



Vietnam

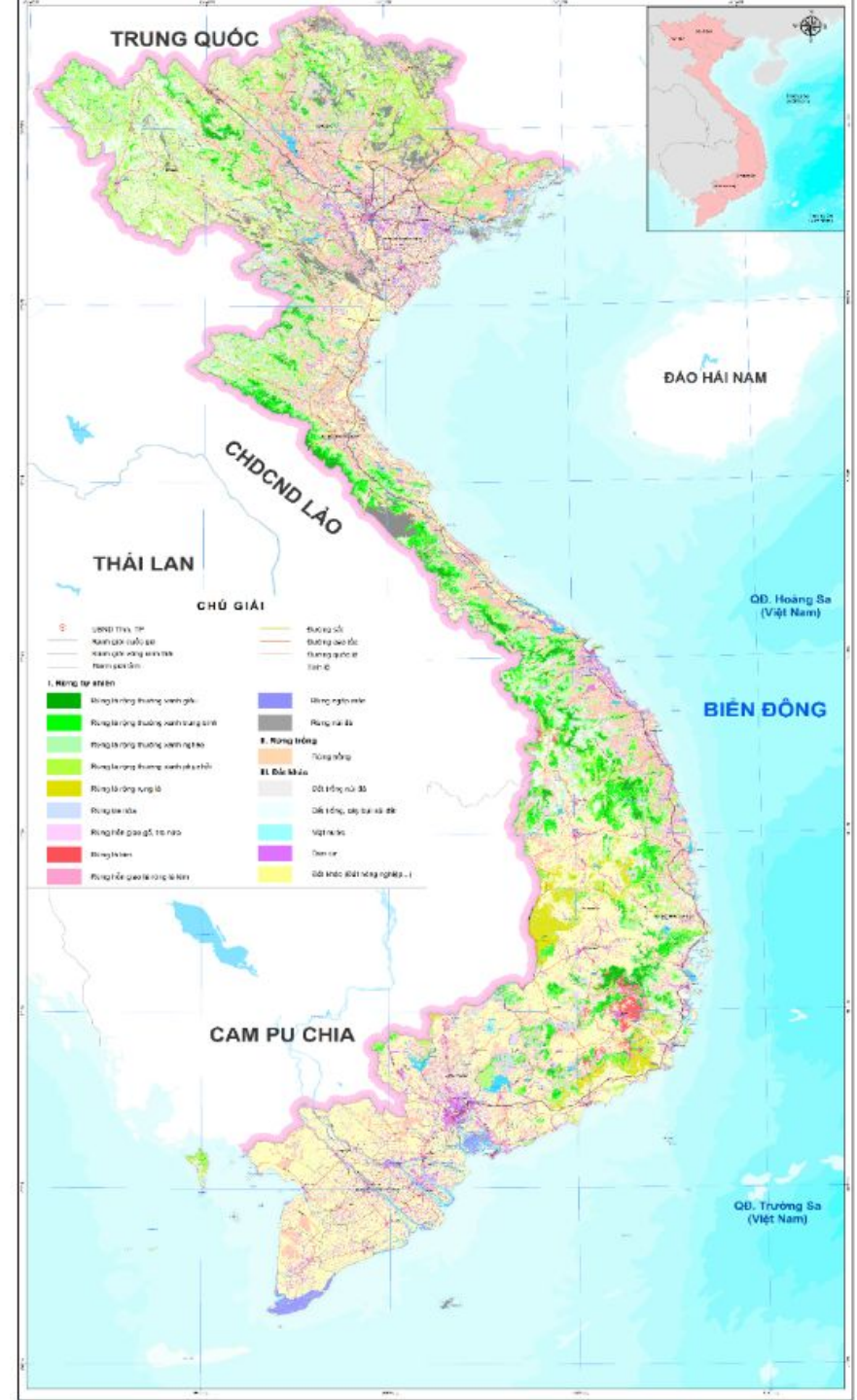
Vietnam National Forest Monitoring System (NFMS): Progress, Achievements and Next Steps

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National Context

1. **Forest cover: ~42.03% in 2024 (~14.87 million ha)**
2. Population: 101.1 million (2024) Land area: 331,210 km² – mountainous >40%
3. Forests as socio-ecological asset: 25 million people depend on forests (20–40% of income).
4. Institutional reform 2025: MARD + MONRE → MAE (Ministry of Agriculture and Environment)
5. Vietnam has participated Carbon finance projects: WB-FCPF, LEAF, GCF...



NFMS Overview

- **Purpose:** Integrated system to monitor, manage, and report forest data for policy, REDD+, and NDCs
- **Core functions:**
 - Forest change detection
 - Carbon stock estimation
 - MRV for REDD+Policy and decision support

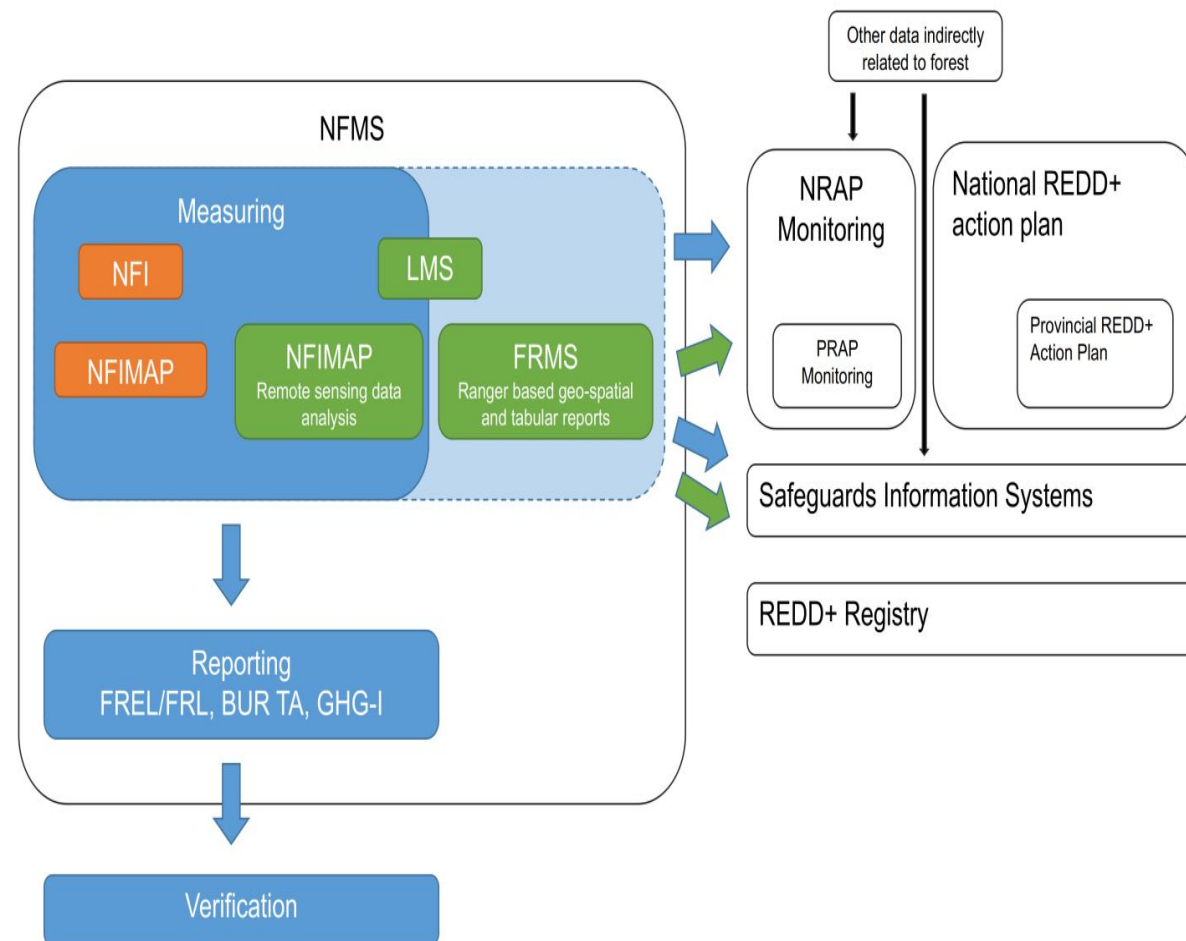


NFMS Architecture

Main Components:

1. FORMIS – Central data management
2. FRMS – Forest Resources Monitoring System (annual change/update)
3. **NFI – National Forest Inventory (5-year cycles)**
4. DMS/MRV Portal – Under development for REDD+/RBP data

Supporting systems: Safeguard Information System (SIS), Carbon MRV platform, EUDR traceability.



NFMS Architecture

NFI – National Forest Inventory (5-year cycles)

ID	Cycle	Period	Forest cover mapping scale	Num. Cluster Plot	Remark
1	I	1991-1995	1:250.000	3300	
2	II	1996-2000	1:100.000	3600	
3	III	2001-2005	1:100.000	4200	
4	IV	2006-2010	1:100.000	2100	
5	V	2016-2020	1:250.000	2350 205 (ERP)	Bi-annual forest cover mapping
6	VI	2022-2025	1:250.000	2500 205 (ERP repeat)	Bi-annual forest cover mapping
7	VII	2026 onward	1:250.000	2500 205 (ERP repeat)	Bi-annual forest cover mapping



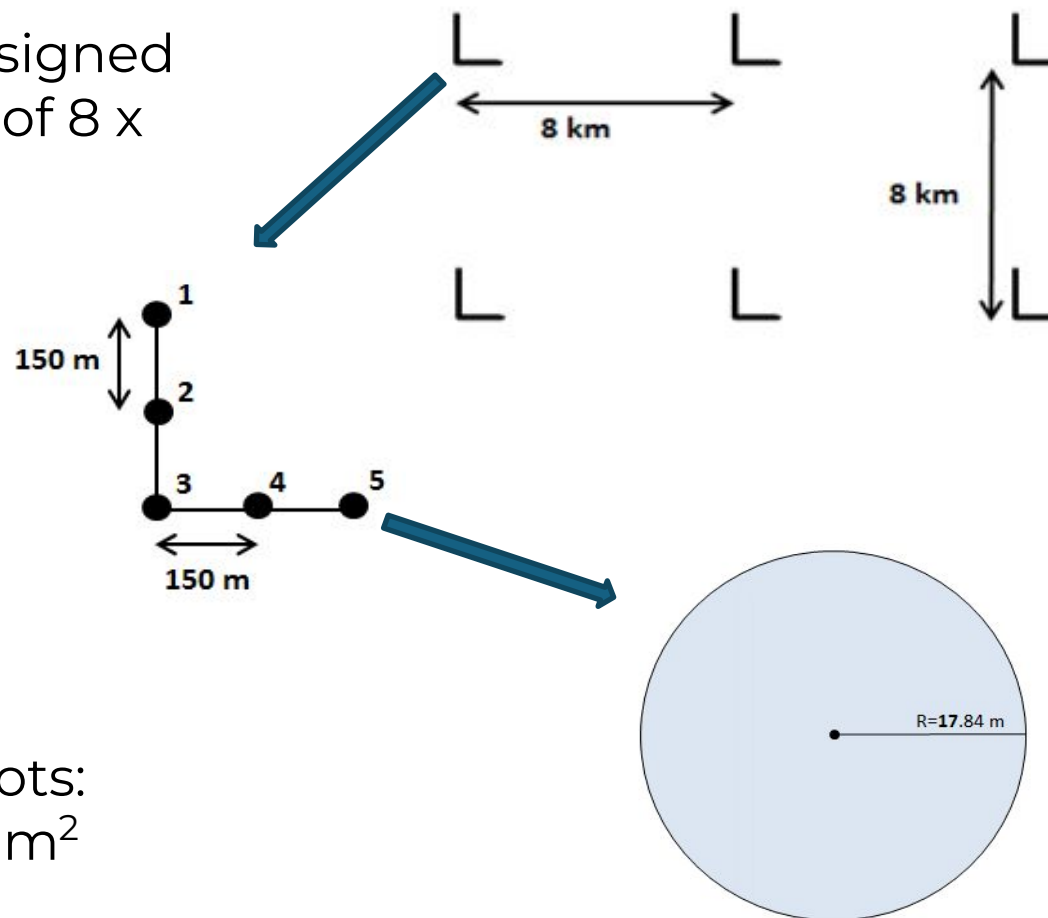
NFMS Architecture

NFI – National Forest Inventory (5-year cycles)

The cluster system is designed systematically on a grid of 8 x 8 km

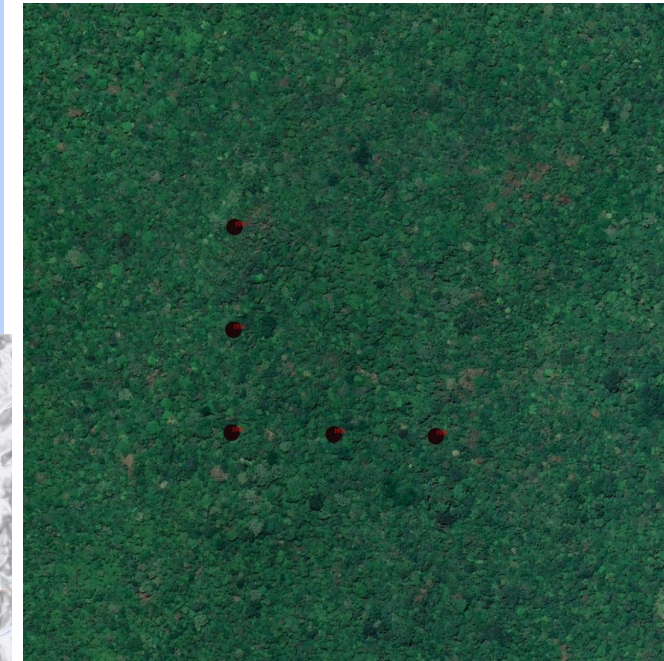
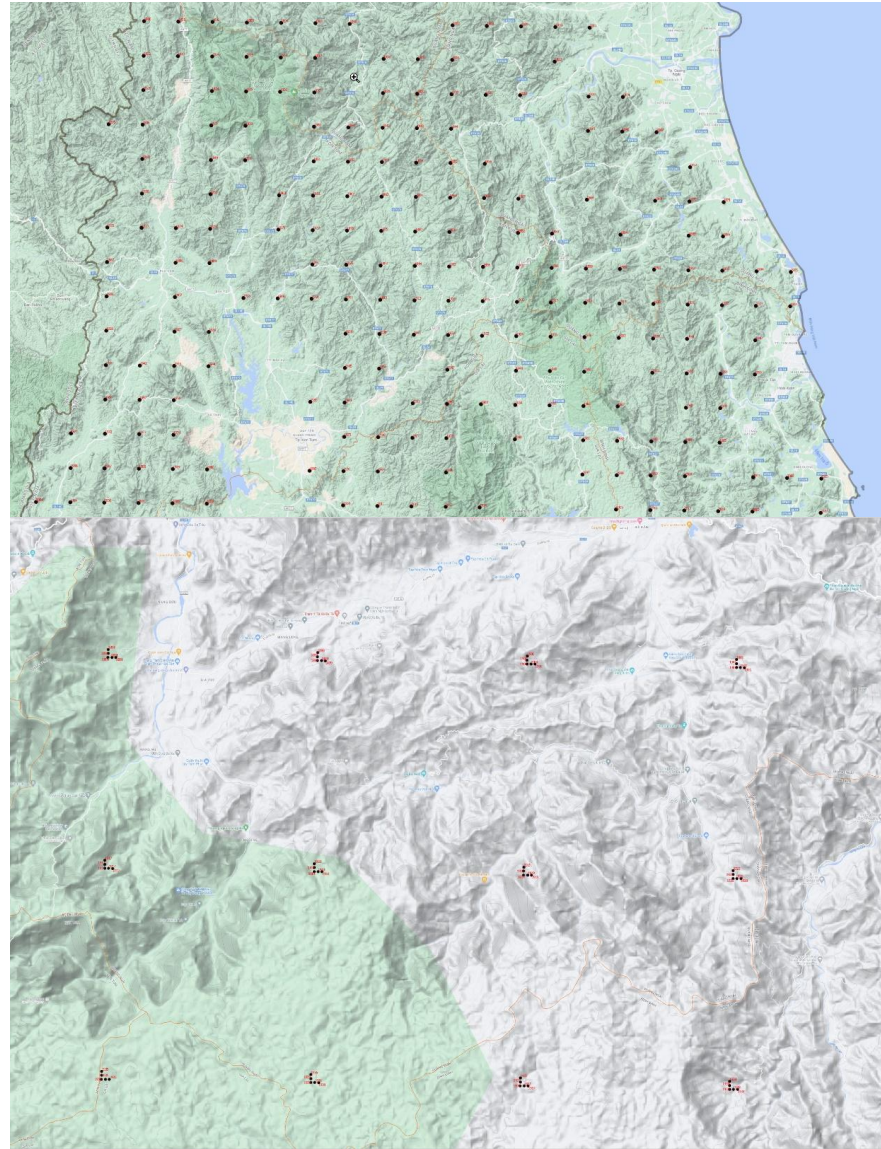
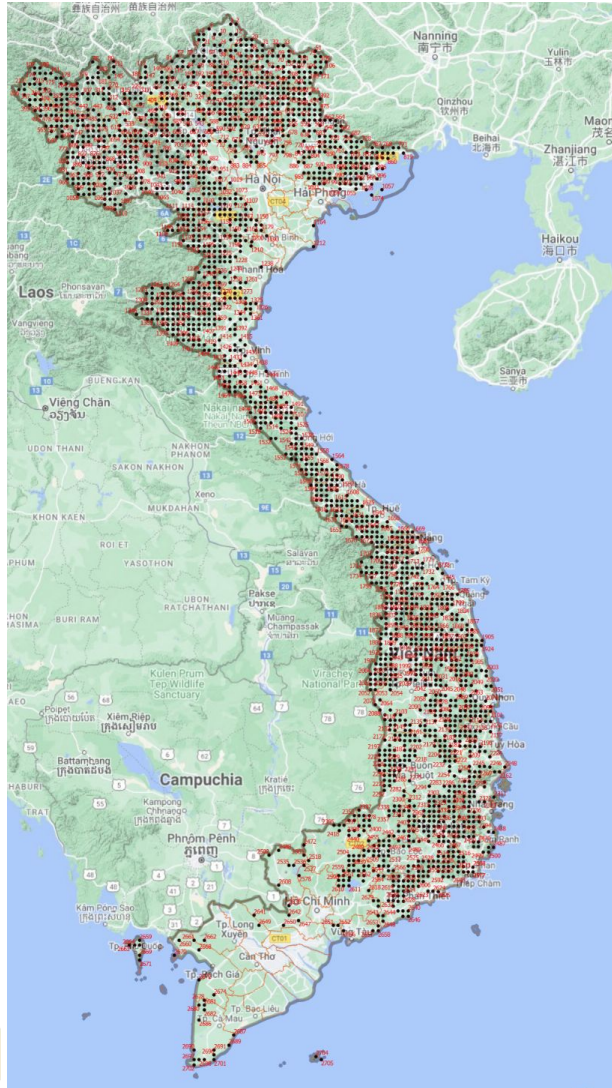
Each cluster is arranged in an L shape and consists of 5 sample plots. Such plots are 150 meter apart.

Shape and size of the plots:
Circle plots, area is 1000 m²



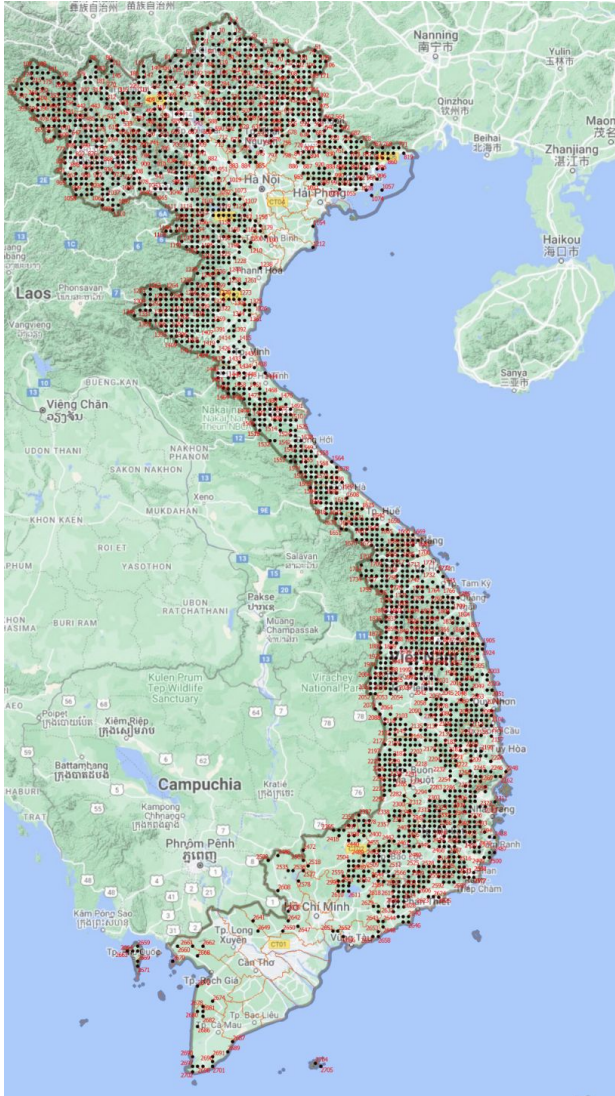
NFMS Architecture

NFI – National Forest Inventory (5-year cycles)



NFMS Architecture

NFI – National Forest Inventory (5-year cycles)



1. **Measuring in timber wood:** Identify names of trees, density, diameter (D1.3), height (HVN), DBH, tree qualities, canopy (forest maps), locating tree positions in the sample plot ...
2. **Measuring in regeneration forest:** Identify names of trees, density, height, quality and origin of regeneration.
3. **Measuring in bamboo forest:** species name, diameter, density...



Legal and Policy Framework

- Law on Forestry (2017)
- Land Law (2024)
- Circulars 33/2018, 16/2023, 23/2023
- Decisions 895/QĐ-TTg (2024), 523/QĐ-TTg (2021)



Institutional Setting

- Lead: **MAE**
- Support:
 - VNFOREST (DOF,FPD),
 - FIPI,
 - VAFS
 - VNUF
 - VAST,



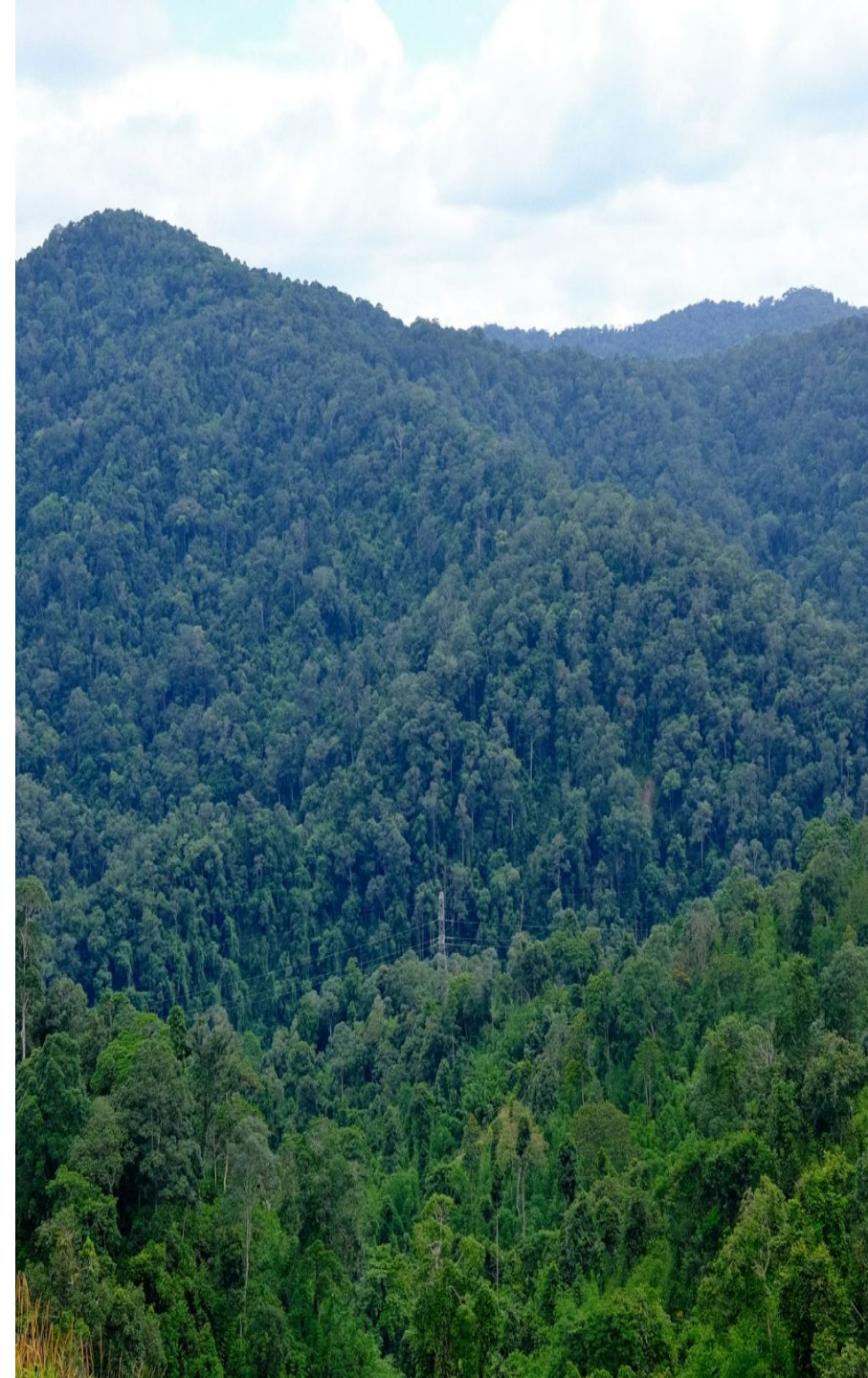
Key Achievements

- **Institutional & Policy Achievements**
 - NFMS established under *Law on Forestry (2017)* and *Decision 523/QĐ-TTg* (Forestry Strategy 2021–2030).
 - Integrated governance under new **Ministry of Agriculture & Environment (MAE)** (2025 reform).
 - NFMS = backbone for REDD+, NDCs, and EUDR compliance.
- **System & Technical Achievements**
 - 4 integrated subsystems: **FORMIS III, FRMS, NFI, and MRV/DMS Portal**.
 - Annual forest-change updates via **Sentinel-1/2, Planet**, and field validation with FRMS mobile and other tool.
- **NFMS data enabled:**
 - Verified **REDD+ emission reductions**.
 - **Result-Based Payments (ERPA, FCPF)** for North Central Coast, LEAF.



GFOI Capacity Development Impact

- Vietnam has benefited from multiple GFOI-related capacity-building programs since 2015.
- Supported by GFOI,FAO, World Bank (FCPF), USFS-SilvaCarbon.
- Capacity building focused on:
 - Remote sensing and cloud processing (SEPAL)
 - MRV data integration (FAO & WB), SAE
 - Institutional and technical training



GFOI Capacity Development Impact

Training and Technical Strengthening

- SilvaCarbon & FAO: technical officers trained (2018–2024) in remote sensing, cloud platform for data processing, carbon stock calculation, QA/QC, SAE. Introduced LiDAR, radar, and near-real time methods for forest mapping/change monitoring.
- SEPAL and Open foris platform :National adaptation and training on cloud-based forest analysis (Sentinel-1, 2).
- R for Carbon accounting
- ...



GFOI Capacity Development Impact

Lessons and Innovation

1. National shift from project-based training → institutionalized learning
2. Integration of open-source tools (QGIS, SEPAL, Open Foris) for sustainable NFMS.
3. Enhanced cooperation between MAE, universities, and agencies for continuous professional development.



Challenges & Emerging Needs

Lessons and Innovation

① Technical barriers:

- Fragmented data systems between FORMIS, FRMS, NFI and DMS.
- Limited automation for change detection and uncertainty analysis.
- Need for continuous calibration between UAV, LiDAR, and satellite data.

② Institutional barriers:

- Lack of unified NFMS operation protocol across MAE departments.
- Insufficient data governance and third-party audit framework.
- Shortage of long-term funding to maintain MRV infrastructure after donor projects.

③ Policy and coordination gaps

- Limited integration of NFMS outputs into national land-use planning and EUDR compliance.
- Absence of clear data-sharing policies between ministries and provinces and others institution.
- Need to align NFMS indicators with national GHG inventory and transparency frameworks.



Future Priorities & Recommendations

① Strengthen Technical Capacity:

- Continue tailored training on remote sensing, SEPAL, and open-source MRV tools.
- RS data (NICFI Planet continuous..)?
- Support direct method for biomass estimation (RS based)
- Facilitate regional knowledge exchange among GFOI partner countries.

② Institutional and Governance Support

- Help develop national NFMS governance protocols and operational procedures for DMS/MRV.
- Provide technical guidance for independent audits and QA/QC mechanisms.

③ Policy and Financial Sustainability

- Align GFOI activities with Vietnam's NDC, REDD+, and EUDR compliance frameworks.
- Explore joint funding mechanisms for upgrade NFMS.



Thank you

