

On the cost-effectiveness of community-based forest monitoring

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With monitoring being an essential component of international forest agendas such as the CBD, FLEGT and REDD+, the cost-effectiveness of monitoring methods is a key consideration for participating governments. Monitoring costs can make up a substantial part of the total cost of implementation, particularly where data must be provided frequently and with relatively high precision, as in the case of REDD+. One study calculated that monitoring for REDD+ projects cost on average 20% of total project costs, and in some cases far more (Thompson et al., 2013).

Monitoring of some indicators, such as forest cover, can be done most cost-effectively using satellites, but may still need to be complemented by ground-truthing (verification by people on the ground). Other indicators, such as those relating to forest degradation, local drivers of deforestation, and social impacts, may be difficult or impossible to monitor remotely, and rely more heavily on ground-based monitoring.

For these ground-based activities, community-based forest monitoring can be significantly less expensive than monitoring by external experts, who often have higher salaries and may need to travel frequently by aeroplane to gather data from forest areas on a regular basis. Higher initial set-up costs, due to the need for training, mean that the first round of community monitoring is sometimes more expensive than professional monitoring, but with the right conditions, communities can soon be monitoring forest areas as accurately as professional foresters at lower cost.

As time goes by, the cost of community monitoring can drop further as monitors become increasingly familiar with methods and routes, and need less support from external trainers and facilitators. (However, recruitment and training may need to be repeated if some monitors stop participating.) Research has shown that community monitoring can be up to 50% cheaper than monitoring by professional foresters. For example, one study across four Southeast Asian countries estimated a per hectare cost of US\$2.5-US\$21.6 for community monitors in the second year – up to 20% cheaper than professional monitoring, which cost US\$2.9-US\$26.4 per hectare (Brofeldt et al. 2014).

Nevertheless, it remains important that the cost of community monitoring is not underestimated – both in order to ensure the success of the monitoring initiative, and in the interests of the community itself. A monitoring initiative can only be considered truly cost-effective if it can be sustained for as long as it is needed in order to meet the requirements of the agenda(s) it is intended to support. Community-based monitoring initiatives often struggle or stop after external donors or intermediary organisations withdraw. In contrast, some initiatives are successfully maintained almost entirely through voluntary and/or unsalaried work. This tends to happen where the monitoring work is highly relevant to the community, and not heavily or solely based on the needs of external actors. This highlights the need for participation by local stakeholders from the outset and to build on existing and overlapping local needs and activities, in order to design sustainable monitoring initiatives. However, this does not mean that unpaid or low-paid monitoring is the best solution. Community monitors may well expect to be paid according to their skills and roles, and should be rewarded accordingly.

In order for the potential cost-effectiveness of community-based forest monitoring to be realised, it is important to consider the factors below, and the trade-offs between them.

- The extent to which monitoring activities are designed around existing activities, observations and needs of the community (which can influence the need for incentives and compensation, and the sustainability of the initiative);

- The anticipated duration of monitoring work (which influences the amount of investment needed to make the project sustainable for that period);
- The transportation and financial compensation needs of community monitors and external facilitators and trainers (these tend to form the greatest cost, but can be reduced if, for example, suitable trainers are identified who are based in nearby locations rather than distant countries); also accommodation;
- The duration and quality of training and expert support (which can affect the time taken for monitors to become competent and their efficiency);
- Equipment (these costs can be very low or very high depending on whether and how digital monitoring devices such as data recorders and smartphones are used); also other materials;
- The size and complexity of the area to be monitored (e.g. monitoring can be more cost-effective over a larger, more contiguous areas with easier terrain);
- The levels of accuracy and precision required, the number and type of indicators monitored, and the frequency of data collection (these will influence the sample size and the amount of time needed for training and monitoring).

References

Brofeldt, S. et al., 2014. Community Monitoring of Carbon Stocks for REDD+: Does Accuracy and Cost Change over Time? *Forests* 2014 (5), pp 1834-1854.

Thompson, O.R.R. et al., 2013. Reducing emissions from deforestation and forest degradation (REDD+): transaction costs of six Peruvian projects. *Ecology and Society* 18(1): 17.

Additional recommended reading

Danielsen, F. et al., 2011. At the heart of REDD+: a role for local people in monitoring forests? *Conservation Letters* 00, pp 1-10.

Kandel, P.N. et al., 2013. Monitoring aboveground forest biomass: a comparison of cost and accuracy between LiDAR-assisted multi-source programme (LAMP) and field-based forest resource assessment (FRA) in Nepal. A paper presented at the International Conference on Forest, People and Climate: Changing Paradigm, 28-30 August 2013, Pokhara, Nepal.

Skutsch, M. et al., 2011. The costs and reliability of forest carbon monitoring by communities. In Skutsch, M. (ed.); *Community Forest Monitoring for the Carbon Market*, Earthscan, London, UK, 2011; pp 73-81.

Citation

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