Research and Analysis of Monitoring and Evaluation Programs as Analogues for Climate Change Adaptation Measurement

EXECUTIVE SUMMARY

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Executive Summary

Climate change is a reality and is having profound adverse effects on the environment, economy and society as a whole. In this context, a supportive policy environment for climate change adaptation is increasingly gaining attention as a way to help society prepare for the future impacts of climate change.

In Canada, measuring the progress and effectiveness of adaptation has not yet become well integrated into adaptation planning. A range of programs have been successful at raising awareness of the need for mainstreaming of climate change into planning and policy, but no methodology has been accepted for evaluating adaptation, thus success has not yet been fully quantified.

There is documented success for monitoring and evaluation (M&E) of both progress and effectiveness in other program areas. Other more mature sectors such as health care, transportation, coastal management, resource management and forest management have demonstrated success in measuring the outcomes and effectiveness of various programs. Not unlike the challenges that other sectors face in developing M&E programs, measuring progress and success in climate change adaptation will require consideration of barriers that include temporal variability for climate risks, success that is measured over long periods of time, and the need to measure damages avoided.

With the goal of informing the development of adaptation measurement programs in Canada, we offer an in-depth analysis of two Canadian M&E programs for areas of study outside of climate change adaptation (the "analogues"). The research offers insights on aspects of successful M&E program components that provide transferable lessons to the context of climate change adaptation.

M&E Programs Selected for Analysis		
Analogue	**M&E Program**	**Description**
Sustainable Forest Management	**Forest and Range Evaluation Program (FREP)**	FREP is a provincially-run program in British Columbia designed to monitor and evaluate the implementation and effectiveness of forest and range practices throughout the province in meeting government objectives for sustainable forest management.
Public Health	**School Health Action, Planning and Evaluation System (SHAPES)**	SHAPES is a tool that can be used at a variety of scales in order to provide evidence of influence of school policies, programs, and contextual settings on youth health behaviour programs, to support public health planning, research and evaluation.

The characterization and in-depth analysis of the achievements of FREP and SHAPES and the barriers they have experienced describe a number of key M&E program tenets that are insightful for the measurement of climate change adaptation. Sections 4.1 and 4.2 in the main report identify and

describe aspects of both programs most applicable to an adaptation context, as well as insights on transferability for M&E of climate change adaptation.

In total, 65 transferable lessons were pulled from the in-depth analysis of FREP and SHAPES. In order to draw focus on core themes, lessons learned were organized into the following areas:

1) General
2) Program Structure & Components
3) Ongoing Support
4) Choosing Indicators
5) Data Collection

6) Data Quality, Management & Storage
7) Evaluation Methodologies
8) Expertise & Training
9) Communication
10) Continuous Improvement

The following section provides a narrative summary of the lessons learned from the in-depth analysis of FREP and SHAPES, divided by core themes.

Summary of Lessons Learned

General

Aspects of an M&E program are specifically designed and suited for the context in which they are applied. Comparables within other sectors, themes or areas of study can provide transferrable components, but there is no one-size-fits-all M&E framework for all themes. By design, M&E programs collect information to assess the effectiveness of implemented measures. They are bounded by the scope of the project within which they reside and also offer suggestions on how to adjust activities or programs in order to achieve the desired outcomes or improve levels of success. As an example, FREP's 'Continuous Improvement Cycle' is designed to gauge whether the program addresses the right questions and collects the right information and feeds information back into the FREP program to improve forest and range practices, policies and legislation.

Program Structure & Components

Both of the adaptation analogues contained program components and structures that would serve as lessons for an adaptation context. M&E programs benefit from having clear policy direction (i.e. goals and objectives for the M&E program) as well as clearly defined roles and responsibilities for key actors involved in the process. A results-based management regime, with objectives set at the onset as noted in the FREP analogue, can help to determine the degree to which desired results are being achieved, and to yield information on how to improve performance.

Internal and external stakeholder feedback, including a role for the public, will lend credibility and transparency to the M&E process. For example, the SHAPES program engages a wide variety of stakeholders across Canada and has developed its indicators through multi-stage processes which included stakeholder collaboration. As a provincial program, FREP was developed and implemented in tiers (e.g. provincial, regional and districts) which helps to articulate information flow within the process. Like with the SHAPES program, broad definitions of key terms such as 'progress', 'effectiveness' and

'success' (as well as examples of each) will allow M&E programs to incorporate a wide range of goal-oriented actions and brings more focus on the process as opposed to the outcomes.

Ongoing Support

In addition to the key program components noted above, political support, sufficient resources (human, financial, technical, and institutional) and sustained operational and managerial commitment to the program are crucial to the success of an M&E program. For example, the SHAPES program harnessed institutional support from the Propel Centre for Population Health Impact at the University of Waterloo and financial support from the Canadian Cancer Society, the Public Health Agency of Canada and Health Canada, without which the program would have failed.

Developing and implementing M&E programs to the point of getting results can take up to several years; therefore, running M&E programs at the provincial level can provide the institutional capacity and sustained resources necessary to carry out M&E. However, smaller, abbreviated or more narrowly defined M&E programs can be a suitable substitute if resources or time are limited.

Identifying 'champions' at either the senior or operational levels can help advance implementation, contribute to program sustainability and sustain commitment over time. As well, local ownership of M&E programs can foster local trust, acceptance and support in order to champion and maintain a successful, long-lasting M&E program.

Choosing Indicators

Indicators and their metrics are at the core of data collection within an M&E program. The indicators define what will be monitored and measured, and constitute measurement for both process (implementation) and outcome (effectiveness). Establishing 'priority evaluation questions' early in M&E program development can help to bound and draw focus to specific evaluation areas, and can be the basis for developing indicators and protocols. A process to review, update and prioritize the 'priority evaluation questions' also enables continued improvement to the program.

A clearly defined method for selecting indicators should be developed early and indicate how and when the indicators will be evaluated and renewed/expanded, to which aspects of the program they apply, and how they have been tested for rigor. In the case of FREP, the indicators were science-based (e.g. FREP assembles core teams comprised of experts, researchers, consultant and academics who use scientific literature to help develop indicators), peer-reviewed (e.g. FREP's master list of indicators is submitted for a thorough peer review and forwarded to internal and external stakeholders for input), and field tested (e.g. FREP's teams of experts go out into the field to test the indicators and field protocols which are then revised where needed).

Longer term M&E programs should also ensure consistent use of indicators to allow for the development of long term data sets and in order to assess and compare various facets of the program over time. M&E programs utilize quantitative and qualitative indicators, as is seen in the FREP program. Many of FREP's indicators use quantitative metrics through percentages or numbers, while some

indicators require more qualitative measurement techniques such as photographs, interviews, and descriptive text.

Data Collection

Data collection procedures vary depending on the scale and context of an M&E program. FREP's data collection method involves sending district staff out in the field to enter quick, but statistically valid measurements and to scribe visual estimates onto field cards, which are then entered into FREP's Information Management System. SHAPES uses a quick, simple and inexpensive survey method administered to students in a classroom setting in order to gather raw data on student health.

Methods to collect data should be clearly documented with training offered to those responsible for collecting the data. Consistencies in data collection methods are important in order to minimize sampling error and to identify true trends in the data. For smaller M&E programs, a simple, user-friendly data collection process could reduce training costs while helping to sustain adequate human resource capacity and maintain consistent, appropriate data collection methods.

Data Quality, Management and Storage

A centralized data storage and management system, internal and external peer review of data reports, and robust quality control systems help to maintain high standards of quality and increase credibility in M&E programs. The SHAPES program uses a quality-controlled scanning protocol to ensure accurate collection of data files. SHAPES also has a database of all data from various SHAPES surveys which is managed out of one central location. FREP has a rigorous validation and verification procedure in order to ensure data is error free, including a final data quality check by Team Leaders who make any necessary corrections.

It is also beneficial to have at least one staff member solely dedicated to data coordination and management to ensure consistency in how data is managed. Both analogues also noted the importance of considering changing data storage and management needs as well as adequate levels of security in order to protect the data sets.

Evaluation Methods

The evaluation component of M&E programs allows for a deeper look into areas a) that are not well understood and b) where a more fulsome explanation of cause and effect is desired. Evaluation methods vary depending on the scale and context of the particular M&E program. The FREP program has successfully implemented both routine and extensive evaluations (low intensity, inexpensive, rapid data collection) on a continuing basis, with more intensive evaluations (time consuming, expensive, in-depth data collection at a larger scale) when necessary. FREP's Team Leaders and resource experts are responsible for analyzing and interpreting the data.

Measuring against a set of pre-determined criteria or against various baselines allows M&E program managers to monitor implementation, gauge success of the activities, and continuously work toward

program goals and objectives. For example, SHAPES has been effective at motivating action for change by conceptualizing "progress" as overall improvements relative to either original school baselines or to regional, provincial, and national norms. Both programs also contain measures for implementation as well as effectiveness/outcomes.

Expertise and Training

The presence of knowledgeable staff and management within the M&E program is crucial to its success. Training programs are often viewed as investments for the delivery of timely and accurate results, and overall program effectiveness. Consisting of both in classroom and field sessions, FREP has a rigorous staff training program that occurs prior to the start of each field season and is a requirement for data collection. Including formal as well as informal training sessions can provide evaluators with both a theoretical and hands-on learning experience. Continuous improvement or skills/training updates will also ensure that staff remains knowledgeable on new and important aspects within their M&E program.

Communication

Data and information developed as part of M&E programs is used by a variety of audiences, and as such, should be tailored to meet the needs for those audiences. Developing a strong communication plan early in M&E program development can help frame key messages for the range of specific audiences. Both the SHAPES and FREP programs communicate results early and often, and use a variety of means to promote key messages. Communication of the results should be aligned with, and supportive of, any decisions that have to be made about facets of the program.

Communication products should be simple, brief, concise, visually based, factual, and as objective as possible. Spatial, temporal and theme-based scales should be considered when communicating M&E results. Publicly posting results also signals transparency and accountability in the process. Dissemination of yearly communication surveys to partners and stakeholders helps to gather feedback on whether communication products fit research needs.

Giving local stakeholders the opportunity to ask questions about the results helps enhance local buy-in for the M&E program. For example, SHAPES emphasizes local empowerment and ownership by disseminating results and recommendations directly to participating schools, which helps to improve community involvement in, and uptake of, local school health initiatives.

Continuous Improvement

M&E is not an end in itself; the results of M&E programs are designed to continuously improve policies, projects, tools or activities. Results are communicated to decision-makers, policy-makers, practitioners and stakeholders, and serve as information to enhance knowledge and improve practices. In order to encourage continuous improvement, incentives for incorporating M&E results into operations can be offered (e.g. sanctions or rewards).

Internal continuous improvement of M&E programs can be recognized through adaptive management. This entails learning from the results of actions, and adjusting programs for their betterment. FREP has a system in place to continuously improve its M&E program which includes yearly communication surveys, quality assurance surveys, yearly improvement/work plans, continuous improvement workshops, ongoing partner and stakeholder feedback, as well as strong internal communication.

Conclusions

While governments and other organizations in Canada progressively build and implement adaptation strategies, plans and actions, we remain in the early stages of understanding how to monitor and evaluate successful adaptation. Development of methods to track progress and assess effectiveness of adaptation interventions at early stages of adaptation planning is critical; these results will help determine what is working, what is not working, and inform subsequent adjustments to adaptation practices, programs and policies.

The review of measurement approaches in areas outside of climate change adaptation yields valuable insights for the measurement of climate change adaptation, and may give insight into the development and implementation of efficient and effective adaptation M&E programs for adaptation throughout Canada.

We recognize the vast array of players and agents who are tasked with M&E; groups who fund adaptation programs, those who develop the adaptation plans, boundary organizations who deliver adaptation support services, or those who implement adaptation strategies and plans. Not all lessons are directly transferrable to all adaptation M&E scenarios or situations (e.g. FREP is more applicable to natural resource sector settings for adaptation, while SHAPES is more applicable to behavior changes in the health sector or social sciences). Thus the lessons that stemmed from this analysis are designed to yield higher level lessons that can be modified to suit M&E of the specific context of the climate change adaptation program.

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