Assessing the Ability of Forest-based Communities to Respond to Transformative Change:

Indicators for Forest Communities

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Introduction

This discussion paper provides the basis for a working terms of reference for a larger project on indicators for forest communities. It outlines the parameters for conducting a larger, national project to identify indicators appropriate for measuring progress and change in forest communities. It includes options and considerations for what needs to be considered in the choosing indicators, the range of data source considerations, and the methods by which data could be assembled. It also outlines, briefly, how and by whom the indicators might be used. It does not include specifics about project budget or level of effort.

Two Interests

There are two potential complimentary yet competing interests concerning indicators for forest communities. First, the Canadian Forest Service (CFS) is interested in having some type of socio-economic indicators work completed so that there is some potential to monitor the impact of the Forest Communities program over time. A nationally applicable set of indicators would be used to monitor changes over time and to allow for comparisons from one community to the next. Data for any chosen indicators would have to be available for all communities and from a reliable data source – most likely the census (released every five years), but there may be other data sources.

Second, the Canadian Model Forest Network is also interested in developing and using a series of indicators that would meet the needs of the participating communities in the Model Forests of Canada program. Individual communities may be interested in a slightly different set of indicators more closely attuned to the specific interests of each community, and these may vary from one to the next, given their local circumstances, initiatives, interests, etc. They may be more qualitative in nature, and they may focus on issues where the data is not readily available in all communities. Communities may see the indicators as being more tied to their specific action plans or for monitoring their progress against specific activities they are undertaking; and there may be very different than broader socio-economic measures at a national level.

This is not to say that the two interests are not compatible; indeed, they may be very complimentary. But it is very important to recognize that the underlying purposes for each activity are different, which in turn may suggest that different sets of indicators will be required for each. We return to this discussion later in this document.

Indicators Briefly

There has been a significant increase in the past 10 to 15 years in the use of indicators, report cards, or other kinds of "measurement" techniques. Communities and organizations want to know if they are "making progress" and how well they are doing compared to their own past, or compared to some external reference point – another community, a province, a nation, etc. In other cases these exercises are designed to report on progress against strategic plans or work plans.

The literature on this issue can be clustered around four major categories:

1. Theoretical work on indicators and their reporting.
2. Community indicator models and cross-community reports (models created by provincial, national and international organizations to provide a framework for community reporting initiatives).
3. Community indicator reports (indicator reports by communities themselves).
4. Other resources on community indicator projects (project information, indicator projects databases).

The theoretical work related to indicators addresses issues such as:

- Explaining or analyzing the concepts of economic progress, community well-being, quality of life or community sustainability.
- Understanding the best ways to measure the standard of living of individuals and populations, including the measurement of the notion of progress.
- Understanding the nature of the relationship between social, economic and environmental factors in communities.
- Focusing on the balance between objective and subjective indicators, and the frameworks that link different types of indicators, such as "outcome" and "input" indicators.

There is no generally accepted framework for community measurement using indicators. There is considerable debate concerning the relative importance of various characteristics of measurements such as intergenerational and intragenerational equity, protection of the natural environment, economic vitality and diversity, community self-reliance, individual well-being and satisfaction of human needs. The various models differ from one another in many respects, including: scale (individual versus aggregate); relations (human ecology, independent entities, transactional approaches); perceptions (objective versus subjective); causality (determinants versus indicators); comparability (constant versus variable - in place, time, person, and culture).

There is some agreement, however, on some fundamental properties of meaningful indicators. They should be integrating, linking social, economic and environmental perspectives, forward-looking, distributed across a defined geography and population, **and developed in consultation with multiple stakeholders**.

Stemming for this point is an overriding principle that development objectives (or goals) ought to be agreed upon first and foremost. What is it that a program is attempting to do? What is that a community activity or plan is attempting to achieve? Indicators can then be developed to gauge progress to or movement away from these objectives (or goals). Briefly:

- There should be a link between development objectives and indicators.
- Indicators should be capable of being expressed in a quantitative form.
- The data for indicators should be readily available or relatively easy to obtain.

Issues Concerning Comparison

An important issue raised in the literature is the extent to which indicators should be used to compare communities with each other, and the way in which the development of models may intentionally or unintentionally contribute to this undertaking. This discussion is sometimes featured in the reports about the models themselves rather than in the theoretical literature. It is very important to know and state what the basis of the comparisons, if any will be. For example:

- Communities may be compared to some type of benchmark for a given indicator or set of indicators or scores. This benchmark may be a target, a desired state, a standard, or some objective that all communities are moving toward.
- Communities may be compared against their own original baseline benchmark (their status today or at some point in the past) over time, showing progress (or lack thereof). The comparisons are not with other communities or with some ideal or preferred state.

- Communities may be compared to one another (in this case, other forest communities) or to some other communities (in this case, non-forest communities or all communities collectively). These comparisons often involving ranking or tiering or grading of communities.

There is nothing inherently wrong with any of the above approaches to comparison of communities. However, **it is exceptionally important that those who are designing AND participating in any type of indicator exercise know exactly what the reason is for doing any types of comparisons**, because that in turn will dictate, to a certain extent, the choice of indicators and their data sources. For example, if part of the exercise is to compare communities to one another, then it is important the indicators chosen for this purpose can be populated with data that is commonly and consistently collected in the same manner for each community (i.e., from a secondary source such as the census). If the indicator requires local data collection, and there cannot be a guarantee of consistent data collection (quality, timeliness, etc), then it should not be used.

Type of Indicators

There are many types of indicators. When there is a discussion and debate about choosing indicators, it is important to understand what it is that is being measured. Different types of indicators include: trend indicators; predictive indicators; conditional indicators; input indicators; and output indicators. For example, an input indicator measures what is put into a policy system, e.g., the amount of funding provided for a particular program or service. In contrast, an outcome indicator measures the conditions that result as a direct or indirect result of one or more inputs. Some authors suggest that indicators should measure outcomes, not inputs, arguing that it is less important to measure how much money has been spent each year on a particular program, and more important to measure what has been the result of the spending each year.

Indicators, Indices, Domains

Essentially there are three different approaches to organizing the data for each indicator: standalone indicators; indices; and domains.

One is to simply report the data value for **each indicator**. Each indicator is reported on its own. Many reporting exercises use this approach. The simplicity of examining the value for each indicator is appealing. However, when there are many indicators, it can be daunting to make sense of all of the information, to know which ones may or may not be more important than others, how they do or do not relate to one another, and so on.

Second, there may be one or more **indices**. This is where the values for various indicators are rolled up or added to provide a single score or multiple scores for the community. Some community reports and measurement exercises use an index - such as a quality of life index or "progress index". Indices provide an aggregate score or roll up of results from indicators. There is some debate over using indexes versus using indicators individually themselves. There is less favourable commentary on the development of indexes built from a series of indicators. They are fraught with problems associated with the weighting of each indicator (for example, which, if any, are more important than others?), standardization of different measurement units, and methods for rolling up the information. Indeed, several reports suggest that there has been little or no guiding theory in the design of indices.

Third, the indicators may be organized into **domains** (subject or theme areas). The results within each domain may be reported as individual indicators or as indices or sub-totals. For example, a reporting exercise may have four or five indicators within an income or economic domain, another four or five within a quality of life domain, and so on. Using this approach ensures that many or all aspects of community -being are considered in a relatively balanced way. Communities that are interested in highlighting the importance of one or two dimensions of well-being may find the domain-based framework inappropriate for their purpose. A disadvantage of domain-based frameworks is that because they tend to compartmentalize issues into one or other of the dimensions of well-being, they often fail to emphasize linkages among the dimensions, e.g., on the need for economic development to be socially just and environmentally sustainable.

Sources of Data

Although it will depend on the set of indicators chosen, the data required to populate most indicators are likely already being collected by the federal government or other national agencies. This data should be available for all communities, and aggregated to appropriate geographical levels. The data will also need to be available in a consistent and comparable manner for all communities in Canada and on a regular basis, with frequent updates. However, there may be some indicators for which the federal government currently does not collect information.

There are many different sources of data available that could be accessed for any type of reporting activity. Some examples of national data sources include:

- **Census**. This is probably most important source of indicator data. The general census provides socio-economic data such as employment status, and demographic profile factors (e.g., size and type of family, household and individual income, commuting modes). Census data is available at different spatial scales, including for larger centres

as well as the majority of smaller and rural communities. Most of the data is freely available on the Internet for non-commercial purposes.

- **Taxfiler data**. These are annual summaries of income and employment data from tax filer returns. These are available from Statistics Canada at a modest cost and for a variety of geographic levels.

- **Rural Secretariat Community Information Database (CID)**. This interactive web-based tool employs mostly census data as well as some other data. The data can be manipulated in some ways, shown visually for mapping purposes, and downloaded for further use. http://www.cid-bdc.ca/. As of mid-September, the website has data for 1996 and 2001 censuses, with plans for 2006 census data to be made available shortly.

Provincial sources used by municipalities and local groups to undertake community reporting initiatives vary by province, depending on the type of data the province has available or has made available for public or municipal use. These sources generally include environmental data such as air quality monitoring and provincial, regional or local statistics related to provincial matters such as education, health, income support or transportation. Access to provincial data by municipalities and community groups also varies from province to province. Some provinces have made data from a variety of sources available through the Internet, including the Community Accounts initiative in Newfoundland and Labrador and the Community Counts initiative in Nova Scotia. Other provinces, such as Ontario have made single-issue indicator data, such as air quality readings, available through the Internet.

Even when data for a potential indicator are available, other constraints may degrade the usefulness of the data. Some of the data used by communities are dated by the time the information becomes available for use in a community report. This includes data from the Census, which is conducted every five years and for which initial data are made available to external sources only after a two-year time lag. This issue is more of a concern for communities where change is happening quickly – e.g., in rapidly growing communities where changes over relatively short periods of time (i.e., one year) are notable.

Some examples of specific data sets for specific topics or places concerning forestry include, but are not limited to:

- Various Model Forests over the years have to varying degrees done some of their own work on indicators and databases to meet their own needs.
- The CFS in the past did some work on identifying forest-dependent communities and tracking indicators over time for them (Bill White).
- The CFS has also developed some measures or indicators specific to model forest (SIMFOR). These are generally socio-economic time-series data sets available for most communities, using census data.
- Some work at Royal Roads by Brian Belcher on measuring the value of non-extractive forest activities.
- The work by Tom Beckley and others showing that the use of hard, quantitative indicators may show very different results than more qualitative indicators (such as quality of life measures) (*This is Paradise* report).

Parameters for Selecting Indicators

There is no right or wrong process or set of parameters for selecting indicators. However, it is important to keep in mind the technological capacity required to manipulate any of the data that is collected. For example, if the data is to be imported from another source or downloaded from a website, there must be some ability by those who will use the data to organize it for use in a spreadsheet or some other program.

In addition, it is important to keep in mind that there is a certain degree of knowledge (capacity) required to actually interpret, understand, and use the data and indicators for a meaningful purpose. This means that there is much more to a reporting exercise on indicators than simply stating the level of income in a community. What does this mean? Why is it that figure at this time? How is it related to the community context, to other communities, and so on?

Challenges and Issues Worthy of Consideration

To summarize the foregoing discussion, some of the challenges associated with doing indicator work (not an exhaustive list) that should be weighed carefully include:

- What is the capacity, knowledge, and ability at the local level to know about, understand, and use in a meaningful way, indicators (this varies greatly across communities)?
- What types of indicators (quantitative and qualitative), and their data sources, are required?
- What is the frequency, quality, availability, and reliability of data?

- What is the definition of community(ies) involved?
- What is the availability of data at desired level of geography(ies)?
- Linking selection of appropriate indicators to what it is that is being desirable to measure (i.e., indicators which link to or measure impact of programs may be different than those which are chosen for another purpose).
- Any selection of indicators will always be value-laded. It is important to understand the background and values behind any selection process.

Suggested Approaches

For a broader approach to using indicators which might be linked to assessing the impact of programs, the following approach should be considered:

- Consultation with program and communities – why do we want to measure something.
- Start with a list of "what do we want to measure" and over what time period.
- Identify some possible indicators and their data sources.
- Prepare a draft, including proposed "who will manage this and with what financial and human resources", and how the indicators will be reported, presented, and to whom.
- Discuss the draft, revise as necessary.
- Finalize the report, update regularly as more recent data becomes available.

For a more specific approach to using indicators which might be more closely linked to the interests of individual communities, the following approach should be considered:

- Consult with communities – why do we want to measure something.
- Discuss the pros and cons of using secondary vs primary data, and the resource requirements concerning primary data collection.
- Start with a list of "what do we want to measure" and over what time period.
- Identify possible indicators and their data sources.
- Prepare a draft, including proposed "who will manage this and with what financial and human resources", and how the indicators will be reported, presented, and to whom, and what roll-ups, if any, will be performed for national reporting.
- Discuss the draft, revise as necessary.
- Finalize the report, update regularly as more recent data becomes available.

Management and Accessibility of the Indicators and the Data

There will need to be some consideration of how the data will be managed and how it will be made accessible to users. One approach will be to house the data in one or more Excel spreadsheets which are managed and maintained centrally by an organization or group of individuals. These could then be made available on an as-requested basis or on-line. Specific policies and procedures about access and use will need to be developed.

Another approach is to only make the outputs from the database available, in the form of charts and tables, or in the form of reports. This will restrict access and prevent unwarranted use or manipulate of the data.

A third approach would be to make the dataset available in an interactive on-line or software program, similar to some of the recently developed initiatives such as the Community Indicators Database. This would require significant resources. If this is a desired approach, it would likely be best to work with an existing program such as this or another one (to ensure that the data and the kinds of desired manipulation are present and available), rather than create a competing product or service.

Summary

The development of a reporting framework and the selection of indicators is not an exact science. It is a value-laden exercise which must be embedded within a larger, known purpose. This may be, for example, to assess the impact of a program and how communities are doing against program objectives and against each other. It may be, for example, to help communities assess their own progress over time against a prior state or against specific activities they may be undertaking.

A selection of indicators is also about making choices. Selecting indicators will involve discussion and debate about the types of indicators required, the specific indicators to measure what needs to be measured, how many indicators (how many indicators concerning income are required?), and the ability to collect the data.

Making effective use of indicators will require an effective reporting system that is accessible for those who are responsible for collecting the data and disseminating / sharing the information, and for those who are to use the information for a pre-defined purpose.