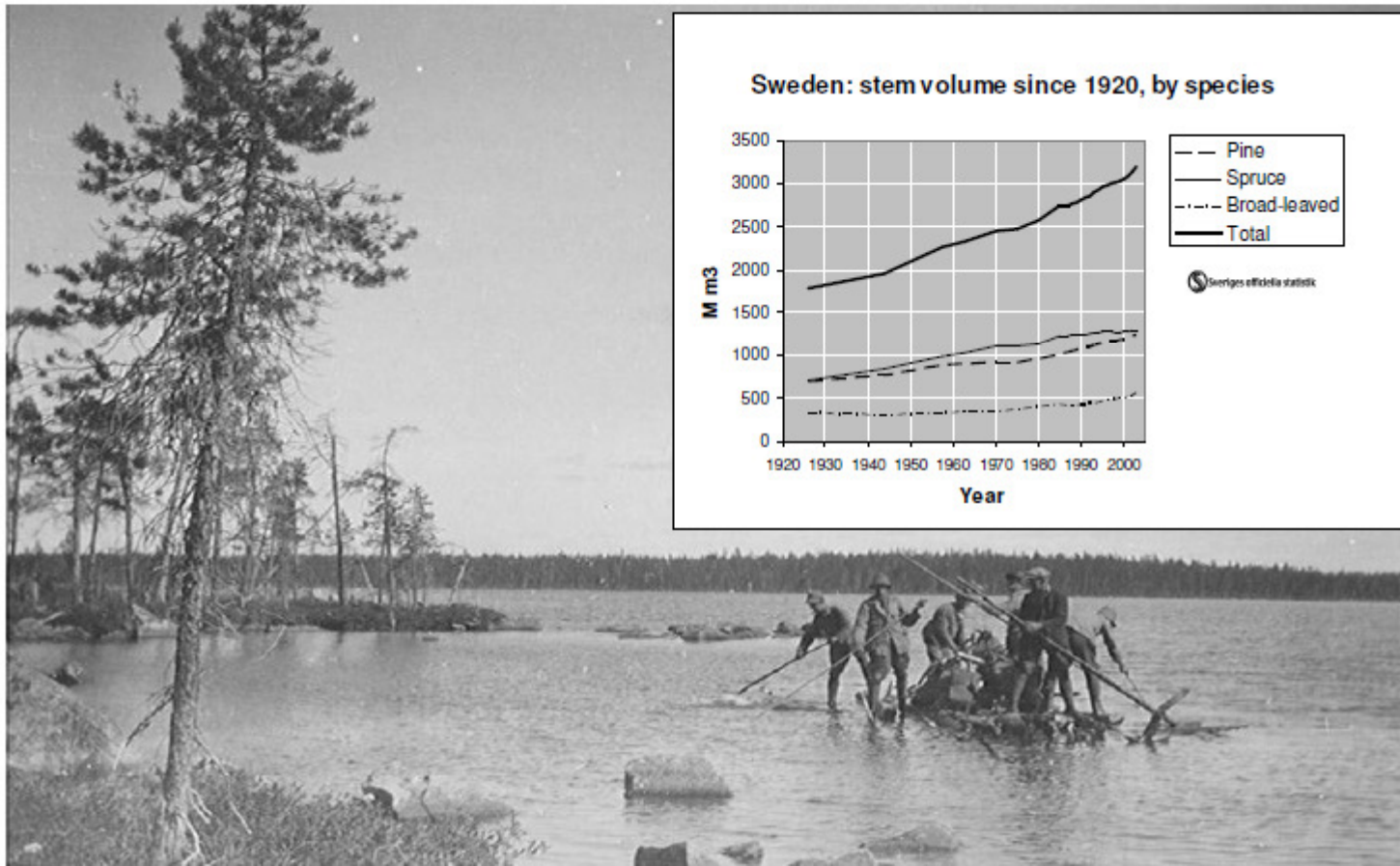


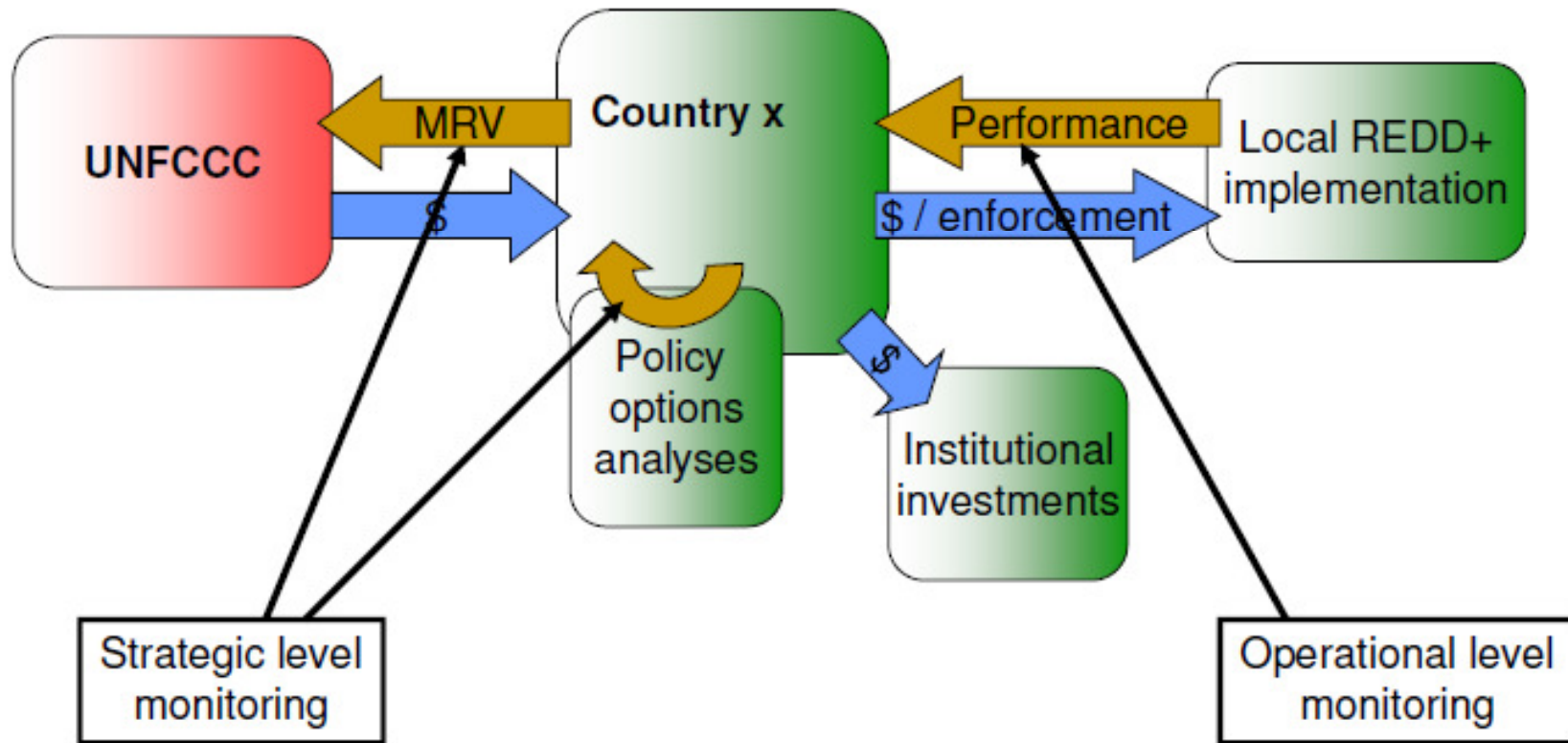
WHAT DO WE MEAN BY “MONITORING”



Long-term effort



Diverse monitoring needs



ELEMENTS FOR BUILDING NATIONAL CARBON MONITORING SYSTEMS FOR REDD

1. Due to the trade-off between costs and accuracy, the quest for cost-effective solutions is at the centre of the MRV debate.
2. A cost-effective monitoring and evaluation system for REDD requires a balanced approach of remote sensing and ground measurements.
3. The imagery aids in the design of efficient ground sampling schemes (e.g. in areas with high variability), assessment of area change (with ground truthing) and extrapolation of plot measurements to the regional or national level.
4. Ground measurements are required for carbon measurements and to verify desktop forest mapping from satellite images.



ELEMENTS FOR BUILDING NATIONAL CARBON MONITORING SYSTEMS FOR REDD

The design and implementation of a monitoring system must be defined as a process in which countries have to make investments in information for the effective implementation of REDD activities.

At least three main elements can be identified to satisfy the requirements of a system to monitor emissions and removals of GHGs:

- Insertion into a national REDD strategy;
- systematic and repeated measurements of carbon stocks and estimation and
- reporting of emissions and removals based on IPCC methodologies.





ELEMENTS FOR BUILDING NATIONAL CARBON MONITORING SYSTEMS FOR REDD

The development of a national monitoring system for REDD can be structured in five phases:

1. Planning and design,
2. data collection and monitoring,
3. data analysis,
4. reference emissions levels and
5. reporting.



Phases and components for developing a monitoring system (UNFCCC 2009)

Phase	Component	Capacities required
Planning and design	Monitoring system as a part of national REDD strategy.	UNFCCC process on REDD and understanding IPCC methodologies
Data collection and monitoring	Forest area changes assessment (activity data)	Processing and interpretation of multi date remote sensing imagery for forest area changes.
		Assessment of drivers of deforestation
	Changes in carbon stocks (emissions factor)	Consolidation of national forest inventories.
		Estimation and monitoring of carbon stocks changes due to land - use change.
Reference emissions levels	Establish reference emissions levels	Expertise to regularly update and temporal analysis and modelling tools.
Reporting.	National greenhouse gas inventory.	Data infrastructure and information technology to report GHE according to IPCC.

REDD+ SPECIFICATIONS

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
Conservation
Reversals
Displacement



MONITORING REQUIREMENTS

1. Information categories:

- Carbon
 - the results of emission activities
- Environment
 - the wider range of ecosystem services and products from forests (multiple benefits), including environmental safeguards
- Social Safeguards
- Governance



MONITORING REQUIREMENTS

2. Levels and Purposes

– Strategic level

- Purpose: Serve the needs of national policy processes and national level reporting requirements, including to comply with international commitments;

– Operational level

- Purpose: Serve the needs of implementation on the ground, including assurances and enforcements at local / project / programme scale.



MONITORING REQUIREMENTS

Strategic level considerations

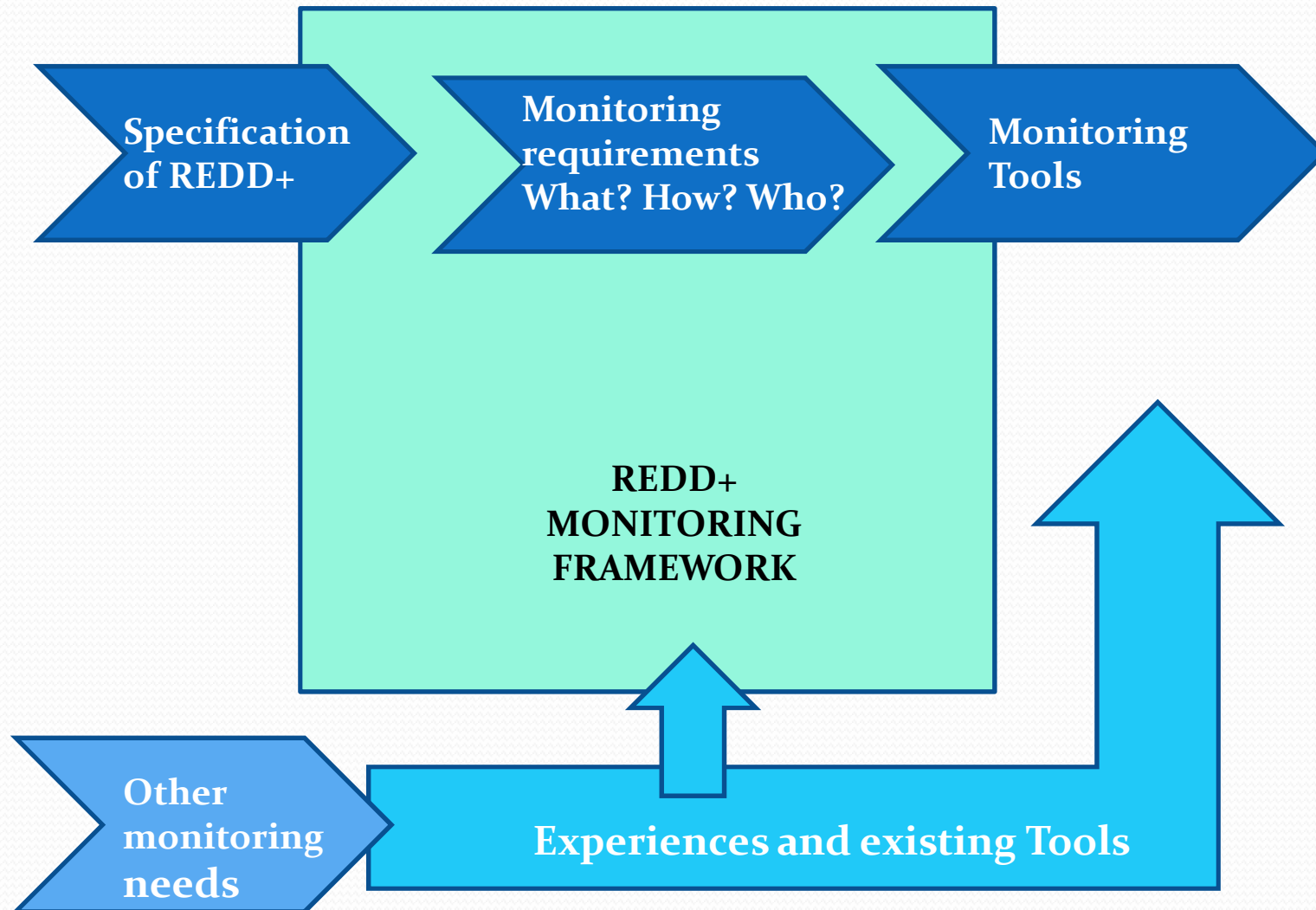
- High Accuracy
 - Unbiased results,
 - Error estimates
- Relatively expensive measurements
 - e.g. field plots
- Sample based approaches (full cover not needed)

Operational level considerations

- Must be full cover
- Must be low-cost per area unit
 - e.g. remote sensing
- Proxy based approaches (high accuracy not needed)



FRAMEWORK OF THE FRAMEWORK



CONCLUDING REMARKS

- REDD+ monitoring framework
- Make it useful
 - For countries developing operational monitoring tools
- See the bigger monitoring picture
 - Beyond REDD+



THANKS

GRACIAS

