Report on the FCPF Workshop

¨Linking community monitoring with national MRV for REDD+¨

Organized by CIGA-REDD, UNAM

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**The text of this report has been approved by the participants
as a record of the proceedings**

UNAM

Summary

This workshop was commissioned by the Forest Carbon Partnership Facility of the World Bank and organized by the Centro de Investigaciones en Geografía Ambiental of the Universidad Nacional Autónoma de México (CIGA-UNAM). Over 65 participants were involved from 15 countries in Africa, Asia, Latin America as well as from Europe, the United States of America and Canada. The aim was to discuss and if possible reach a consensus on how community monitoring can link with and contribute to national systems of Monitoring, Reporting and Verification (MRV) under national programmes for Reduced Emissions from Deforestation and forest Degradation (REDD+).

UNFCCC SBSTA documentation on REDD+ has stressed the need for involvement of communities in monitoring REDD+ at the local level (for example, in the preamble to Decision 4/CP.15). The purpose of workshop was to try to produce a consensual view among the participants – who, coming from a wide range of countries with different perspectives on community involvement in REDD+, had different views on how (through what methods, for what particular tasks) communities may be involved in monitoring carbon stock changes and other variables relevant to REDD+. We considered the reliability of community-generated data, and the costs of local monitoring compared to expert based monitoring. We tried to identify the particular niches in which ground level, community monitoring can fit within the over all national REDD+ data requirements. The ultimate idea was that this monitoring should effectively and efficiently support the overall national REDD+ MRV effort while delivering benefits which are also of value, locally. It is clear that methods and tasks will vary according to national circumstances, particularly with respect to the role that community forest management (CFM) is likely to play within any given national REDD+ programme (e.g. indigenous groups providing conservation services in relatively intact rainforest areas, farmer communities providing forest enhancement services in already degraded dry forests, etc). A large number of methods and technologies are available, and the pros and cons of many of these were discussed. In addition to monitoring of carbon itself, we also considered possibilities for community monitoring of other important variables, such as biodiversity and social impacts, particularly in the context of the growing awareness of the importance of safeguards. Further, we considered how to promote the idea of community monitoring, to overcome the doubts that many people have as regards its reliability and usefulness. The workshop ended by developing a shortlist of priority actions that need to be undertaken to promote community monitoring within national REDD+ programmes.

The discussion at the three-day workshop was rich and far-reaching. It is not possible to capture everything that was said, but this report attempts to present the main points made and, as far as possible, the consensual conclusions of the workshop. Further documentation is available on the website http://www.ciga.unam.mx/redd/ under Events, World Bank Workshop.

Key words /Phrases: REDD+, MRV, REL, Community Monitoring, Community Forest Management, Barriers in Community Monitoring, carbon measurement, safeguards, social and environmental criteria, indigenous peoples, local communities,

DAY 1

Introductory remarks

Alex Lotsch (FCPF) opened the workshop by noting the UNFCCC Subsidiary Body for Scientific and Technical Advice (SBSTA) is working at the moment to develop policy on MRV and RELs for REDD+, while at the same time Parties have raised concerns about the involvement of local communities and indigenous peoples. He suggested that communities might have a specific role to play in MRV, both from a technical point of view and in general terms of stakeholder engagement. He pointed out that there has been little discussion yet of how communities may contribute to national MRV systems and hoped that the results of this workshop would provide a milestone in this regard.

José Carlos Fernandez, from CONAFOR (the Mexican National Forest Commission) welcomed the participants to Mexico and explained the importance of community involvement in REDD+ in Mexico, where 70% of all forests are community owned. He expressed the view that the national forest inventory, although one of the most comprehensive in the world, would not on its own be sufficient. He noted that the SBSTA texts developed in Cancun did not refer directly to community monitoring in MRV, but they did stress that data from remote sensing would have to be supplemented with ground level data. National forest inventories are very expensive, and some REDD+ activities, particularly those aimed at reducing degradation and promoting forest enhancement, will require reliable, low cost methods for monitoring. Community monitoring may have a function in densifying the data provided by the national inventory, in areas where communities are engaged in forest management. He mentioned that an additional niche for community monitoring may lie in assessment of quality of forest, for example, biodiversity, and that this might be tied to information systems of safeguards. However, countries will decide themselves what methods they use for in promoting community monitoring, and in order to make good choices they need to have hard facts on how it can work, what kind of data it can produce, and how reliable this may be.

Group discussion 1: REDD+ impacts of different types of community forestry

In this session, participants worked in groups and considered what different types of community forest management would likely lead to what kind of REDD+ impacts. This is important, since the different components of REDD+ (reduced deforestation, reduced degradation, forest enhancement, sustainable management of forests and conservation) may require different forms of monitoring.

The groups first identified different kinds of community management that exist in different countries, and then what REDD+ component they would most likely result in. The matrixes that resulted from this exercise were aggregated and are summarized below.

Likely impacts of different kinds of community forest management

Type of community forestry/governance regime	Reduces deforestation	Reduces degradation	Promotes forest enhancement	Promotes sustainable management of forest	Promotes conservation	Notes
Community forest management on state land, with rules of offtake/management plans (Nepal/Tanzania/Viet Nam model)	Medium	High to very high	Medium to high	Medium to high	Medium	Highly dependent on the administration and on allocation of rights to communities
Participatory forest management (Kenya/Indonesia model)	Low	Very high	Medium	Very high	High	
CFM on land owned by communities, with subsidies from govt. for improved management (Mexico model)	Medium	High	Medium to high	Medium to high	Medium to high	Highly dependent on the subsidies for sustainability
Collaborative forest management (Kenya)	Low	Medium	Very high	Medium	Medium	
Indigenous peoples´ reserves (Amazon model, low population densities)	High	Medium to high	Low	Low to medium	High	Needs strong support from government to overcome external pressures

It was noted that the different models overlap in many cases and that they are not mutually exclusive.

This analysis clear indicates that the creation of indigenous peoples´ reserves (which usually involve legalizing tenure for particular ethnic groups over quite large forest areas) are more successful in reducing deforestation and in conservation than other community forestry regimes. This is because the formalization of these reserves discourages outside threats (commercial agriculture, logging). The density of the population is usually quite low, so that community uses of forest do not result in either degradation or in forest enhancement. In contrast, other types of community management usually involve much smaller forest areas with much higher population densities. In these, community management practices tend to be more effective in reducing degradation from community subsistence activities, and in promoting both more sustainable off take and forest enhancement. They are less effective in dealing with deforestation.

Presentation: Linking the national to the local

Martin Herold´s presentation based on Input paper 1 indicated that the factors that shape the form of national MRV are: (1) international requirements, as defined by the IPCC and UNFCCC, (2) the national situation, particularly whether deforestation or degradation is the main issue and (3) the capacities that the country already has in terms of data (existence of forest inventories etc; Brazil for example has monthly deforestation reports and thus near real time data). He pointed out that once national systems are set up, the annual costs of monitoring are quite low (for example, India spends only $1.5m on its remote sensing and about the same on its forest inventory, annually). He also noted that while deforestation is relatively easy to assess, degradation is much more difficult. He suggested that forest enhancement can be most easily monitored using the net zero option, and that this sort of monitoring by communities at the local level could densify (i.e. increase the sampling density), strengthen and enrich national carbon data systems. At this point in time, two things need to be considered as regards the integration of community carbon monitoring into national MRV systems: what is necessary to comply with the bureaucratic requirements, and how MRV processes can contribute to and support local efforts in forest management.

Presentation: Approaches to community monitoring

Tuyeni Mwampamba presented an outline of different experience in community forest carbon monitoring, based on Input paper 2. This including methods for sampling and measuring the biomass, methods for mapping and geo-referencing the data, methods for analysis of the data and assessment of leakage; in addition, the presentation addressed the need for measurement of other variables both social and environmental. It noted that community monitoring is much cheaper than monitoring by scientists or other experts and that it can be as reliable as these, although training and supervision will be needed at least in the early stages. The presentation concluded that many of the necessary activities are well within community capability (mapping boundaries, measuring tree dbh and height, inserting this data into databases for calculation of carbon stock, estimating displaced emissions and measuring non-carbon impacts) although others require outside expertise (determining sample size and setting our permanent plots).

Group discussion 2: Barriers to integration of community monitoring in national MRV for REDD+

In this session the participants worked in groups to consider the barrier to integration of community monitoring with national MRV systems. In summary, their conclusions were that the barriers fall into four categories, as follows:

Potential barriers to linking community monitored data with national MRV

Technical barriers	*Social barriers*	*Financial barriers*	*Communication barriers*
Local capacity to measure and monitor/special skills	Internal conflicts in the community, elite capture, social exclusion	No rewards for monitoring at present	´Different languages´ (technical/local)
Need for materials and equipment	Tenure and social problems	No certainty about rewards for carbon in the future/need clear definition of rewards now and in the future	Communities see things holistically, not in terms of carbon
Need for a clear protocol/data needs are not clear yet	Political problems at the State level		
Need clear reporting framework/tools for reporting (to national level)	Danger of carbon cowboys and false expectations	Need clarity on benefit sharing within community and between different levels	Lack of knowledge at community level about rights
Lack of technical support and information	Fear of exploitation by outsiders/who will be making use of our data, for what purposes? Who owns the data?	Need to de-link monitoring from rewards system	Sensitivity of safeguards data (biopiracy)
Lack of information on amount of carbon growth and value of carbon/cost-benefit			The REDD discourse has raised high expectations which may not be met.
Timelines (local baselines) are difficult to develop	Top down approach to governance does not encourage local participation		
Safeguards indicators need to be locally defined			Illiteracy
Validation is needed			
Community projects cover only limited parts of the country´s forests			

The participants recognized that emission displacement is an issue to be dealt with at national, not local level, and that priority may have to be given to key geographical areas, perhaps where threats are greatest, not necessarily all forest types within a country.

Presentation: What Google ODK has to offer

Tanya Birch talked about the University of Washington´s open source software ODK (Open Data Kit) – the most recent versions of ODK Collect 1.1.7 and ODK Aggregate 1.0 - and its applications for community monitoring in REDD+, with examples from a study by the Surui people in the Brazilian Amazon, where they are working with an indigenous community (for video see http://www.youtube.com/watch?v=_gKkYc9ntHQ).

The Open Data Kit toolkit, developed by the University of Washington, uses Android mobile devices to collect data in an offline environment with an app called ODK Collect. Once the data collector is back online, the submissions can be hosted on Google AppEngine and exported either as a spreadsheet (.csv) or to Google Fusion Tables for visualizing on a map or a table. Biomass estimates for measuring carbon stock can be added by inserting allometric equations in the table columns. This platform provides a large range of possibilities for collecting geo-referenced data from local monitoring of above ground biomass, including bar codes attached to trees, which enables automatic tree recognition on repeat measurements. Data collected and ingested into Google tools can either be private or public, and can be shared with selected users. A completely local solution where data is not uploaded into the cloud is also available.

More rugged Android devices are available but costly, so at least a rugged case, extra SD cards for storage and extra batteries are essential for fieldwork. Forms for data collection are using the XForm W3C Standard and can be created at http://build.opendatakit.org/ or using http://xls2xform.opendatakit.org/. In the future, data collected on the ground will be ingested to remote sensing tools like Google Earth Engine to view alongside satellite data land use classifications.

The technology is improving rapidly, and Google as well as the ODK team are very interested in getting feedback from users to enable the system to be upgraded and improved through our Community Forest Management working group at cfm.earthoutreach.org.

Discussant: Experience in the use of Androids

Elsa Esquivel shared her experience using Android systems on Motorola smart phones in community monitoring in Chiapas, Mexico. Generally this was positive, provided there was a signal (not available everywhere); the batteries last 5 hours and data is not lost if the battery dies. Photos were of poor quality. GPS was reasonable but gave problems sometimes, especially in mountainous areas. The device is sensitive to rain. Shape files were uploaded, but data entry is not very handy. It is a bit complicated to learn how to use the system, it takes time for community technicians to learn.

DAY 2

Short presentation:

Wayne Walker (Woods Hole) Community manuals and field guides to monitoring for REDD+.
Wayne Walker presented a number of manuals which are available on internet, including those developed by
1. Wood Hole Research Institute (http://www.whrc.org/resources/fieldguides/carbon/pdf/chapter6.pdf),
2. The KTGAL project (http://www.communitycarbonforestry.org/), the link is under Resources, Community Monitoring),
3. The Nepal based network ANSAB (http://www.ansab.org/wp-content/uploads/2010/08/Carbon-Measurement-Guideline-REDD-final.pdf)
4. UN REDD Vietnam (http://www.un.org.vn/en/component/docman/cat_view/130-un-viet-nam-joint-publications/209-climate-change-joint-un-publications.html?orderby=dmdate_published)
5. Winrock International (http://202.99.63.183/tanhui/thjl/Winrock%20International%20%E7%A2%B3%E7%9B%91%E6%B5%8B%E6%8C%87%E5%8D%97.pdf)

Three are intended for community use (2,3,4), the other two are more general/more technical. They vary in the level of detail of instruction and in technical difficulty but all essentially follow the standard (IPCC approved) methodology. Most are concerned with physical measurement of above ground biomass, only one includes instruction on mapping and geo-referencing (KTGAL). Wayne suggested that rather than starting from scratch and developing totally new manuals for each country, it would be sensible to use the existing manuals and adapt them as need be.

Short presentation

Bao Huy (Tan Nguyen University) Technical manual for participatory carbon monitoring.
Dr Huy shared the manual which he has developed for community carbon monitoring in Vietnam, and a video which shows communities being trained.

Panel 1: methods for estimating stock

This session covered a number of standard approaches to measuring above ground biomass in permanent plots. Many of the participants had first hand experience of this and the consensus was that reliability is good if protocols are followed. There was some discussion about whether permanent plots would lead to unrepresentative data (as communities might protect these plots). A video showing a mobile, ground-based

scanner system which makes three dimensional images of all solid objects within a plot up to 30 m radius was shown.

Short presentations on experience of carbon measurement in a number of countries:

1. Emmanuel Lyimo: Linking community monitoring with national MRV for REDD+ in Tanzania
    Emmanuel Lyimo presented work from Tanzania in which communities have been trained to make carbon assessments, collecting data at the plot level on: DBH, position (UTM coordinates), land use, vegetation, ownership, human impact, canopy coverage, NWFP, soil, regeneration, stumps and dead wood using simple equipment such as compass, GPS, diameter tape, and hypsometer. etc
2. Hector Arce, Maria-Elena Herrera and Jhonny Mendez: Experiencia de Costa Rica en al medición de stocks de carbono
    This presentation described the steps taken in Costa Rica to develop an MRV system in connection with programmes for reduced impacts on forests.
3. Ari Wibowo: Measuring carbon stocks, Indonesian experience
    The presentation discussed how different parts of the country are at different stages in the forest transition process. The lack of detailed forest inventory data means that Tier 1 data has to be used at national level, although at sub-national level efforts are being made to develop locally relevant allometric equations.
4. Martin Perez and Adriana Yepes: Capacidad institucional técnica para el apoyo a proyectos de REDD+ en Colombia
    The presentation explained how the national MRV system in Colombia is being set up across a wide range of different forest ecosystems; estimations have been made for 11 of the 16 forest types and a protocol for measurement has been written.

Panel 2: Methods for mapping and geo-referencing

Presentations on mapping methods in use

1. Margaret Skutsch: Methods used in KTGAL
    In this project both IPAQs and Smart Phones were used. These were demonstrated in a series of photos.
2. Graciela Peters: Cybertracker. In this presentation Graciela demonstrated how Cybertracker, a programme designed for use by illiterate San trackers in South Africa, can be adapted for community carbon monitoring. The programme is flexible and communities can help to decide on the design of the screens used. The method was successfully used in two villages in Michoacan, Mexico, to map forest areas under community management and upload data on carbon stocks.
3. Johanne Pelletier: Community participatory experience in Panama
    Three cases for Panama were described, all supported by capacity-building. First, landowners drew land-use and landholding map, which were validated with the community and GPS. Land use change scenarios from 1970 to the future was projected with and without REDD+, and verified against map

information. On the basis of this information, and on drivers of deforestation, baseline was constructed for a carbon-payment project. The second case support community participation for explaining carbon stocks and validate remote sensing approach. In a third case, land conflicts in indigenous areas, sensitive to deforestation, were mapped with traditional authorities. A future project with indigenous authorities plans to compare airborne Lidar images with community measurements of priority areas.

4. Elsa Esquivel: Experience in community monitoring of carbon storage
   Elsa presented three different systems (using GPS only, using IPADs and using Androids) in three different projects in Chiapas. In all cases community technicians were trained to use these systems on their own

5. Julius Muchemi (Kenya): Participatory 3 dimensional model. Julius presented the idea of participatory 3-dimensional modeling (P3DM) as a platform for community participation in natural resources management. The basic map is first developed using contours extracted from topographic maps sheets using GIS methods, these are used developed layers of cardboard by tracing and cutting them as following the contour to gain the vertical scale. These are then layered to construct a physical relief model (usually done by schoolchildren and youths). Adults then depict their mental maps about the areas and paint the respective cultural and natural landscape features and patterns including eco-types, natural resources, land uses and could as well identify biodiversity hotspots such as deforested or degraded areas, ecologically fragile areas etc. Thematic maps are then extracted by simulating air photography by tilting the model and capturing it with a digital camera, then transferring the photos to a GIS for extraction of the features and composition of the relevant thematic maps. These models promote the consultation and participation of local communities and indigenous peoples in planning and monitoring in biodiversity conservation as well as giving them voice in advocacy for their rights and interests over land, resources, benefits etc. . to view cases studies for Kenya, Uganda and Rwanda, DRC visit http://ermisafrica.org

Panel 3: Managing the data

Presentation: Organising data management for MRV and community monitoring.

Patrick van Laake (UN REDD Viet Nam) pointed out that in Phase 2 of REDD+, the requirement is for results based rewards, which is less demanding than Phase 3 when rewards will be strictly performance based. This means that in Phase 2 there is still room for experiment, testing and developing of methods. At the national level, activity data (changing area of forest) can be obtained relatively easily with high resolution remote sensing. Emissions data is the problem (changing stock levels) since Tier 3 level data is expensive to obtain, and it there in this area of data that community monitoring may be most needed. In terms of handling data on carbon stocks from community level, there will be a need for (1) stratification, (2) management of the measurements, (3) verification and (4) bringing information back to the people. An efficient data processing system will be required since it may be expected that the database will receive 2 million pieces of information every year, which is about 80,000

per day. This means a considerable investment. Given that the price of carbon is not yet known, countries may be reluctant to make such investments at present.

Short presentation:

Sanjeeb Bhattarai explained the difficulties that the ANSAB had had with IT experts in Nepal as regards developing suitable databases. The challenge is to develop an on-line database into which communities can upload data which can then feed in to a national system. The lack of suitable allometric equations was cited by several participants as a problem. Not only for different tree species, but also for different situations, since trees may grow differently on slopes than on flat land, and a tree in secondary forest may have a very different form from the same species in primary forest. However given suitable equations, at least above ground biomass could in principle be calculated at community level.

Arun Pratihast presented an outline of his thesis work entitled Evolving technologies and community based monitoring for effective REDD+ implementation. He plans to combine a variety of technologies including ground based Lidar and open source monitoring systems similar to Google´s, in test sites in Netherlands, Ethopia, Nepal and Vietnam with a view to comparing the efficiency and effectiveness of different combinations.

Group discussion 3a   What is needed to support community monitoring of biomass?

Previous research and experience from ongoing projects and public programs in developing countries shows that communities are capable of gathering data to monitor the stocks and flows of carbon in forests; although most of the experience refers only to the monitoring of aboveground woody biomass mainly on trees. During the discussion in this group the participants were asked to express their views of what was needed to support community monitoring of biomass particularly what definitions or rules should be set by the government in order to engage communities as part of an MRV for REDD+. The concerns of the participants were grouped by topics and are presented below:

REDD+ Programme. The goal of the MRV system and forest inventories should be defined and should identify the need for the participation of communities according to national circumstances. A gap analysis should be undertaken to identify the requirement for new data/information; in some countries the data from forest management programmes can be used for the MRV system. It is necessary to recognize formally the roles and responsibilities of communities in data gathering. The programs, mechanisms or policies should be flexible and voluntary and should consider/include the social, cultural and economic values of the communities. The MRV system or Forest Inventories should ask communities for permission for measurements based on the principle of prior and informed consent.

Benefit Sharing. The benefits for communities of participating in MRV, independently of benefits from performance, should be clearly defined. Mechanisms to pay for the job done should be provided.

Capacities. A gap analysis of existing and required capacities within the communities according to the necessary competences to fulfill the goals of the MRV system is required. The capacity building program should include the facilitators, staff of local forest office, technicians, local experts and the communities. Follow-up for the training activities is necessary. Further requirements include the provision of equipments and tools for measurement and data gathering and sources of information.

Methodologies. The methodology should define and include accepted procedures and indicators for measuring the desired stocks according to accepted protocols (KP/IPCC); the REDD+/MRV system should provide a unified methodology. Methods not accepted for the MRV system should also be identified. Methods should be simple and easy to apply by communities. The methodology needs to include the criteria for the establishment of measurement plots (number/intensity, size and shape) including particularities by forest/vegetation type (stratification) and degree of forest degradation. The use of allometric equations and biomass expansion factors should be explained in detail. It is necessary to define the land management activities that will be eligible for REDD+/MRV (e.g. planting trees (?)); it is possible to adapt the information generated as part of forest management programs in some countries.

Scope. The methodology should include the steps to measure/monitor the carbon stocks: biomass, soil, litter, underground biomass and harvested wood products.

Reporting Structure. It is necessary to define a reporting structure for the information that would be gathered by communities (protocols, formats, frequency, standards). Quality assurance/control and verification standards will be required. The communication channels need to be defined and consider what would be the interlink between subnational and national accounting systems or REDD+ activities. The role of regional institutions needs to be defined. A general communication and dissemination plan will be required.

Use of Information. It is necessary to have clear definitions and guidance on how the information will be used and for what. The information should be confidential and the system should keep secure the data related to land and tenure rights.

Other. It is important that the REDD+/MRV program addresses existing conflicts (e.g. land tenure); another aspect to consider is the development of programs to increase the awareness within the communities to favour community participation. A basic precondition is the clarification of the legal status of all lands and land uses.

> **Group discussion 3b: What national protocols are needed for mapping, geo-referencing and visualising data from communities so that the information can flow into a nation-wide accounting system?**

Point-referenced data from communities can easily be transferred to generate maps for national accounting. What is more ambiguous is the kind of instruments that are needed to ensure that communities benefit from providing data to a national system. Points made and/or brought up in this discussion:

1. Participatory data collection should be stipulated in any national Protocol related to data needs and provision to secure customary knowledge, ownership and to negotiating benefit sharing. Challenges related to this approach are (1) communities operate at temporal scales different from that of national or sub-national scale (sometimes slower, sometimes faster) (2) it is usually perceived as a uni-directional information flow system, but a two way flow is needed.
2. Uni-directional data flow approach provides very little incentive for communities to participate in monitoring; processed data should be made available for communities.
3. Community data must be standardised for it to be included in a national accounting system, but that standardization may result in local data losing local relevance; the challenge in a two-way system is to ensure that nationally processed data is still locally relevant and useful to communities.
4. Regardless of how data flows, there needs to be a Code of Ethics that stipulates the Terms of Use of data provided by communities.
5. Sub-national and regional entities have a large role to play in linking communities to national institutes and in synthesizing national level data analysis into locally relevant information.
6. Existing protocols in countries where systems are already in place for communities to provide data for national accounting systems (e.g., PES in Mexico) can inform the REDD+ process on two aspects (1) determining RELs (local, regional, national) and (2) the mechanics that need to be put in place for effective protocols
7. Not all countries will choose a bottom-up approach for data collection; community participation (if accepted) will be as a result of top-down mandates that require communities to provide specific data about their REDD+ activities and achievements
8. In any given country, REDD Readiness and REDD cannot be implemented everywhere at the same time. REDD priority areas for carbon and community participation should be identified. Some communities are more ready than others to participate in MRV; they should be given priority to participate.
9. Finally, no single protocol can be determined. Different countries have different conditions and different solutions for protocols will be needed

Group discussion 3c: What needs to be defined by the national level to enable community generated data to flow efficiently into a national MRV database?

The group identified the following key elements:

1. The type of information needed at the national level must be clearly defined
2. Standard of data quality and quantity must be defined based on international standards
3. A locally implementable protocol for biomass measurement and data collection must be developed for use by communities (including instructions on periodicity/frequency of measurements/surveys)
4. A capacity building programme must be initiated by the national government although it may be carried out by non-governmental actors. It should involve training of trainers, technical guidance etc.

5. Since communities will essentially be measuring increases or decreases in stock, a reference year (not a REL) must be decided, i.e. the year from which measurements begin.
6. Levels of data aggregation must be defined
7. Procedures for quality assessment and quality control of the data must be defined
8. A multi-level data repository system must be designed with defined but different levels of access for different stakeholders (national, state, community etc)
9. There must be a clear system for information feedback to communities.

The group noted that due to lack of time it was not able to discuss the very important issues of *process* in the data system, i.e. who would be involved and how; for example a mechanism to resolve disputes may also be required. The institutional structure of the data flow system needs careful thought. They also noted that the type of information needed may vary in different parts of the country, The flow of non-carbon data (for example on safeguards and how they are being implemented) may require a different data system, but the group did not have time to discuss this in detail.

DAY 3

Community measurement of biodiversity and social parameters

Finn Danielsen (Monitoring Matters Network) noted that monitoring of biodiversity and social parameters can vary from autonomous community-schemes without involvement of scientists to totally scientist-driven. There is a wide spectrum of informal methods which are not yet described in any textbook. Current REDD+ certification standards are strongly scientist-focused, but some (like the Climate, Community and Biodiversity REDD+ standard) already encourage community involvement in monitoring biodiversity and social parameters. It is essential to discuss with the community what they consider meaningful attributes to monitor, and to build the monitoring system around that (co-benefits in terms of information needed by the community itself; one participant suggested they should be called ´core-benefits´). Biodiversity could be assessed both at the species/resource and at the ecosystem/habitat level, depending on what communities consider relevant in the local context. Direct involvement of community members in developing and testing the monitoring system helps encourage ownership, makes the scheme locally meaningful and promotes long-term sustainability.

Presentation: Indigenous peoples´ experiences and the need for safeguards

Vicky Tauli-Corpuz explained that indigenous groups are strongly associated with forested areas and the conservation of such areas. She noted that as yet there is not much clarity on safeguards for REDD+ but what is most important is the process, rather than the indicators themselves, which will vary from community to community. What is needed most is to decide *who is to decide* if safeguards are being met or not; i.e. it is not so much a technical question as a political one.

Presentation: Review of tools used to assess REDD+ type projects on social and environmental criteria

Stanley Riamit described a study in which he had reviewed a range of tools and standards used by various organizations (mostly in the voluntary carbon market) for assessing environmental and social impacts for REDD+ type projects. Most of these focus on carbon, and basically the tools are mainly designed to identify projects capable of delivering large carbon savings. Most of them do in addition try to assess whether there is displacement of activities (and hence displacement of emissions), power differences among local actors, and many recognize that drivers originate outside the forest. Benefit sharing, elite capture and corruption, procedural rights (consultation) and rights to land etc are included in most to some extent. All these tools are written for professionals, not for communities, focus too much on obtaining cheap carbon credits at the expense of other variables, do not deal with adaptation to climate change, and are quantitative not qualitative. Underlying issues such as human rights, the role of indigenous knowledge systems, customary rights and collective rights, and conflict resolution are hardly dealt with. The most robust of the tools reviewed on REDD+ MRV for social safeguards was the CCB REDD+ Social and Environmental Standards (REDD+ SES).

Group discussion 4: How can data gathered by communities be used in the context of safeguards for REDD+?

In this session groups tried to resolve the problem of how to integrate community monitored data into the REDD+ safeguards process. It is recognized that safeguards are needed in several areas (particularly biodiversity, governance (including rights to land and resources), and socio-economic impacts). Relevant data e.g. on biodiversity could be gathered by communities using a variety of means, including oral history, historical baselines, reference safeguard levels, and numbers of species extracted, but communities are also able to generate data on governance and socio-economic impacts. However, the system of data requirements for indicators of safeguards is challenging as they vary from place to place; development of a standard protocol is very difficult and moreover judging what the critical level is for each indicator, would be very complex. The following points were identified as general principles:

1. Involvement of local communities in defining safeguards and identifying appropriate indicators at their own level is important, as well as identifying threats to safeguards
2. Some elements should be based on international standards (rights of indigenous people and human rights treaties).
3. The principles of international treaties such as ILO 169 and UN Declaration of the Rights of Indigenous People, UNDRIP should be incorporated
4. Free prior and informed consent (FPIC) should be a basic requirement
5. Indigenous and traditional knowledge, laws, cultures and customary practices should be respected
6. Safeguards should include benefit sharing (inclusive and gender sensitive), and full and effective participation of rights holders and stakeholders
7. Safeguards analysis can strengthen local governance.

It was also noted that institutional frameworks would be required, including those for conflict resolution, for example a grievances institution.

Group discussion 5: What would it take to persuade doubters that community monitoring works?

This group discussion followed a brief introduction to the topic by Wayne Walker (Wood Hole). The groups discussed why doubts exist concerning community monitoring and what actions and activities could overcome these doubts.

Doubters were identified as (1) government officials (2) the scientific community (3) donors and other international actors (4) private investors and (5) ¨doubters within¨, i.e. within communities.

The reasons for their doubts vary, but seem to include (1) (false) perceptions that carbon measurement is a skill requiring high level technical training and equipment (2) fears about reliability and transparency of community data (3) the fact that necessary infrastructure (e.g. electricity, computer assistance) may not be available (4) fears that community monitoring may not be sustainable.

General actions to the taken:
1. Sensitization (of decision makers)
2. Knowledge and documentation sharing
3. Learning by doing
4. Supportive institutional arrangements need to be set up in an enabling environment
5. Capacity enhancement (particularly at community level)

Actions to be taken to persuade governments
1. Demonstration activities of community monitoring
2. Engagement in pilot cases
3. Lobbying and advocacy
4. Start national programmes to strengthen local capacities, the effects of which can be systematically evaluated

To persuade the scientific community, donors and investors:
1. Promulgate clear protocols for community monitoring and reporting to national level;
2. Ensure transparency in this reporting, to generate confidence
3. Engagement of community people in international processes, to present their methods/cases
4. Pilot projects
5. Stimulate research by academics on community monitoring at the local level
6. Demonstrate the clear link between local level monitoring and stimulation of improved forest management for REDD+
7. Set up platforms through which technology for monitoring at community level can be developed and discussed

To persuade communities (¨doubters within¨)
1. Awareness and capacity building at community level
2. Demonstration projects
3. Attention to cultural diversity and gender sensitivity
4. Benefit sharing from community monitoring

Group discussion 6: Key messages and most important next steps.

In this final discussion, the participants were divided into functional groups (in earlier discussions the groups had been ad hoc). Six groups were created, based on participants´ real positions: representatives of governments of Africa, Asia and Latin America; civil society organizations; indigenous peoples´ organizations, and researchers and service providers.

Each of the groups was asked to decide on three key messages they felt should come out of this workshop, and two important activities or actions that should be taken to promote community monitoring in national MRV for REDD+.

The results of this exercise are provided, verbatim (unedited), in the two tables that follow.

It is clear that there is overwhelming consensus among the participants that

1. Community monitoring, both for carbon and for other variables such as those needed for assessing safeguards, can form an important part of national MRV systems for REDD+;
2. National governments would need to take the lead in developing protocols suited for community carbon monitoring, following international standards, but adjusted to local circumstances such that the data can flow smoothly into the national MRV database.
3. National governments need to support an inclusive and participatory process with regard to the development of safeguards, including monitoring by local and indigenous communities.
4. The need for the involvement of communities in these processes should be recognized at the level of UNFCCC.

Three most important messages from the workshop

Government representatives, Africa region	1. Community participation in MRV and monitoring for REDD+ is important for confidence building and a sense of ownership 2. Community participation in MRV is feasible 3. Governments should create enabling environments to facilitate community participation in MRV monitoring and monitoring for REDD+
Government representatives, Asia region	1. Communities can do their own monitoring of their REDD+ activities 2. Scale up success stories of forestry activities by communities towards REDD+ 3. Participation of communities is necessary for REDD+ implementation and monitoring
Government representatives, Latin American region	1. REDD+ will not be viable without participation of the communities; as governments, we need to push for this (REDD+no va ser viable sin la participación de las comunidades locales; como gobierno estamos obligados a impulsarlo). 2. Methodologies need to be standardized and made consistent (metodologías deben ser estandarizadas y homogeneas) 3. With effective communication, the communities will understand, participate and respond; the governments need to explain to them the purposes and the tools of MRV (comunicación efectiva, las comunidades comprendan, participen y comenten y que el gobierno les explique cual es el panorama y herramientas para realizar MRV)
Civil society organizations	1. MRV needs to have a community-based approach because communities CAN monitor their forests 2. Devolve community monitoring technologies and approaches 3. By community monitoring we can improve the development, implementation and monitoring of safeguards
Indigenous peoples´ organisations	1. Participation of indigenous peoples and local communities in MRV for REDD+ is not optional but mandatory 2. Community participation in MRV and safeguard processes should be driven by self-determination 3. Indigenous traditional knowledge systems are equally rigorous, reliable and authoritative as modern scientific knowledge
Researchers and service providers	1. We can't do monitoring and management effectively on community inhabited land without community participation 2. There are experiences that show that community monitoring that can have many benefits beyond monitoring – supporting "win-win" outcomes 3. Research demonstrates the validity and feasibility of community monitoring for REDD+ MRV but this knowledge is not well disseminated 4. Learned that there are alternatives for compensating communities beyond linking it to carbon; carbon could actually be of secondary consideration and the benefits

Two most important next steps

Government representatives, Africa region	1. Government should formulate strategies for community involvement in MRV and monitoring for REDD+; including through development of workplans and budgets 2. Secure political goodwill to support the process
Government representatives, Asia region	1. Preparing or setting up local standards for REDD+ monitoring which approaches international standards 2. Defining the benefits of REDD+ and its monitoring for the community
Government representatives, Latin American region	1. Governments need to define the role of participation (in MRV) (Los gobiernos deben definir el papel y la participación) 2. It is necessary to develop strategies of communication and participation with the communities to be effective (se debe desarrollar estrategias de comunicación y partición hacia las copmunidades, para que la comunicación sea efectiva).
Civil society organisations	1. Develop a protocol at UNFCC (CoP17) to assure the involvement of communities in MRV 2. Funding should be provided to design and implement community monitoring models with strategies that inventize communities to engage in MRV
Indigenous peoples´ organisations	1. Build consensus around principles, standards, protocols and institutions to implement safeguards 2. Develop partnerships among indigenous peoples, local communities, governments., NGOs, experts and academics for awareness raising and capacity building for MRV for REDD+

Researchers and service providers	1. Need more targeted strategy to communicate these outcomes
	   o Meeting with policy makers/active promotion of these ideas
	   o Need a compendium of experiences
	2. Make recommendations on the best approaches to use, to provide clear message on best practice based on the existing capacity and available technology