LESSONS LEARNED (ASIA-PACIFIC)
NATIONAL MONITORING SYSTEM:
NATIONAL FOREST INVENTORIES AND REDD+

Photo by Vietnam UN-REDD

NATIONAL FOREST INVENTORY AND REDD+

National forest inventories (NFIs) are key for assessing forest resources. When reporting emission reductions for REDD+, NFIs are crucial for assessing forest biomass, carbon stocks and developing country specific emission factors. The IPCC proposes two approaches to assess emission factors: stock-difference and gain-loss. While the first method estimates the difference in carbon stocks in a particular pool at two moments in time, the second approach estimates the net balance of additions to and removals from a carbon pool. In the REDD+ context, depending on the approach to ecosystem rehabilitation, gains result from growth and carbon transfer between pools.

NFIs evolve over time to better respond to new requests from society and particularly now for REDD+. REDD+ is a stepwise process and improvement of NFIs will be achieved step-by-step. The multitude of NFI methods currently used in the Asia-Pacific reflects different national strategies and the common objective of improving the evaluation of the forest resources in different national contexts.

IPCC PRINCIPLES AND NATIONAL FOREST INVENTORIES

Different methods, sampling designs and strategies exist for NFI implementation. Some countries use a simple systematic sampling design, while others opt for a stratified sampling design. Since the NFI is a medium to long-term process, it should be constantly improved and adapted to meet new demands from society and reflect the availability of new labor, financial and technical resources and contexts.

The application of the IPCC principles are crucial to improve the robustness of NFI results.

Comparability - standard methodologies and guidance are needed to produce comparable results. The methodologies and formats agreed by the United Nations Framework Convention on Climate Change Conference of the Parties for estimating and reporting inventories should be adopted.

Consistency - an inventory should be internally consistent in all its elements with inventories from other years.

Completeness - an inventory covers all and full geographic coverage of sources and sinks of a country. Considering that countries only report the impact of anthropogenic activities, emissions from unmanaged land do not need to be accounted for.

Accuracy - a relative measure of the exactness of an emission or removal estimate. Estimates should be accurate in the sense that they are systematically neither over- nor under-estimate actual emissions or removals, as far as can be judged, and that uncertainties are reduced as far as practicable.
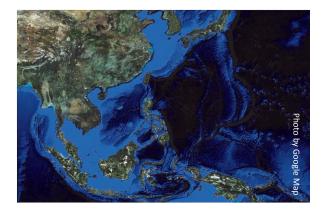
Transparency - the assumptions and methodologies used for an inventory should be clearly explained to facilitate replication and assessment of the inventory by users of the reported information.

THE UN-REDD PROGRAMME

The UN-REDD Programme is the United Nations Collaborative Initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD). It builds on the convening role and technical expertise of the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The Programme supports developing countries prepare and implement national REDD+ strategies.

Photo by Patrick Durst, FAO

Photo by Google Map

Lesson 1: NFIs should be designed during the first phase of REDD+, implemented during the second phase and used to obtained emission factors during the third phase, where a country has never produced, or needs to renew, their NFI. Most countries in the Asia-Pacific have already implemented an NFI and collected data on standing biomass, commercial volume, the economic value of the forest, biodiversity, soil properties and/or social management of forest. Accurate assessment of carbon stocks is particularly crucial with regards to the UNFCCC and will influence the positive incentives received through the REDD+ mechanism.

Lesson 2: Forest and forest degradation definitions and classification at multiple scales, from local to national, should be standardized. Forest degradation is harder to define, with none of the countries in Asia-Pacific having established a system to assess forest degradation at the national scale. In several countries the forest definitions used are different between governmental agencies. It is crucial that governmental agencies identify one national forest definition and make it transparently available. Forest classification and stratification are important to identify the different biophysical and management types. Forest definition, classification and stratification are key for establishing an NFI and deriving the necessary emission factors.

Lesson 3: The mapping of forest land differs from country to country. While some countries develop NFIs for all land use types, others consider only forest land. The objectives of countries' NFIs differ and therefore the sampling designs also differ. Forest pre-stratification is one option to decrease the cost of field measurements. Pre-stratification is generally performed using remote sensing techniques. There is no single remote sensing method to map the forest in Asia-Pacific because the type and quality of satellite imagery differ between countries.

Lesson 4: Use of multi-sensor approaches and integration of different types of satellite imagery, optical and radar, with high and coarse resolutions are suggested. The forest land map and stratification developed for NFIs must be consistent with satellite forest monitoring systems in terms of forest definition, minimum mapping units, forest classification and objectives. It is important that the emission factors collected by the NFIs are compatible with the activity data (land use change data) collected through remote sensing.

Lesson 5: Each country should develop transparent forest information systems allowing the identification of existing data. Forest inventory data have been collected in the Asia-Pacific at different time intervals; however, in most cases the data are not publicly available or exist only in hard copies. Those data can be used to assess the variability of the variables of interest in each forest or ecological stratum, improve the implementation of future NFIs, and increase cost-effectiveness of REDD+ implementation.

Further information on NFIs lessons learned, visit "UN-REDD Website on REDD+ Monitoring" : *http://www.un-redd.org/ UNREDDProgramme/InternationalSupport/ MeasurementReportingandVerification/tabid/1050/language/en-US/Default.aspx*

For more information, please visit **www.UN-REDD.org** or contact:

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