

## Small Group Discussions and Conclusions

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At the conclusion of the workshop, a breakout group session discussed common themes that had emerged regarding forest degradation monitoring in the Southeast Asia region. The participants were also asked to list any important issues that may not have been sufficiently addressed during the workshop and that may require further discussion, and recommendations for next steps in moving forest degradation monitoring forward in the region were developed.

### Regional Themes

One common theme that emerged during the workshop was that monitoring methods based on only one approach (e.g. remote sensing, ground-based measurements, predictive modeling) would likely be insufficient to provide robust estimates of biomass change due to degradation activities. Rather, an integrated monitoring system, combining elements of two or more approaches, would likely be more flexible in adapting to local and national circumstances and capacities. While regional consistency in monitoring methods is desirable, a single monitoring system approach may not fit all circumstances. The main drivers of forest degradation, as well as existing institutional capacities for implementing monitoring programs, can vary greatly among countries in the region. In addition, countries may apply different definitions for forest degradation, as well as different thresholds for detection. How degradation is defined will influence selection of methods and data sources for a particular monitoring system. Demonstration projects should be implemented in multiple countries and forest types to provide a comparison and proof-of-concept of various approaches.

Several needs were identified for implementing degradation monitoring in the region. Although a few REDD+ projects have been established in limited areas, there is a need to scale up to larger landscapes that are more relevant to estimating overall emissions and that would provide more efficient management, monitoring, and reporting. It is essential that current REDD+ projects include degradation monitoring in their monitoring programs to avoid omitting a potentially large source of emissions from their estimates. It was also recognized that institutional capacity for monitoring needs to be strengthened in all countries in the region in order to support a robust, long-term monitoring program. Some identified technical needs included the development of botanical skills of field measurement crews, more consistent forest vegetation classifications and accurate forest type maps, and the development of more reliable allometric biomass equations for common forest types.

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## Issues for Further Discussion

Some important issues needing further collaboration include the need for a more precise definition of forest degradation. Without a well-defined concept of degradation, establishing meaningful monitoring objectives and thresholds will be problematic. There is a need to determine criteria to identify conditions under which swiddening and tree plantations may degrade the ability of forests to store carbon. Additionally, consensus on the definition of forest is needed to properly address the effects of swiddening and tree plantations on carbon monitoring. The significance of fire should also be more thoroughly assessed, including possible interactions with other degradation drivers such as selective logging and shifting agriculture. In addition to biomass loss, the gain from forest regrowth over time after disturbance must be assessed to more accurately estimate net carbon stock change in Greenhouse Gas reporting. Just as with deforestation, leakage may become an issue in forest degradation, as management to reduce degradation activities in one area can potentially shift those activities to other landscapes within a country, or across national boundaries.

Much of the discussion on degradation monitoring methods focused on remote sensing and ground-based field measurements. Although predictive modeling was addressed as a third monitoring approach, more information is needed to understand how modeling can be combined with the other methods to develop a more robust monitoring system, especially in areas where obtaining remote sensing or ground-based data is difficult due to technical or capacity constraints. Much valuable information could be obtained from case studies in which predictive modeling is an integral part of the monitoring system. Quantitative comparisons of cost versus accuracy and precision among the various monitoring approaches would also be informative.

The participants felt that more discussion should be devoted to developing the institutional framework and governance needed to support a degradation monitoring program. Although it is important to build technical capacity within countries to implement monitoring, efforts also need to be made to ensure that technical information is relayed to policy makers to facilitate better understanding and encourage institutional commitment of resources to monitoring.

## Next Steps

A recommended next step in initiating forest degradation monitoring in the region is to implement demonstration projects that aim to estimate and monitor forest degradation as case studies, most appropriately at the sub-national level. These projects should integrate various monitoring approaches into a system that is responsive to local degradation drivers and appropriate to the local and national circumstances. Logical sites for initial implementation of degradation monitoring projects could be the sub-national focus areas assessed by LEAF in Cambodia (Central Cardamon Protection Forest), Laos (Houaphanh Province), and Vietnam (Nghe An Province). Implementing the three demonstration projects would help to refine model parameters and workflows, as well as provide data on the contribution of degradation to the total emissions profile. It may also be instructive to identify similar on-going projects in other regions as additional sources of information.

Another important next step is increasing efforts to build technical and financial capacity for monitoring in the region. It is important to determine the minimum requirements for monitoring forest degradation. Potential donor countries and organizations will need to be involved in determining minimum requirements, as the purpose of monitoring is to ensure that credits issued for carbon stored in forests is verifiable. Recipient countries and organizations are in need of cost assessments for implementing and maintaining a monitoring program, including costs of various monitoring approaches relative to benefits, i.e. carbon credits.

Facilitating technical transfer is important to ensure that the most current research is incorporated into monitoring systems and the consistency is maintained across the region as much as practicable. One recommended approach is developing regional instructional manuals, including ground-based field measurement, remote sensing imagery analysis, and predictive modeling methods. Another potential conduit for technology transfer could be technical assistance initiatives such as SilvaCarbon, a global USAID-funded program aimed to build knowledge and capacity in forest carbon monitoring. This workshop can also form the foundation for continued dialogue, networking, and data sharing. Future workshops could be planned to share lessons learned from implementation of monitoring projects.