CRITERION 6.0

Accepting Society's Responsibility For Sustainable Development

Preamble

Local Level Indicators

6.2a Assessing the level of understanding that all parties involved in forest management planning operations have of Aboriginal issues

6.2b Extent to which Forest Management Planning Takes into Account Traditional Knowledge and Protection of Unique or Significant Aboriginal Social, Cultural or Spiritual Sites

6.3a Number of communities with stewardship or co-management responsibilities

6.4a Degree of public participation in decision making

6.4b Degree of Implementation of FMF Planning Process and BMPs by Landowners and Managers

6.5a Number and description of multi-attribute resource inventories held at the FMF

6.5b Level of technology transfer activities in the FMF

References

"Criterion 6 assesses the social dimensions of sustainable development - society's roles and responsibilities. Sustainable forest management is the responsibility not only of government and industry, but also of Canadians in general.
The relationship between Canadians and their forest resources is evolving, as are the values placed on forests and the goals set for their management. This criterion measures the degree to which the changing values and priorities of Canadians are incorporated into forest practices, programs and policies."

- CCFM (1997)

PREAMBLE

In order for sustainable development and forest management to be successful all sectors need to contribute. This means that not only do government and industry have important roles to play but equally important is the responsibility of society to participate. Working Group 6 of the FMF which is associated with Criterion 6 – Society Accepting Responsibility for Sustainable Development, undertakes such a role. The information gathered on the indicators addressed by this group comes from various sources. Some is taken directly form project which have investigated public participation, while other information has evolved from collaboration with First Nation peoples involved with the Fundy Model Forest.

An important aspect of this group is transferring information from investigative sources to those interested members of the public and receiving feedback. This has been accomplished through a number of ways which are discussed in this section.

Group 6 brings forestry issues to the public, provides a mechanism for voicing public concerns and interests, and demonstrates how we as a general society need to be involved for sustainable forest management to work.

Indicator 6.2a

Assessing The Level Of Understanding That All Parties Involved In Forest Management Planning Operations Have Of Aboriginal Issues

Management Planning Objective – To provide the opportunity for Aboriginal involvement in sustainable forest management planning in the Fundy Model Forest – The special knowledge of Aboriginal peoples of forest ecosystems may be shared and used in improving forest management practices

Justification for Selection

The cultural and spiritual connection between Aboriginal communities and forests is acknowledged. Increased cooperation between Aboriginal communities and all forest stakeholders is important to achieving the goals of sustainable forest management.

Data Sources

- Personal communication with Donna Perley and Maureen Whelan
- Group 6 Minutes and notes

Monitoring Protocol

Communications and dialogue between the FMF partners and First Nations continue through meetings, mail outs and development of new projects. A new partner to the Fundy Model Forest is Red Bank First Nation. With more outreach, there will be a greater awareness of aboriginal issues by land owner/managers in the area. Projects to disseminate this knowledge are crucial to monitoring the success of this indicator, by providing information in a format which can be easily accessed by land managers. One of these projects is a book on the traditional, medicinal and other uses of the trees and shrubs of Atlantic Canada by Mi'kmaq and Maliseet communities. Opportunities for exchange through cultural awareness workshops also provide important feedback.

Baseline Results

Three cultural exchanges have been held between the FMF partners and the Eel Ground First Nations people in New Brunswick. The first workshop "Sharing Knowledge" (Figure 43) occurred in April of 1998. This gathering helped foster a dialogue and build a better relationship between FMF partners and First Nations people. The discussion topic during this gathering was medicinal plant use by natives.

Figure 43. Sharing Knowledge workshop.

A second workshop entitled “Cultural Sensitivity and Forest Operations” (Figure 44) was held in September of 1998. FMF partners were invited to Red Bank, N.B. to learn about Aboriginal values of the forest.

A third workshop was held in the Spring of 1999 on Earth Day. FMF partners took part in a field tour of forestry programs at Eel Ground, N.B. the tour included a visit to the band’s portable sawmills, and value added furniture manufacturing facility.

Figure 44. Cultural Sensitivity and Forest Operations workshop.

Functionality and Application

With the addition of Red Bank First Nation to the FMF partnership, and the current partner Eel Ground First Nation, there is an increased opportunity for communications with First Nations people about sustainable forest management in the Fundy Model Forest with respect to the importance of native issues. This two-way communication will help increase the understanding of land owner/managers in the FMF as well as provide some information to the First Nations peoples about SFM that they may wish to incorporate in their planning.

Indicator 6.2b

Extent To Which Forest Management Planning Takes Into Account Traditional Knowledge And Protection Of Unique Or Significant Aboriginal Social, Cultural Or Spiritual Sites

Management Planning Objective - To provide the opportunity for Aboriginal involvement in sustainable forest management planning in the Fundy Model Forest

Justification for Selection

Traditional Aboriginal sites within the FMF should be incorporated into management plans where possible. The known locations of these sites will ensure they will remain undisturbed by such activities as

fibre harvest, road construction, forest stand management and other activities (Doucette, 1998). Current technology (GIS) can provide a useful tool to incorporate these sites into the management plans of the landowner/managers in the area. Although the desire is for these sites not to be made public in order to protect them from abuse or over-use, once discovered by land owners, they can be incorporated in to planning for protection. Failure to consider such sites in forest management planning could lead to site disturbance and/or loss of Aboriginal cultural data. Damage or loss of such unique sites could significantly weaken Aboriginal historic knowledge at the local scale.

Data Sources

- Burial Grounds (NB Aboriginal Society, NB Museum, Fundy National Park)
- Portage Routes (NB Aboriginal Society, NB Museum, Fundy National Park)
- Spiritual Sites (NB Aboriginal Society, NB Museum, Fundy National Park)
- Identification and management of traditional Aboriginal sites and old portage routes in the FMF (Doucette, 1998)

Monitoring Protocol

With GIS technology to create maps of culturally sensitive and/or unique sites in the FMF it is possible to adapt management plans to accommodate these sites, and also incorporate any new sites as they may be discovered.

Contact by SNB with First Nations peoples as part of a public participation exercise did not result in any current information about significant sites in the FMF area. Sharing of information is critical to avoiding disturbance of these sites, otherwise it will be only by chance that disturbance does not occur. This needs to be done in a manner respectful of the First Nations peoples' desire to protect the integrity of these sites as well as knowledge of their location.

Baseline Results

Studies have already identified gap sites containing unique vegetation and landscape features in the Fundy Model Forest. Special management guidelines, such as no operation zones or the use of low-impact forestry procedures, have been assigned to these gap sites. Aboriginal cultural sites in the Fundy Model Forest would benefit from special management guidelines to conserve their uniqueness (Doucette, 1998).

Quantitative data concerning the locations of Aboriginal cultural sites and portage routes are rare. Data were collected from the New Brunswick Archaeological Surveys and the W.F. Ganong papers preserved at the New Brunswick Museum. Historical accounts indicate that a traditional campsite was located near the village of Apohaqui where the Millstream River empties into the Kennebecasis Rivers. There is also a major portage route between the Anagance River and Kennebecasis River in the Anagance area (Ganong in Doucette, 1998).

There are presently no Aboriginal communities within the Fundy Model Forest and it is difficult to gather information. According to Chief Joe Knockwood, members of the Fort Folly First Nation near Dorchester inhabited the area now known as the Fundy Model Forest in ancestral times and they are of Mi'kmaq ancestry.

Based on Ganong's interpretation, the Mi'kmaq People would have occupied the Petitcodiac River watershed while the Maliseet People would have inhabited the Canaan River and Kennebecasis River watersheds. Boundaries of these watersheds would have formed the bulk of the territorial border between

Mi'kmaq and Maliseet territory. In the southern part of the Fundy Model Forest, it seems Ganong established the territorial boundaries by using the watershed boundaries of rivers flowing into the Bay of Fundy in relation to Martin Head. Watersheds reaching the Bay of Fundy west of Martin Head would have been in Maliseet territory while watersheds reaching the Bay of Fundy east of Martin Head would have been in Mi'kmaq territory (Figure 45).

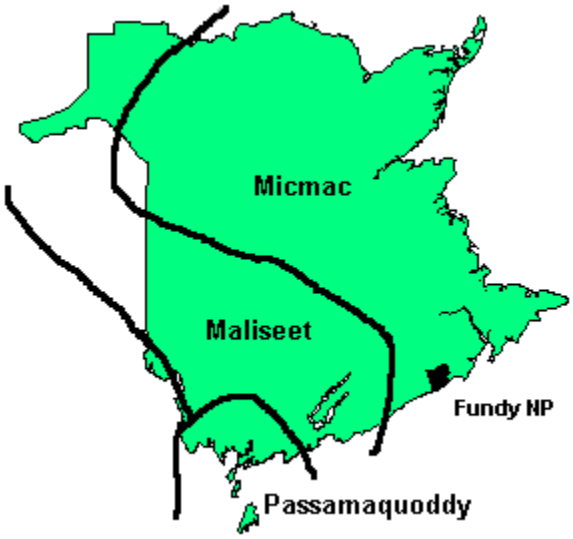

Figure 45. General distribution of Aboriginal peoples within New Brunswick c. 1700 (Davis, 1991)

According to Ms. Pat Allen and Mr. Albert Ferguson of the Archaeological Services Branch of the Provincial Department of Municipalities, Culture and Housing, the Mi'kmaq-Maliseet territory boundary would have been situated in the Sussex area.

Best Management Practices

Extra care should be taken when making land use alterations in the following areas (Doucette, 1998):

Old campsites locations…

Wherever the fresh water meets the tide with a fall or rapid
Eel pools or areas with many shell fish (coves and harbours)
Riparian areas near major navigable rivers
Intersections of large waterways
Ends of portage routes
Sand or fine graveled beaches
Proximity to groves of white birch

Functionality and Application

Through increased involvement in the FMF, a trust can be developed between the stakeholders working to achieve sustainable forest management, in particular to address issues concerning issues of safe-guarding traditional cultural sites.

This indicator can be measured through the maintenance of GIS databases and mapping once sites are identified. This information then can be used by landowner/managers in their management plans. The difficulty comes in the knowledge of location of the sites.

Indicator 6.3a

Number Of Communities With Stewardship Or Co-Management Responsibilities

Management Planning Objective – To ensure community participation in forest management planning

Justification for Selection

Approximately two-thirds of the Fundy Model Forest landbase is privately owned. This poses great challenges for landscape-level planning, monitoring, and managing. Individual landowners have the final decision-making control on their own properties, and of course views can vary tremendously. Bringing those landowners together to work towards a broader management planning strategy allows planning to approach issues of economic, social and ecological importance in a more community-based fashion. Decision-making processes that are removed from communities, or that do not consider various costs associated with community instability, do not contribute to sustainable development.

Data Sources

- Betts, M. 1998. Community Forestry in the Fundy Model Forest: Concepts and Applications. Fundy Model Forest, Sussex, 43 pp.

Monitoring Protocol – none at this time

Baseline Results

Background and Definitions

Community forestry is a form of forest management and decision making that is locally-driven, from which the primary benefits revert to the community. The three broad goals of 'community economic development', 'ecological forestry' and 'community participation' are prevalent in most descriptions of the concept (Burda *et al*. 1997, Harvey and Usher 1996, Mitchell Banks 1996, Dana 1918).

The spatial scale of community forestry depends upon the goals of a particular arrangement. If the focus is to be economic, it has been suggested that the land base should be in the range of 10,000 ha. However, high forest productivity and value added initiatives might decrease the necessary size. Ideally, community forestry should be implemented on a bioregional/ watershed basis.

The most commonly advocated political structure for community forestry is the 'multistakeholder' or 'round table' approach. Many theorists envision the representatives of many diverse groups working together to make collective 'consensus-based' decisions. A combination of elected and appointed representatives seems ideal.

There are a number of tenure arrangements which could serve as the basis for community forestry. Some of these require legislative reform, while others may fit within the existing tenure system. Four land tenure arrangements are appropriate to community forestry: community-owned land, Crown land management agreements, co-management with existing industrial licensees, and trusts. Each of these options offer varying levels of political feasibility and community control. Feasibility and control are inversely related however.

Community Forestry in the FMF

Currently there are no models of community forestry in the Fundy Model Forest. Traditionally in Canada, Crown land has been leased in large tracts over long periods of time to forest products companies (Luckert and Haley 1990). According to the *New Brunswick Crown Lands and Forests Act*, in order to qualify for a Forest Management Agreement the individual or company must own wood processing facilities (Government of New Brunswick, 1981). This potentially poses a significant barrier to the implementation of community forestry in New Brunswick. No communities in the FMF own enough land to initiate an economically viable community forest. Further, beyond basic 'public participation' exercises required as part of the Crown land management planning process, no co-management style arrangements have been created between licensees and local communities.

In some respects the Fundy Model Forest itself fits with the community forestry model. The FMF encourages local participation and efforts in sustainable forestry. However two major elements that are central to community forestry do not exist in the FMF. First, the FMF is not a 'grass roots' initiative. Research has shown that community forests initiated by local communities have the greatest chance for success and continuation (Matakala 1991). Second, the FMF has no direct control over land-use decision making. Participants are simply advisors to landowners who may or may not incorporate this advice.

Despite the fact that community forestry is not occurring in the FMF, an equivalent process does exist to some degree in the private woodlot sector. One approach that may achieve community forestry goals on private land is the co-operative forestry model. Like community forestry, co-operatives shift the emphasis of forest development from profit making to community development. Employment and quality of life become of paramount importance. Economic diversification efforts are common to many co-ops across Canada (McGillivary and Ish 1992, Fairburn *et al*. 1991, Craig 1980). Profits to the co-op are redistributed to members rather than leaving the community to pay distant shareholders. Economic benefits tend to cycle within the locality. Finally, co-operatives are by their very nature participatory.

The major difference between community forestry and co-operatives is that ultimate management authority still lies with the individual. This fundamental difference in land tenure affects other differences between the two concepts. First, community forestry requires that public input transcends the level of mere "tokenism" (Arnstein 1969). The community (or representatives of the community) has the final say on forest management decisions. Forestry co-ops, on the other hand, are not bound to solicit public input. The community acts in an "advisory" fashion.

Beginning in 2000 SNB Wood Co-op and the Greater Fundy Ecosystem Research Group began the 'Watershed-based woodlot management planning project'. The primary purpose of this project is to encourage woodlot owners at the watershed scale to plan for landscape level biodiversity objectives. This

project has the potential to fulfil several community-centered objectives: (1) It could encourage a higher level of local participation as woodlot owners might feel a higher sense of efficacy afforded by a smaller group. (2) It could facilitate conflict resolution in public participation exercises because objectives would only need to be defined for one local area instead of an entire region. (3) It could encourage the development of a local "land ethic" or sense of place that might not be possible at the regional level.

Best Management Practices

Despite the fact that no community forests exist in the FMF at the current time, there is potential for development in this area. Community forestry is a flexible concept within which a number of different locally-governed arrangements may fit. It would thus be a contradiction to suggest rigid criteria for the successful establishment of community forestry. Nevertheless, it is important that the concept of community forestry not become so flexible that it loses meaning. If a community forest is to be 'successful' it must have the mechanisms to address the three major goals of community forestry evident in the literature: community participation, sustainable forestry, and community economic development. A range of broad criteria is listed that could be applied in the Model Forest in the selection of pilot communities for the Community Forestry Project. These include:

(1) Available forested land with meaningful tenure.
(2) Community expertise and enthusiasm for forestry in general and community forestry in particular.
(3) A partnership/ lead agency which encourages broad community participation.
(4) A proposed process for ensuring fair and equitable representation of all local groups.
(5) The existence of a wide range of mechanisms to incorporate the participation of community groups and the general public.
(6) A clear mission statement.
(7) Local ecological, economic and social incentives to manage for sustainability, and a clear notion of the connection between forest health and community health.
(8) The existence of local forest knowledge.
(9) The technical advice and guidance of forestry institutions.
(10) The involvement of a broad range of community interests which might serve as 'watch dogs' over forest management.
(11) An explicit statement of forestry objectives.
(12) Meaningful revenue autonomy.
(13) The proven ability to achieve outside funding for forestry projects.
(14) Markets for both timber and non-timber products (Matakala 1991).
(15) A forest that is diverse in species, landforms, and age classes, and has relatively high productive potential.
(16) The potential and local entrepreneurial desire to diversify forest products (both consumptive and non-consumptive).
(17) The retention or recycling of funds to the forest to pay for management.

Functionality and Application

The initial attempt to foster community forestry in the FMF is through the aforementioned watershed-based planning project. This approach is continuing in one area of the FMF (Washademoak Lake watershed) and learning is on-going. Another similar project is being established in the Elgin area. Land owners are encouraged to take ownership of the process and implement strategies which will address the larger landscape-level issues by working together as a community. With the knowledge gained from these initiatives, more understanding of benefits (economic, social and ecological) to be realized from

community forestry has the potential to stimulate further interest in community participation in management planning and sustainable development.

Indicator 6.4 a

Degree Of Public Participation In Decision Making

Management Planning Objective – To ensure continued involvement of the general public and Partnership in the FMF management planning process

Justification for Selection

Measuring public participation for the purposes of reporting on sustainable development is difficult. Quantitative assessments, such as person days of participation, number of forest product companies with citizen advisory boards, and number of government sponsored public meetings, fail to reflect the real spirit behind this element- the fairness and effectiveness of decision -making processes. In this context, "fairness" is defined in terms of inclusiveness, while an "effective" decision is one that incorporates and mediates the broad spectrum of concerns on a given issue.

Data Sources

- New Brunswick Vision document for managing Crown lands
- Crown Lands and Forest Act
- SNB sustainable forest management review process
- Parks Canada management planning process

Baseline Results

The major land owners/managers in the Fundy Model Forest - Crown, Fundy National Park, SNB and J.D. Irving, Limited Freehold have various methods of decision making. (Vision Document NBDNRE-1999). The Fundy Model Forest tries to bring these groups, as well as non-governmental organizations (NGOs) under one umbrella to discuss resource management issues in the local area.

Crown

The Department of Natural Resources regularly involves the public in the ongoing development of its management objectives. For example, public hearings have been held recently to gather input regarding natural gas in the Province, and also about the establishment of a New Brunswick protected areas network. Public input is also gained through daily interaction between the public and elected government representatives. Public opinions thus expressed are evaluated as objectives for Crown land management (Vision Document NBDNRE-1999).

Government is responsible for establishing goals, objectives and standards. Crown Timber Licensees are responsible for developing management and operating plans that achieve them. These plans must be approved by the Department of Natural Resources and Energy and implementation is monitored. As part of the process, licensees are required to solicit public opinion on meeting management plan objectives. This public input is then considered in the development of operating strategies (Vision Document NBDNRE- 1999).

Fundy National Park

The park attempts to involve the public not only in making the management plan but evaluating it as well. Public consultation occurs after the scoping document and analysis options are finished, through mail and informal meetings. A more formal plan proposal is reviewed through open houses, prior to which information is sent out via news letters. Comments are recorded and are used in developing a draft management plan. The public can request these comments from the Superintendent.

Southern New Brunswick Wood Co-Operative Ltd. (SNB) - Public Participation Process

Following the SNB/SFM Planning Process Action Plan, the Public Participation (Phase I) Component was initiated by identifying broad general target audiences of local people and organizations who may be affected by or have an interest in the SNB Defined Forest Area (DFA).

a) General Public
b) Aboriginal Groups
c) Special Interest Groups

A participation and information distribution list for the "General Public" was prepared. It was initially composed of persons who had expressed an interest in SNB's SFM planning intentions. These intentions had received media attention and other publicity since December of 1995 when it was announced that SNB would be seeking to participate in the CSA certification field test. As well the list was composed of members of the SNB full Board of Directors, SNB Wood Co-operative Directors and members of SNB's Working Woodlot Program.

A prospective participation contact list for Aboriginal Groups was prepared from a list and map of Native Reserves in SNB's area. The seven native reserves within proximity of SNB's DFA boundaries were considered to hold the greatest promise of interest and activity.

The Fundy Model Forest Partnership list was received and used as the initial prospective participation contact list for Special Interest Groups.

General Public

For the General Public target audience, information packages were prepared, including the schedule of the seven local public meetings to be held throughout the SNB area. Advertisements encouraged the general public to request the SNB/SFM information package which was sent to those people on the distribution list. As well, special interest groups were encouraged to participate by contacting the SNB office.

Meetings were held and attendance records were compiled to enhance SNB's General Public Distribution list. The minutes of all meetings were distributed to all persons attending any of the meetings to ensure that they accurately reflected the discussions and input that took place. A copy of the public meeting

information package was sent to all persons who were on the distribution list, but did not attend the public meetings; encouraging them to participate individually.

Following the public meetings, advertisements were placed in the same local newspapers again, encouraging input into the SNB/SFM Process from all target audiences.

Aboriginal Groups

As previously mentioned, the first step in soliciting input from Aboriginal Groups was to establish if the First Nations within proximity of SNB's Defined Forest Area were forest users and/or were interested in participating.

A letter was sent to each First Nation chief (c.c. to council members) explaining briefly what SNB's/SFM Planning Process was about and requesting them to clarify their interest.

From this effort, it was concluded that the First Nations groups are not active within SNB's DFA at this time.

Special Interest Groups

As previously mentioned, the Fundy Model Forest Partnership list was used as the initial distribution list for input from special interest groups. A special pre-meeting information package and cover letter was prepared for special interest groups and addressed to their organizations representative. The letter specifically stated SNB's desire for their participation in the SFM Planning Process. The information package included:

- The SNB/SFM Public Participation Process information package
- SNB/SFM Commitment Statements
- CCFM Criteria and Indicators
- The draft matrix of CCFM Criteria and examples of possible suggestions for objectives, strategies and practices

It is felt that obtaining input into the process at this stage, especially in reference to CCFM values, etc., was more difficult than anticipated due to the public's unfamiliarity with the concept as a whole and the CCFM criteria specifically. However, the effort did produce significantly increased support and understanding of the concept, as well as support the development of an SFM Plan for the SNB area.

J.D. Irving, Limited Freehold Land

J.D. Irving Ltd uses the Fundy Model Forest as a sounding board for management practices on their private lands. The company deals with individual concerns from the community on an ongoing basis. The methods for dealing with concerns are unique to each situation. (personal communication, Joe Gushue October 2000).

Fundy Model Forest

The FMF is an organization that uses consensus decision making for coming to agreement on most discussions within each of it’s working groups. This consensus based approach is used to help the partners, many who are land owners, to come to an understanding on many management and stewardship issues that are related to projects that are undertaken within the umbrella of the model forest. This makes

the FMF quite unique, since a large portion of its land base is private ownership compared to other model forests. The model forest through the use of applied landowner projects can bring all stewards of the land together to discuss common landscape and stand level concerns.

Best Management Practices

Explicit BMPs pertaining to public participation are not developed, however public participation is an important part of management planning by landowner/managers in the Fundy Model Forest. Licensees are required to have public meetings regarding management of crown land, SNB includes the public in its continuing efforts towards sustainable forest management and J.D. Irving, Limited also encourages the public to be in contact with the company regarding issues of best management practice (JDI BMP manual, public document).

The Fundy Model Forest itself is a forum by which open communication involves all partners in decision-making. Public participation is an integral part of the function of the FMF. Concerning NGOs in particular, "It is clear that the contract to provide for the equitable and effective participation of the NGO Partners has had a dramatic effect on the Fundy Model Forest. It has brought the issues and concerns of the NGO Partners to the table and has heightened the public visibility of the Fundy Model Forest. Through this, the FMF Partnership has brought itself closer to the realization of its expressed goals." (New Brunswick Environmental network, 1997)

Functionality and Application

As evidenced above each of the landowner/managers has a process in place for public participation in management planning. Through the partnership of the Fundy Model Forest there is direct opportunity for public involvement, albeit a particular public associated with those partner organizations. There is some dissatisfaction expressed regarding the opportunity for the public-at-large to participate (Chouinard and Perron, 1998). This is consistent with survey results (Pettitt, 1997) which indicate generally that the public in the area is only "somewhat familiar" with the Fundy Model Forest, and that input was not given because of "unfamiliarity with the organization." Efforts to address these issues are ongoing with the Fundy Model Forest communications strategy and the work of group 6. Great strides have been made in creating a level of trust amongst participating partners of the Fundy Model Forest. This has resulted in public input becoming more effective through consideration by land managers in the area of a more varied set of values.

Indicator 6.4b

Degree of Implementation of FMF Planning Process and BMPs by Landowners and Managers

Management Planning Objective – To address concerns about implementation of strategies resulting from the scenario planning process, and BMPs into the management plans of owners and managers

Justification for selection

The FMF Partnership has expressed concern on numerous occasions regarding the implementation of strategies resulting from the management planning process, and incorporating any BMPs arising from those strategies into on-the-ground activities.

BMPs provide guidance for on-the-ground activities when beginning to manage our forest resources when we do not have advanced information on how to manage for certain values. With BMPs an initial "best" start can be planned, and future research and operational planning will fill knowledge gaps where they exist.

Data Sources

- Fundy Model Forest (Partners in Sustainable Forest Management), Dave Maclean, Peter Etheridge, Joe Pelham, and Walter Emrich 1997.
- SNB Best Management Practices manual for private woodlots
- J.D. Irving, Limited 1997-2021 Management Plan Fundy License
- Forestry Best Management Practices – JD Irving, Limited

Monitoring Protocol

In phase 1 of the FMF the partnership chose to develop a planning process through a case study approach using "what if" scenario planning on a 114, 000 ha portion of the Fundy Model Forest. The case study area was used to do treatment analysis based on public and partnership input into values and practices and the projected impact effect was modeled (MacLean *et al*, 1998). The process allowed for identification of priorities for values to be managed for as determined and refined by the partnership through workshops. Modeling provided the outcomes from various scenarios with actions on the ground, and a final choice for an FMF management planning scenario was made.

Baseline Results

Implementation of the specific planning scenario on the case study area has not yet occurred, however, a number of BMPs were generated which are now a standard part of practice by the land owner/managers in the Fundy Model Forest.
A very important achievement from this exercise was the development of an "adaptive management process" for the Fundy Model Forest (MacLean *et al*, 1998). With this process in place, any time implementation does take place and results are monitored, if changes are necessary they can be readily incorporated into the process. Although the particular scenario developed has not been implemented the adaptive management process holds true for the management plans currently being implemented by the land owner/managers in the FMF.

Best Management Practices

There are no BMPs directly associated with the monitoring of this indicator that address the issue of partners' concerns about implementation of the FMF planning process. However an important outcome of this process has been the public input component of management planning through the presentation of management plans for crown and freehold land.

Functionality and Application

This indicator is addressed through the presentation of management plans by the land owner/managers in the FMF. At these presentations the partners (and the public at large) are welcome to compare the strategies to the preferred strategy chosen by the partners and see if the values they deemed important continue to be managed for. To be truly adaptive however, this process must be a continuing part of the planning for sustainable development on the part of the FMF.

SNB has a BMP manual which it has developed for land owners who chose to follow these practices in their management strategies. J.D. Irving, Limited has also developed BMPs which they incorporate in their daily operations.

Indicator 6.5a

Number And Description Of Multi-Attribute Resource Inventories Held At The FMF

Management Planning Objective – To ensure that the public has the best and most current information available to allow for informed decision-making participation

Justification for Selection

Forest management and planning are complex tasks that require knowledge of diverse disciplines such as forestry, engineering, sociology, hydrology, ecology and economics. To make the right choices, and to

maximize the benefits of forests without compromising their ability to continue to provide these benefits, all of society must work in partnership and employ the best and most current information available. Maintaining databases in order to efficiently access and incorporate this information is essential to management planning.

Data Sources

- Service New Brunswick
- J.D Irving, Limited - Woodlands
- New Brunswick Department of Natural Resources and Energy
- Southern New Brunswick Wood Co-operative Limited
- Fundy National Park
- N.B. Museum

Baseline Results

The Geographic Information System (GIS) summary (Table 46) was obtained from various agencies and partners across the Province. It has been compiled into coverages and libraries by various GIS analysts who have worked with the FMF since its inception in 1992. This list gives our partners and the public a description of what is available for research and general interest. This spatial database is being continually updated and refined as the most current information becomes available from our partners and local provincial and municipal agencies.

Table 46. Base layers that are in the form of coverages and arc-info libraries contained in the Fundy Model Forest GIS.

Layer Name	Feature	Description	Layer Name	Feature	Description
Agriculture	Polygon	Agriculture areas from the forest inventory	Ecoregold	Polygon	Old EcoRegion Boundary
1km_grid	Polygon	1km grid squares for Southern New Brunswick	Fmfecoreg	Polygon	New EcoRegions of the FMF
Climap	Polygon	Bruce Matson' s climate/ELC Work	Fmfgd	Polygon	Fundy Model Forest Geomorphological districts
Critical	Point	Gap Sites (Judy_Loo)	fmfphoto	Polygon	Photo Center Points for the Fundy Model Forest
DWA-crown	Polygon	Crown Deer yards	fmfsoils	Polygon	Fundy model Forest Soils Association
DWA-jdi	Polygon	JDI Deer yards	fmfwatshed	Polygon	All watershed coincident with the Fundy Model Forest Boundary.
Ecodist	Polygon	Ecodistricts of South Eastern New Brunswick	fmfwmz	Polygon	Fundy Model Forest wildlife management zones
Ecomap	Polygon	Old ecodistricts of New Brunswick	Fnpdrain	Polygon	Fundy National Park major drainage systems
Fmfbnd	Polygon	Fundy Model Forest Boundary	fnpgrid	Polygon	FNP Map sheet Grid
Fmfdrain	Line	Fundy Model Forest major drainage systems	fnprd	Polygon	FNP roads with interior polygons
Fmfnumhy	Line	Fundy Model Forest numbered highways	fnptrail	Line	All roads, trails etc FNP (1999)
Fmfroads	Line	Fundy Model Forest Roads 1993	grid	Polygon	Mapsheet index of FMF
Fmfwatersheds	Polygon	Most watersheds that include the FMF.	Mch	Polygon	Mature coniferious forest habitat blocks within the FMF.
Fnp	Polygon	Fundy National Park Boundary	Nb	Polygon	NB Outline Rough
Fnprd	Line	Fundy National Park Roads 1993	Nb-old	Polygon	NB-Outline Coastline
Gaps.shp	Shape file	Gap Sites	Nb-towns	Polygon	NB Cities, JDI Nurseries and research sites
Gridnts	Polygon	NTS mapsheets for the Fundy Model Forest	Photo82	Point	Photo Center points for 1982 forest inventory
Inoperable	Polygon	Inoperable slopes > 20%.	properties	Polygon	Broad property boundaries (Crown,SNS,JDI,FNP and others).
Legalresv	Polygon	Legal Reserves	psp	Point	JDI PSP for NB
Maple	Point	Sugar Bush Area	pspsnb	Point	SNB PSP
Marten	polygon	Mature Coniferious habitat blacks for Marten.	recreation	Point	FMF recreational areas
Mills	Point	Sawmills and Puplmills in N.B.	Tourism-ply	Polygon	Tourism Polygons
Nbecopnt	Point	Ecologically significant areas within the FMF.	Tourism-pnt	Point	Tourism Locations
Nbrecpnt	Point	FMF recreational points of interest	Towns	Point	All Towns within the FMF
Newfhold	Polygon	JDI freehold boundaries within NB	Water	Polygon	All waterbodies within the FMF.
Prop.shp	Shape file	Major property ownership	Watsheds	Polygon	Watershed that include the FMF
Roads	Line	FMF Roads	Conservation	Polygon	Conservation sites
Sites_all	Polygon	Gap sites	Wmz	Polygon	NB Wildlife Management Zones
Snow	Line	Snowmobile trails	Xmas	Point	Christmas Tree Farms
Soils	Polygon	Soils of SE New Brunswick	Water2	Polygon	Waterbody polygons in and outside the FMF.
Streams	Line	FMF stream lines	Towns2	Point	More towns within the FMF.
Buf	Polygon	30 m buffers on SNB within FMF.	Aboriginal	Point	Aboriginal sites
X-mas	Points	Xmas tree farms in the FMF.	Soil_unit	Polygon	Soils of S-N.B.
Coast	Line	Coastline from FNP to Martinhead	Newreg	Polygon	New Ecoregion of NB (with Ecodistricts modified.
Coast15	Polygon	Coastline from FNP to Martinhead with 15 KM Buffer.	Fmforest93.shp	Polygon	1993 forest inventory updated to 1996 with VCT and FCG assigned
Du	Point	Ducks Unlimited Areas.	Historic	Point	Historic sites
Ecodist1	Polygon	Eco-disticts FMF	Historic.shp	Point	As above
Ecodistold	Polygon	Old Ecodistrict Boundaries	Nondescribed	Point	Non-descriped/ Un-named historic sites
Ecogrid	Polygon	Ecoregion by mapsheet for Southeastern New Brunswick	Nondescribed.shp	Point	As above
EcoMix	Polygon	All Mixed wood stands (1982 inventory) by ecoregion	Region.txt	Point	Annotation layer for Counties and Cities.
Ecoreg	Polygon	Ecoregions of south eastern New Brunswick	Regiontxt.shp	shape	As Above
Ecoreg1	Polygon	Eco-Regions in FMF Area.	Forest97	Polygon	NBDNRE 1993 inventory updated to 1997
Roads97	Line	Road centerlines including logging roads	Dslope	Polygon	Steep slope polygons (0-10%,10-20%,20-30%)
Streams97	Line	Stream Centerlines	Dem	Point	NBGIC Elevation data
Line97	Line	Combination of Roads and streams	Sitequal	Polygon	Site Quality based on ELC (A,B,C)

Functionality and Application

This indicator is very functional and monitoring is on-going. As new information becomes available either through knowledge gained from project work or acquisition from other sources, it is added to the GIS database of the FMF. Therefore it can be readily used in management planning decisions by the land owner/managers in the area. The technology allows for easy transfer of this information to the systems of J.D. Irving and SNB, and also provides for quick map production for individual land owners. Implementation based on any information thus transferred is still at the discretion of those owner/managers.

Indicator 6.5b

Level Of Technology Transfer Activities In The FMF

Management Planning Objective – To ensure that the public has the best and most current information available to allow for informed decision-making participation

Justification for selection

One of the goals of the FMF is to promote the dissemination of the results and knowledge gained through research at the local, national and international levels. It is hoped that much of the research done will be applied to 'on- the- ground' forest practices and in management planning processes.

Data Sources

- Minutes from Group 6 meetings
- Web page database
- Conferences
- Workshops

Baseline Results

Fundy Model Forest Web Page

One of the goals of the Fundy Model Forest web page is to provide a distribution center for the research being done within the FMF. The web page (Figure 46) allows us to reach out to a much wider audience and share information about the model forest concept. It also gives the public an opportunity to keep up to date (Figure 47) on projects, upcoming tours, workshops and meetings.

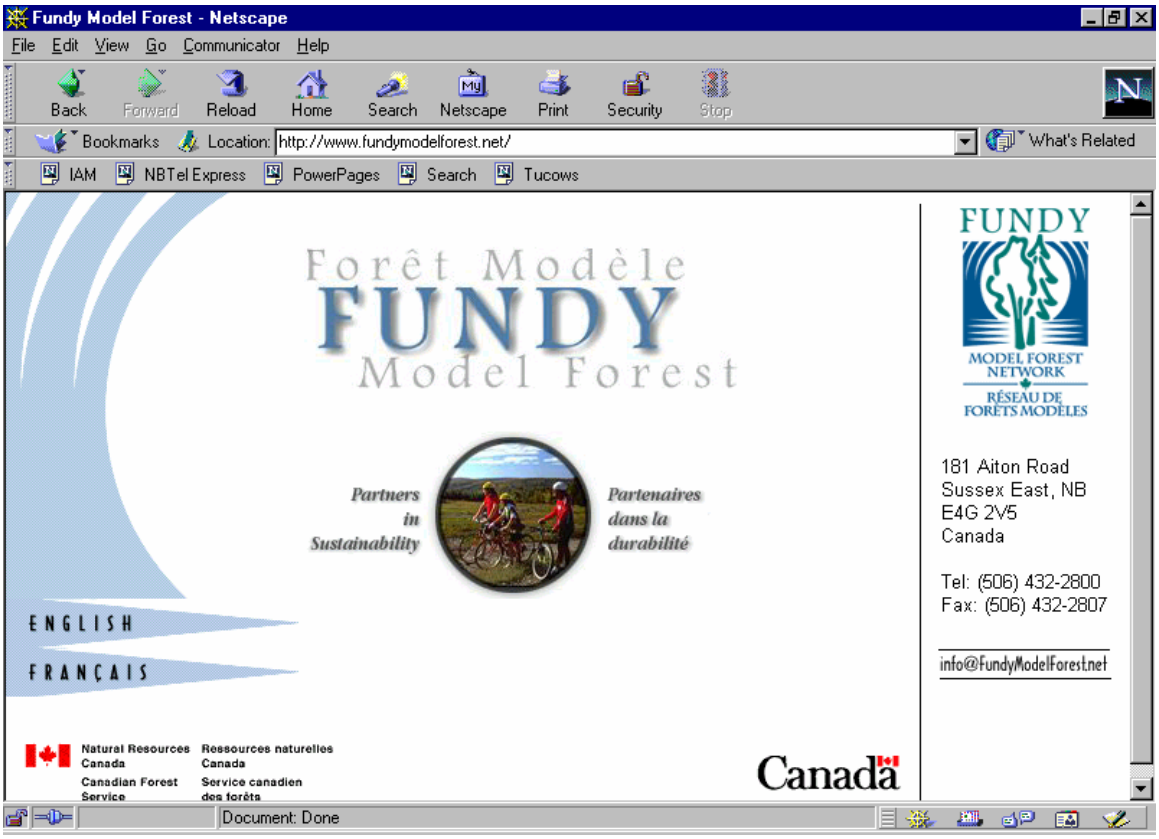

Figure 46. The home page of the FMF website

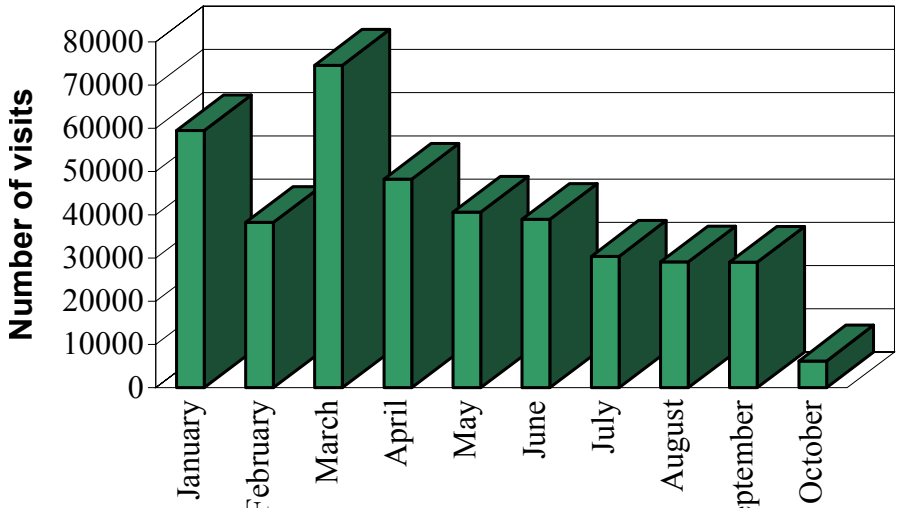

Figure 47. Number of visitors to FMF webpage (2000).

Nova Forest Alliance

Figure 48. Location of Nova Forest Alliance.

The Nova Forest Alliance (NFA), located in central Nova Scotia (Figure 48) has played a unique role in the Canadian Model Forest Network. The NFA as an adjunct of the FMF was developed as a site to test the accelerated development of a working partnership by building directly on the experiences of an existing model forest. More specifically, knowledge gained from the Hayward Brook Watershed Study in the FMF is now being transferred and implemented in the Pockwock Watershed in Nova Scotia. In Phase III of the Model Forest Program in Canada, NFA has model forest status in its own right.

The NFA works closely with the Fundy Model Forest to share information and technology transfer in areas of common concern.

Newsletters, Brochures, Posters, Compendium

Since 1992, the FMF as developed a large array of communications products. These products have been distributed to decision and policy makers, community leaders, educational institutions, all levels of government, special interest groups, landowners, media, the FMF Partnership and the general public.

Communication products have included a newsletter (Horizons) which has been published since 1992. This newsletter is distributed throughout the partnership and is meant to inform the general public about ongoing activities at the model forest.

A number of brochures have also been produced over the years, including a general FMF brochure, interpretive brochures (Robinson Conservation project, hiking and road trails in the FMF) and technical brochures (fragmentation, socio-economic database). A number of technical notes have been produced which detail on-going research activity in FMF.

The Greater Fundy Ecosystem Group (GFE) has produced, in collaboration with FMF, a set of forest management guidelines to protect native biodiversity in FMF.

A number of posters have also been produced highlighting the many research projects in FMF. A set of 4 FMF posters was created in Phase 2. These posters highlight three important aspects of the FMF: cooperation, implementation and education. Other posters have included research results at Hayward Brook, criteria and indicators in the FMF, future land use in the FMF, socio-economic database, public participation and management planning in the FMF.

Global Forester—Curriculum kits

Global Forester, a teaching kit for elementary school teachers, was produced by two area school teachers in collaboration with the FMF and released in the winter of 1997. This teaching kit is targeted at grades kindergarten to 5. The global forester curriculum kit is a thematic language arts unit designed to support classroom teachers. Each kit contains lesson plans, activity sheets, information packets on the FMF and the model forest network and resources on forestry available for teachers.

Teachers In-service

Since 1998, the FMF has offered in-service workshops for elementary teachers in districts 4 and 6 (Figure 49). This activity is usually held at the beginning of the school year and has been offered in 1998, 1999 and 2000. The In-service day includes, information about the FMF, the model forest network, tours, discussions, distribution of Global Forester curriculum kits, surveys and invited speakers.

Over the years, the in-service has attracted visitors from the Lake Abitibi Model Forest and the Chiloe International Model Forest and has been expanded to include other school districts in southern N.B.

Figure 49. Teacher In-service workshop with teachers from school districts 4 and 6.

This activity has proven to be a worthwhile effort in disseminating sustainable forest management knowledge gained at local, regional and national levels.

Multimedia and video

Multimedia and video have been important parts of the technology transfer efforts of the FMF.

In 1997, a CD-Rom was produced to showcase phase 1. A compendium summarizing over 100 projects accompanied this CD-Rom. This CD has been distributed throughout Canada.

A video "Forestry Best Management Practices and Water Quality" was produced in 1997. Developed by the Water and Soil committee (Group 3), this 30-minute video provides practical advice on how to incorporate Best Management Practices into every day forestry operations. This video has proven to be the most requested communications tool in the FMF. It has been distributed to universities and colleges, government agencies and private contractors.

Three other CD-Roms have been produced by the FMF. They are: Sustainable Forest Management: Decision-making Tools for Land Managers; Caribou Plain Trail, an educational CD based on the trail in Fundy National Park; and Detection and Recognition of Forest Pests –Tool for Land Owners.

A television commercial of the FMF aired in 2000 in both French and English.

Conferences, Workshops, and Courses

FMF has hosted and organized a number of workshops, conferences and lecture series since 1992. Topics have included, water quality, spruce budworm, forest certification, and remote sensing. The model forest has supported many courses related to woodlot owner education in partnership with the Southern New Brunswick Wood Co-op.

Tours

Tours have always been, and continue to be one the most effective methods to communicate the FMF message. Over the years, FMF has hosted a very large number of tours ranging from local citizens, to educational institutions, to elected officials, to international delegations (Figure 50). Tours have been provided at model woodlots, at the Hayward Brook Watershed Study Area, to FNP, to sawmills and to private woodlots.

Figure 50. A tour group in the Fundy Model Forest

Some examples of tour participants which FMF has hosted have been: a Malaysian delegation in 1993; the Canadian Model Forest Network and International Model Forest Network in 1994 and 1999; foresters from China in 1995; the Chiloe Model Forest in 1998; and the Minister of Natural Resources and Energy in 2000.

Model Woodlots

The purpose of the Model Woodlots is to provide the public and small private landowners with the opportunity to witness the practice of environmentally sound multiple use land management. There are four model woodlots within the Fundy Model Forest; McCrea, Mcleod, Boles-Hardie, and the Whaelghinbran woodlots.

Christmas Cards

Students from the local elementary schools were asked to produce Christmas cards for the model forest on the topic " What the forest means to me". These cards have been sent to partners, Canadian Model Forests and International Model Forests. Each card is signed by the staff of the model forest and it's creator. The FMF has been an innovator in this endeavor and has led other model forests to adopt this tradition at Christmas.

Functionality and Application

Communication will ensure that information is available to those who can most readily use it, but also to those who take an interest and have a desire for greater input into management planning. Through activities like those presented above the Fundy Model Forest seeks to provide the public with as much information as possible to keep people informed but also to encourage their participation in sustainable forest management in their local area. As partners of the FMF land owner/managers are part of the public relations activities that take place and therefore open to interaction with the public at these events. Opportunities for input by the public are important to the landowners as part of their management planning requirements but also as a feedback mechanism. The FMF provides a forum for feedback, input and communication between partners and the public at large.

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