THE CAPACITY OF LOCAL COMMUNITIES TO MONITOR BIODIVERSITY AND RESOURCES IN MADAGASCAR, NICARAGUA, PHILIPPINES AND TANZANIA

Indigenous and community-based monitoring systems is efficient, simple and cost-effective

This case study focuses on the capacity of local communities to monitor biodiversity and resources in Madagascar, Nicaragua, Philippines and Tanzania. It makes a controlled comparison between local community monitoring and trained scientists' monitoring and conclude that local and indigenous communities generate similar and equally good outputs as the trained scientists, and are much more cost efficient. The cases suggest that it is fully possible to build a cheap and effective MRV system based on community monitoring of NCBs.

This case comes from a comparative study from Latin America, Asia and Africa (2013) evaluating the potential of locally-based monitoring of natural resources and biodiversity for informing conservation decision-making and intergovernmental mechanisms (such as REDD+), by comparing results of paired local and professional monitoring efforts in tropical forest habitats in four tropical countries: Madagascar, Nicaragua, the Philippines and Tanzania. The monitoring ran over 2.5 years and was conducted by 128 local people with only primary school education and 7 university-trained specialists.

The focus of the study was to compare measures of resource abundance by local community members and external scientists. It also focused on the most relevant information for informing natural resource management decisions such as the status of and trends in abundance indices. The working hypothesis was that measures of abundance in natural resources (biodiversity) would differ when assessed by community members compared to trained scientists. The study tested this hypothesis by comparing data from patrols by community members and line transect surveys by trained scientists along the same or adjacent survey routes in the same forest areas and over the same three-month period. The survey included numerous methodological considerations and parameters to make the comparison as reliable as possible. It is beyond this brief to summarize all these measures here; however some details seem warranted.

The field data was collected between January 2007 and June 2009 across 34 sites in the four countries. The specific study sites were located on the basis of existing locally-based forest monitoring schemes, except in Nicaragua among the indigenous Mayagna population, where a local monitoring scheme had to be established for the purpose of the study. The study sites and boundaries were decided by the communities and scientists together and could vary in size from a few hundred hectares to several thousand hectares but all needed to be important in terms of both biodiversity and their value for local livelihoods (23). Local community representatives helped select the participants on the basis of their interest in and experience with forest resources, which included some very experienced collectors of forest products. Most of the community participants had very limited basic education and, accordingly, literacy limitations but at least one participant in each case was able to read and write. The participants received local training for 2-3 days on how to record the forest resources during already existing forest patrols. During the field study period, the training was followed up by an annual visit to each study site to assist the community participants and collect copies of completed field forms.

The trained scientists that conducted parallel monitoring at the same sites all had academic degrees at MSc level or equivalent in natural science. They all had a minimum of 10 years' field experience in tropical forest surveying. The scientists set up their own fixed monitoring routes at the same forest sites using a recognized line transect methodology. Length of transect routes was standardized (2000-2500 m) and walking speed was kept constant. The scientists also attempted to avoid double-counting the same individuals. The scientists were working alone. Both community surveyors and scientists recorded all their observations, independent of the distance of their survey routes. Both direct sightings and indirect evidence (calls, tracks, excrements etc.) were recorded, including moving animals and clusters. The community monitoring routes followed existing monitoring patrol routes (except in Nicaragua), and thus varied in shape and length between the countries. In the Philippines and Nicaragua, the community surveyors and the scientist followed the same routes in the forest, but on different days. All these variables (and many more) were taken into account in the comparative study methodology.

Before the surveys started, the participants selected the natural resources and types of resource use events they wanted to monitor. The researchers proposed a minimum list with 5 categories: a species of large mammal, a species of small mammal, a species of bird, a type of resource use of animals and a type of resource use of plants. Based on this outline, community members decided on 68 targets to monitor, divided into three classes of taxon: 39 bird taxa, 24 mammals taxa and 5 types of resource use (e.g. cutting bamboo and hunting).

The result was that a total of 24,881 hours of monitoring by community members (19,183 hours) and trained scientists (5,698 hours) generated 5,804 paired records between community members and scientists measuring the same natural resource or resource use activity at the same sites over the same three-month period.

Summarizing the findings, it can be concluded that, in tropical forest habitats in developing countries, community members with little or no formal scientific education, who have decided which natural resources should be monitored, can generate results on abundance estimates, relative trends and temporal variation of natural resources and resource uses very similar to results generated by trained scientists.

The study found the greatest match in results between the two groups of observers when they surveyed the same route (Nicaragua, Philippines) with short time intervals between their surveys (Nicaragua). It found the lowest match in results where community members varied their survey routes among patrols (Tanzania). When there were only small differences in route, area and time of the surveys by community members and trained scientists, they produced closely similar estimates. It can thus be concluded that, despite considerable differences between countries, cultures and the types of natural resources monitored, community members and trained scientists produced closely similar results on status and trends in species and natural resources. The study documents and highlights the potential value of locally-based natural resource monitoring for conservation decision-making across developing countries and thus for the REDD+ framework.

Conclusions

The study shows strikingly similar results between measures made by community members and professional foresters across countries and forest types. This corroborates a small but growing body of research, which suggests that community members with limited education and armed with the simplest of techniques and equipment can accurately monitor forest biomass, previously thought to be the exclusive domain of highly trained professionals.

The study also states that data gathered by communities meets the high standards of the United Nations Intergovernmental Panel on Climate Change (IPCC), and it argues that community-gathered data would strengthen current REDD+ projects. Local people would also be more likely to trust and participate in REDD+ activities if they were treated as equals in the process and ensured continued access to the forests they rely on for their livelihoods.

Finally, the study points to the need to develop simple standardized methods that can be used at scale and that can feed data into national information systems and the REDD+ Safeguards Information System - SIS.

IWGIA
AIPP
care JO FØR | JO BEDRE
IBIS Uddannelse skaber udvikling
Aliansi Masyarakat Adat Nusantara
FORESTS OF THE WORLD.ORG
NEFIN

IWGIA
IWGIA - INTERNATIONAL WORK GROUP FOR INDIGENOUS AFFAIRS
Classensgade 11 E, DK 2100 - Copenhagen, Denmark
Tel: (45) 35 27 05 00 - Fax: (45) 35 27 05 07 - E-mail: iwgia@iwgia.org - Web: www.iwgia.org