

# LINKING COMMUNITY-BASED ECOSYSTEM MONITORING TO LOCAL DECISION-MAKING AND POLICY DEVELOPMENT ON SUSTAINABILITY

Brian Craig and Marlene Doyle

*Ecological Monitoring and Assessment Network, Environment Canada*

## Abstract

*Community-based Monitoring is a process where concerned citizens, government agencies, industry, academia, community groups and local institutions collaborate to monitor, track, and respond to issues of common community concern. This paper describes the results of a pilot project to determine the best approaches for engaging communities in monitoring activities that contribute to local sustainability. Twelve coordinators acting in 31 widely differing communities across Canada tested various ways to achieve this goal through community based monitoring. The key messages resulting from the project include: 1) Progress toward a common vision of sustainability can be measured by environmental monitoring when it is driven by local information needs and community values. Local monitoring information can be integrated into adaptive decision-making structures where verification, investigation of cause, research into mechanisms or development of options can be initiated in response to early indications of environmental change; and, 2) Effective information delivery involves a two-way dialogue on the characterization of information that will actually create improved knowledge for the decision-maker. Simply finding improved ways to provide scientific information does not result in better decisions. For effective community-based decision-making, environmental information should be: timely; relevant to problems and players; useable in form and for a specific context; targeted, accessible and understandable to its audience; and integrated and suggest a course of action. In order to achieve these characteristics, local capacity must be developed to generate, deliver, and use ecological monitoring information.*

## Linking Community-based Ecosystem Monitoring to Local Decision-making and Policy Development on Sustainability

The diversity and number of community-based monitoring (CBM) activities across Canada are rapidly expanding. Parks across Ontario have the opportunity to capitalize on the popularity of CBM to enhance programming and management decisions by using community-based monitoring to complement regular park functions. By integrating CBM into planning, monitoring and outreach services, park staff can more effectively engage the public in park activities, build collaborative relationships with the community, and enhance park monitoring and management.

There are several types of community-based monitoring. Whitelaw *et al.* (2003) have

identified four approaches:

1. Government lead CBM – where citizens collect data that is fed into national databases designed and managed by government in order to detect long term changes;
2. Interpretive CBM – where emphasis is placed on the educational aspects of community-based monitoring;
3. Advocacy CBM – where citizens concerned about a local issue use locally generated monitoring data to push for change; and,
4. Multiparty CBM – where diverse stakeholders collaborate to identify, track and respond to local environmental concerns.

Of the four approaches, multiparty CBM appears the most effective in influencing decision-making and advancing communities toward sustainability. The emphasis of this approach is as much on the collaborative process as it is on the generation and delivery of ecological information. For the purposes of this paper, we define multiparty community-based monitoring as a process where concerned citizens, government agencies, industry, academia, community groups and local institutions collaborate to monitor, track, and respond to issues of common community concern (EMAN CO and CNF, 2003).

The Canadian Community Monitoring Network (CCMN) pilot project used the multiparty CBM approach to test the best means of engaging citizens and local decision structures in generating and using environmental information. The pilot was initiated by Environment Canada's Ecological Monitoring and Assessment Network Coordinating Office (EMAN CO) and the Canadian Nature Federation (CNF) with funding from the Federal Voluntary Sector Initiative. The objectives of the initiative were to:

- define the best approaches and practices for engaging communities in monitoring;
- develop, test, and refine a model for nationally coordinated CBM initiatives;
- build local capacity to collect, deliver, and use ecological information; and,
- use CBM information to better inform policy and decision-making.

To meet the goals of the initiative, EMAN CO and CNF commissioned an intensive review of community-based monitoring literature and case studies in Canada and elsewhere of various CBM approaches and other collaborative multiparty initiatives. Through this review, a model for the engagement of communities in CBM and using CBM to influence local decision structures was created.

Subsequently, 12 regional coordinators were hired to test the model in 31 diverse communities across Canada. The coordinators used the model as a guideline but modified it to suit the needs and context of their communities. On the basis of the experiences of the coordinators, the model was modified into a simple, iterative framework for community-based monitoring comprised of four parts: community mapping, participation assessment; capacity building; and information gathering and delivery. As well, the pilot developed tools for community-based monitoring and critical factors for success for CBM programs were identified. The pilot found that successful CBM programs:

- use approaches to engaging the community that are context specific;
- establish information delivery mechanisms;
- provide a meaningful experience for participants;
- are well coordinated;
- rely on partnerships in pursuit of sustainability;
- implement a collaborative approach; and,
- are appropriately supported.

The results of the CCMN pilot indicate that community-based monitoring can be broadly applied with multiple benefits to the many stakeholders involved including government and other decision-makers, volunteers, and the community at large. Community-based monitoring benefits government agencies by increasing the geographical coverage of observations and generating community support for ecosystem monitoring programs. This is particularly relevant to Ontario Parks and protected area managers who must understand ecological change in the surrounding landscape, as well as their protected area, in order to make informed decisions. By engaging in CBM activities, parks can augment relationships with the surrounding communities to which parks are so closely related. This can, in turn, create an improved environment for integrated management decisions that reflect the needs of the entire community.

Other benefits include the potential of reduced monitoring costs by engaging citizens in collecting complementary data and the potential to use citizens' data to locate suspected problem sites and assess the success of habitat restoration. Once ecological change or an environmental issue of concern has been identified, park staff can initiate a more rigorous scientific investigation of the issue. The early identification of change allowed through CBM enables proactive and adaptive management responses and a greater potential to influence positive outcomes. As a result, CBM can complement regular park monitoring efforts and enhance management decisions.

Benefits are also accrued by the community participants in CBM, such as: improving their environmental awareness and stewardship ethic; the opportunity to interact with government professionals; and the opportunity and increased capacity to play an active role in safeguarding the environment. CBM is a very effective tool for engaging a diverse cross-section of the community in environmental issues, then providing education about ecology and the impacts of humans upon the environment. The learning process becomes shared as the participants conduct monitoring and generate status and trend information about the local environment that is then provided to decision-makers to influence choices related to conservation. By building community-based monitoring into outreach activities and extension services, park managers will foster a public that is more informed about conservation issues, and science in general, and more capable of playing an active role in decisions that relate to the park.

Perhaps most importantly, the CCMN pilot has demonstrated that multiparty CBM delivers information for better decision making by the local community and builds social capital. Social capital can be defined as the combination of skill sets, shared values, respect, and trust within a community of people that allow for cooperation for mutual benefit. This increased social capital can allow entire communities, including parks, to work together

to address local environmental concerns and advance toward sustainable development. Because the results of CBM initiatives are by design linked to decision-making structures, CBM allows participants the tangible experience of making a difference in their community. This experience, in turn, fosters a sense of place, a sense of belonging, and generates further commitment to the initiative (EMAN CO and CNF, 2003).

The Canadian Community Monitoring Network is just one of many initiatives across Canada using CBM to provide benefits for participants and communities. What makes the network unique are the tools and knowledge generated through the dedicated collaboration of interested participants to advance CBM in order to improve decision-making at local and regional scales. As the CCMN evolves from a pilot to a program, the participation of park managers and staff, who recognize the many potential advantages of integrating CBM into their monitoring and outreach activities, in this emerging community of practice, is welcomed. Parks are encouraged to embrace CBM as part of their regular programming to complement their monitoring, enhance management decisions, and to improve collaborative relationships with the communities in their surrounding landscapes.

## References

- EMAN CO and CNF (Ecological Monitoring and Assessment Network Coordinating Office and the Canadian Nature Federation). 2003. *Improving Local Decision-Making through Community-Based Monitoring: Toward a Canadian Community Monitoring Network*. Report prepared for the Federal Voluntary Sector Initiative: Ottawa, ON. Canada. Available: [ww.cnf.ca/ccmn/ccmn\\_e.pdf](http://ww.cnf.ca/ccmn/ccmn_e.pdf)
- Whitelaw, G., H. Vaughan, B. Craig and D. Atkinson. 2003. Establishing the Canadian Community Monitoring Network. *Environmental Monitoring and Assessment*, 88: 409-418.