

How to Do an NFI in 20 Steps

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Topics

- **Overview of Monitoring Steps**
- **First Step: Information Needs**



Monitoring Phases

- US NIMAC and FAO used similar approaches over the years. We merged the steps into four categories:
 - A. Planning (x4 steps)
 - B. Remote Sensing (x5 steps)
 - C. Inventory Design and Data Collection (x5 steps)
 - D. Processing, Reporting and Dissemination (x6)



A. Planning Steps

1. Information needs and priorities – determine the information needed to make management and policy decisions.
 - a. Identify the stakeholders and forest users
 - b. The stakeholders identify their broad objectives
 - c. Select the monitoring questions to address the objectives
 - d. Select metrics (indicators / things to measure) to answer the questions.

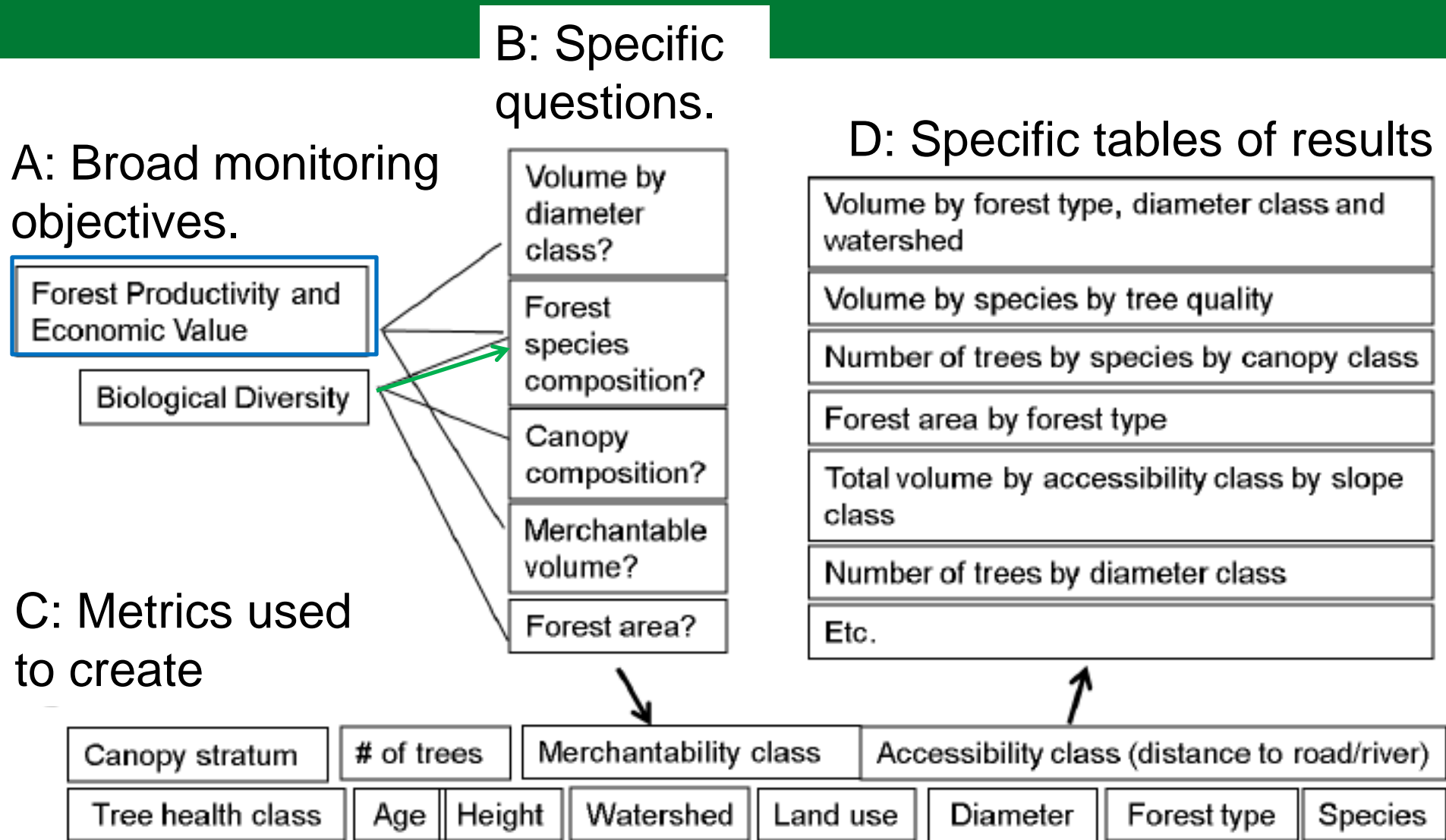


A. Planning Steps (cont.)

2. Assemble and evaluate existing data to answer the questions – Identify the gaps in terms of spatial coverage, remeasurement interval, and in attributes.
3. Set precision and cost requirements – Must assess the risk of making an incorrect decision while balancing monitoring costs. REDD+ payments will be linked to the precision of the estimates.
4. Identify the main monitoring components – for REDD+, these include remote sensing, forest inventory, models of tree carbon, and predictions for Reference Levels (RL).



Diagram of the Decision-Tool (DTIM) process



B. Remote Sensing

1. Availability of remote sensing – Analyze the availability of remote sensing sources, and their spatial resolution and frequency.
2. Remote sensing methodologies – determine the remote sensing methods:
 - To support forest classification and stratification.
 - To monitor forests using wall-to-wall imagery or sampling methods.
 - To evaluate historic rates of change.
 - To evaluate map uncertainty including a statistical accuracy assessment.



B. Remote Sensing (cont.)

3. Remote sensing implementation - obtain the staff, train them, pre-process imagery, perform the analysis, and perhaps the land use change analysis.
4. Ground data collection – plan for the data collection, develop the field guide, obtain the equipment and materials, train the crews, and perform the data collection, and process the data.
5. Uncertainty analysis and reporting – using the data collected, assess and report on the uncertainty of any maps produced.



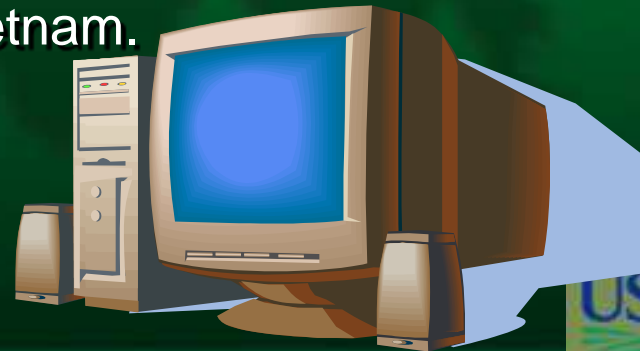
C. Inventory Design & Data Collection

- 2.** Develop a Quality Assurance/Quality Control plan – methods for checking that accuracy of crew measurements. REDD quality criteria: transparency, comparability, consistency, completeness and accuracy.
- 3.** Prepare for field data collection – including logistics, contracts, equipment, field guide, training materials, conducting training, and certifying data collectors.
- 4.** Conduct pilot test of the field logistics, to evaluate costs and precision options, and/or to estimate variability.
- 5.** Conduct data collection. Supervise and provide continued training and QC. The use of Portable Data Recorders is encouraged.



D. Processing, Reporting & Communication

1. Design information systems – including the data base, data entry system, data checking and editing, compilation system, and analysis system
2. Enter and store data – either upload data from the portable data recorders or enter from paper forms. Run edit checks on the data – data validation and crosschecks.
 - USFS has developed Sistema Inventario Bosques Publico y Privado (SIBP²) . Training has been done in Peru, Gabon, Honduras and Vietnam.



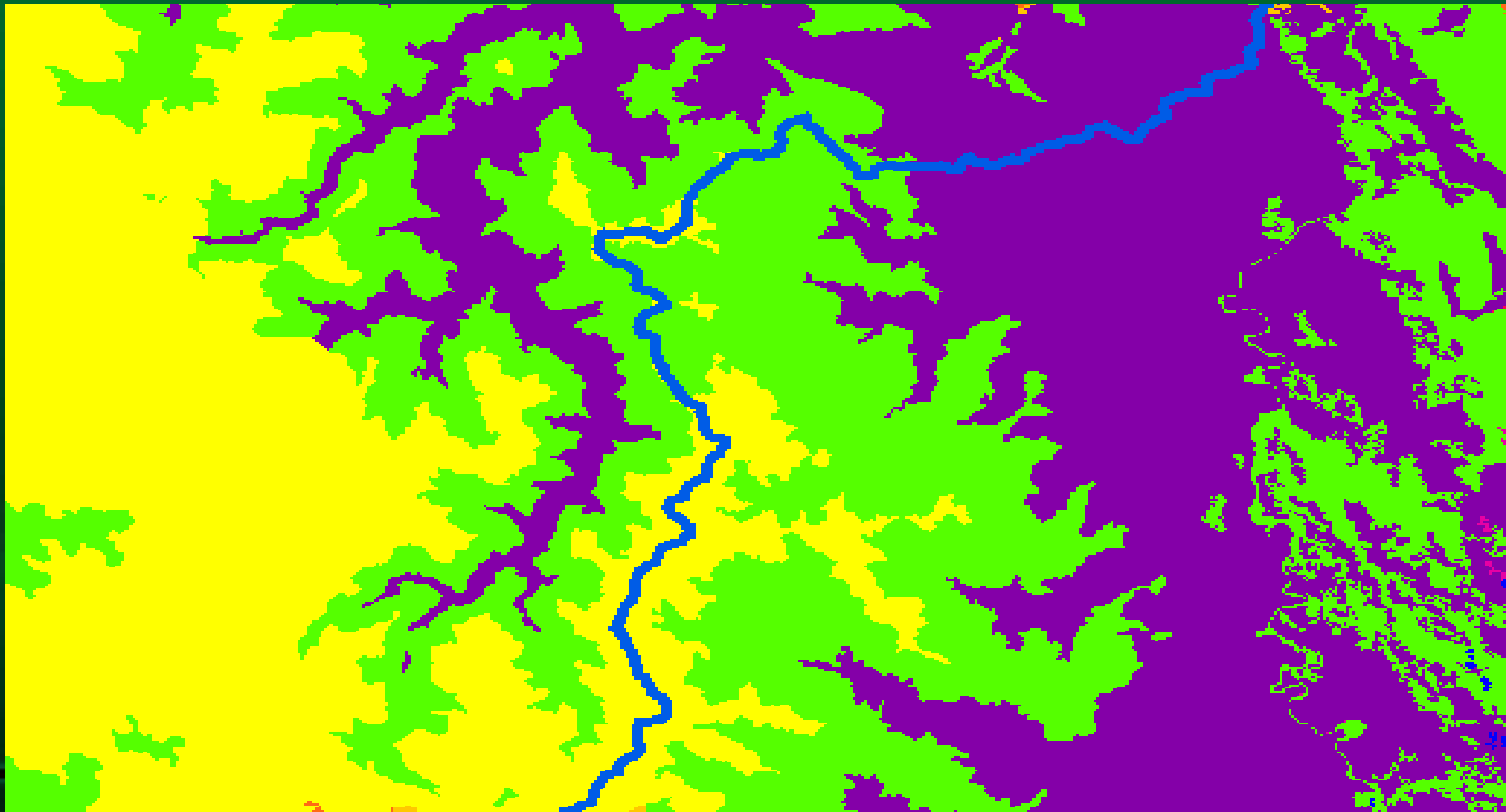
D. Processing, Reporting & Dissemination

- 3.** Process (analyse) the data – Once the data are clean, then computed variables are calculated (such as applying models for tree volume, biomass and carbon) and added to the database along with the field data. (FAO also has tools like CALC, GlobAllomtree etc.)
- 4.** Analyze the data – Produce tables (with associated sampling errors) to answer the questions from step A.1. Share and communicate the *data* via the web. Create and disseminate *reports*.
Communicate with users and ensure they understand and are using the results



D. Processing, Reporting & Dissemination

5. Map-based estimation – combine remote sensing data and field samples using modeling methods to make small-area estimates.



D. Processing, Reporting & Dissemination

6. Evaluate results for strategic planning. REDD+ results will be used to make decisions on payments to be made to the country, and as feedback on the effectiveness of policies, regulations, and programs.
7. Re-evaluate information needs and monitoring methodologies – Check that monitoring system met the users needs.



Summary

- Identifying the information needs is often overlooked as the important first step.
- National Forest Monitoring Systems (NFMS) are very expensive, so they must be optimally designed based on the objectives
- The monitoring should be questions-driven based on the reasons for monitoring (objectives).
- What to measure is based on the questions asked.
- Specify the estimates to be made now, so that all the variables needed are measured.
- Start with the end in mind.



Questions / Comments



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