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# Participatory Approaches to Forest Carbon Accounting to Mitigate Climate Change, Conserve Biodiversity and Promote Sustainable Development

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**ABSTRACT:** This action research project aims to develop, test and implement approaches to engage local communities in forest biomass monitoring. It is expected that the information generated will provide further forest management options to communities and can be integrated into national REDD+ MRV systems. The action research is being conducted at sites in Indonesia, Viet Nam and Laos, and follows a step-by-step process involving the establishment of facilitation teams; consultations; training of trainers; mapping of forest boundaries and strata; training of communities and community institution building; establishment and measurement of permanent sample plots; analysis of the data; outreach, and next steps. The research has found that effective training is critical to the success of community-based forest biomass monitoring. The trainers must possess expert knowledge on forest monitoring principles and methods, and they must also be experts in community facilitation. To establish self-reliant community-based forest biomass monitoring teams, monitoring systems have to be simplified, without sacrificing their credibility, and the training of communities has to be tailored to reflect local needs, institutions and knowledge systems. A manual as a resource for the training of trainers, drawing on the action research experience, is planned to be drafted by project partners.

**KEYWORDS:** *participation, community, forest, REDD+, measurement, biomass*

### Project Background

The project is aimed at achieving the following objectives:

- develop, test and implement approaches to engage local communities in monitoring forest biomass; and
- use the information generated to assess the feasibility of alternative forest management options, including REDD+.

In addition, the project is considering how communities could be involved in national REDD+ monitoring, reporting and verification (MRV) systems.

### Relevance to the APN's Science and Policy Agendas

The project is generating new knowledge on how the capacity and institutions of local communities can be built for them to participate in forest monitoring, and on how the information generated can contribute to forest management and national MRV. The action research methods and results are being shared with policy makers involved in REDD+ readiness processes, and presented at side events of the international climate change negotiations.

### Work Undertaken and Results to Date

The action research process is illustrated in Figure 1. The action research is being undertaken at project sites in Indonesia, Viet Nam and Laos. In addition to the site-specific action research, project partners are now developing a training of trainers manual on community-based forest biomass monitoring.

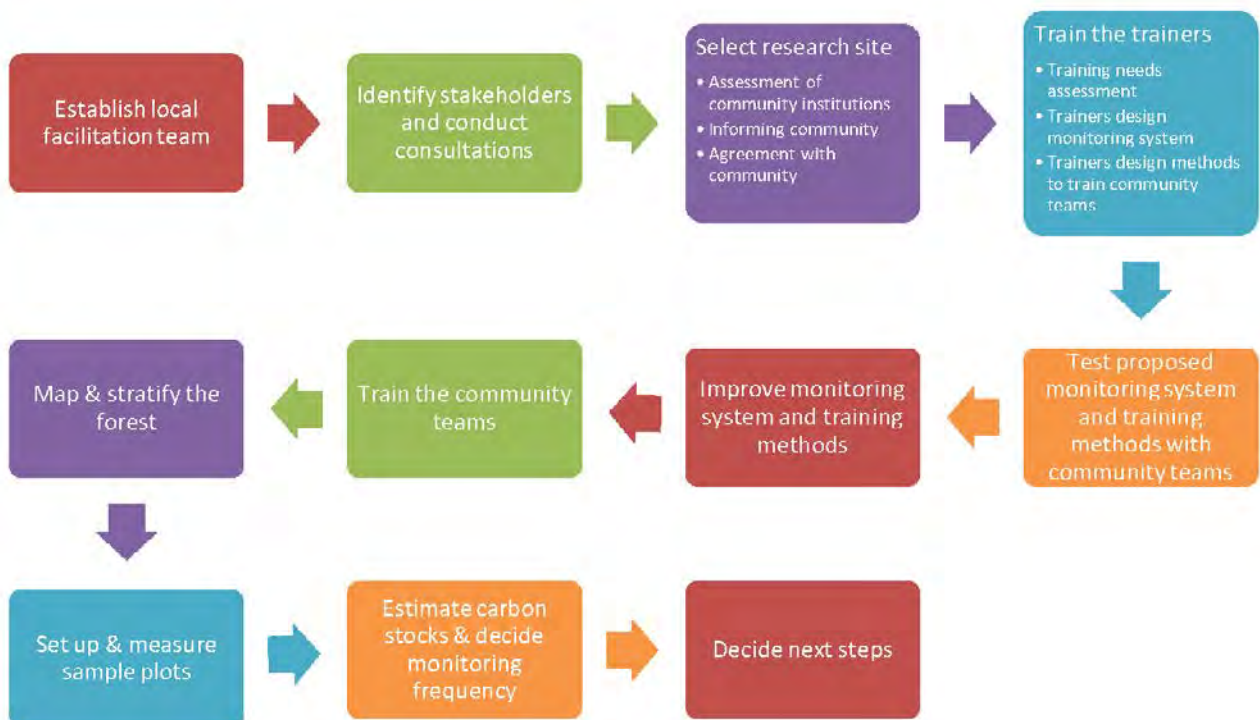
### Regional Collaboration

#### Indonesia

The main action research partners in Indonesia are the National Forestry Council of Indonesia (DKN), ARuPA, IGES and the participating communities. The project also enjoys the support of the district governments. Feasibility studies resulted in the selection of Semoyo, Burat and Terong villages in Java for the research.

The activities conducted have included consultations with local authorities and communities; meetings to design the research; awareness on climate change and REDD+; training of trainers; training of the communities; forest measurement; data

Figure 1. Action research process.



entry and processing; outreach; and training on project design documents.

Outreach has been an important aspect of the project. Semoyo leaders prepared an extra curriculum class on environment and climate change, and they are using radio to disseminate and share lessons from their forest monitoring. A participatory carbon assessment workshop was held in Gunung Kidul District and was attended by the leaders of each village and the district government heads of forestry and environment.

Re-measurement of plots has shown carbon stocks have increased by more than 4 tC/ha, in spite of timber harvesting that took place between the first and second measurement (a period of one year), but this is without payments for REDD+, so these stock increases would not pass additionality tests. For them to implement REDD+, communities would have to postpone their timber harvesting to increase carbon stocks further. When present income is destined to cover basic needs, this is a choice that communities may be reluctant to make. A household survey was conducted in the participating communities and found that they operate under financial stress.

Training of the communities on preparing project design documents (PDDs) for forestry projects has also been conducted. PDDs based on the Climate, Community, and Biodiversity Alliance Standards are now being drafted by the communities.

### ***Viet Nam***

In Viet Nam, the project partners are Vietnam Forestry University (VFU), IGES and selected communities

involved in the Cao Phong reforestation project, which is a small scale A/R CDM project that was registered with the UNFCCC in 2009. The project is located in Xuan Phong and Bac Phong communes, Cao Phong district, Hoa Binh province.

In 2012, two training workshops were held at VFU for the project facilitators: a 5-day training workshop on the concept of participation; and a 4-day training workshop on community-based forest monitoring. Ru 3 Village, one of the 11 reforestation project villages, was selected for testing some of the proposed elements of the forest monitoring system. The area reforested by the village was mapped using GPS and GIS, and a social survey was conducted. The test training of the community on forest monitoring generated important lessons on the need for good training preparation, effective teaching methods, simple yet credible measurement methods, and flexibility to test alternative measurement options.

### ***Lao PDR***

In Laos, the project is being led by the National University of Laos (NUoL), with support from IGES. The project is being implemented with 4 villages in Sangthong District, Vientiane, that have a total community forest area of 1,887 ha.

The project initially focused on building the capacities of the facilitation team, the local authorities and the participating communities. A training workshop on forest carbon accounting was conducted for the research facilitators, and workshops on climate change, forest management and REDD+ were conducted with the local authorities and communities. More recently, the project



**Figure 2.** Test training on community-based forest biomass monitoring with Ru 3 Village.

activities have included finalising the socio-economic baseline dataset of the participating communities; developing training materials and a field guide; conducting community awareness and training; establishing the forest biomass inventory teams and guiding them in the establishment and measurement of sample plots; and preliminary field survey data management and analysis. Linking the monitoring to community livelihoods has been found to be a significant challenge for the action research.

### Conclusion

The research shows that effective training is critical to the success of community-based forest biomass monitoring approaches. The trainers must possess expert knowledge on forest monitoring principles and methods, and they must also be experts in community facilitation. Project partners are now drafting a manual as a resource for the training of trainers, drawing on the action research experience.

The preliminary results of the action research are encouraging in the sense that the communities have generally participated enthusiastically in the monitoring, and developed the competence to take accurate forest measurements through the training. A challenge the research is now addressing is how to maximise the use of the information generated, both for climate change mitigation and community livelihoods.

### Project Publications

- Rabhi, A., Bhattacharya, A., Fujisaki, T., Fukuda, K., Fukui, A., Huang, J., ... Muchtar, M. (2012). Measurement, Reporting, and Verification (MRV) for low carbon development: Learning from Experience in Asia. (K. Usui & Y. Takagi, Eds.). Retrieved from <http://pub.iges.or.jp/modules/envirolib/view.php%3Fdocid=4280>
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##### PROJECT TITLE

Participatory Approaches to Forest Carbon Accounting to Mitigate Climate Change, Conserve Biodiversity and Promote Sustainable Development

##### COUNTRIES INVOLVED

Cambodia, Indonesia, Japan, Lao PDR

##### PROJECT DURATION

3 years

##### APN FUNDING

US\$ 120,000

##### PROJECT LEADER

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