

Applying the Adaptive Management Framework to the Human Well-being Aspects of the Bella Coola Community Forest

A Pilot Project Sponsored by the
Ecosystem Based Management Working Group

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Disclaimer

This report was commissioned by the Ecosystem-Based Management Working Group (EBM WG) to provide information to support full implementation of EBM. The conclusions and recommendations in this report are exclusively the authors', and may not reflect the values and opinions of EBM WG members.

Executive Summary

Adaptive Management (AM) is an integral component of the Ecosystem Based Management (EBM) regime being applied to the Central and North Coast region. EBM aims to preserve ecological function *and* improve human wellbeing and as the details of EBM are unfolding, so is the framework and institutional design of AM. An Adaptive Management Framework (AMF) is being developed by the EBM Working Group with the aid of consultants Stephen Tyler, Dave Daust, Cristina Soto, Richard Overstall and Karen Price. With the AMF near completion, the EBM Working Group is interested in evaluating its application and the Bella Coola Community Forest presents an opportunity to apply the AMF to the Human Wellbeing (HW) side of the EBM concept.

The EBM Working Group sponsored this pilot to:

- learn from the application of the AMF,
- review the links to community Human Well-being baseline information (Sheltair, 2008),
- report on strategies that may mitigate the challenges identified in the Economic Development Initiatives report (Pierce Lefebvre, 2008) and
- describe how the intent of the Legal EBM Land Use Objectives can be met.

Bella Coola Community Forest

In 2007, after many years of lobbying, a Probationary Community Forest Agreement (PCFA) was awarded to the Bella Coola Resource Society, thus enabling the community to become the stewards of the forest on which it depends. The PCFA has an Annual Allowable Cut (AAC) of 30,000 m³ per year and the licensed lands include much of the Bella Coola valley, its tributary watersheds and lands further out the inlet to the west (see Fig 1).

The organizational structure of the community forest initiative has been designed to enable broad participation and to entrench community values while recognizing the necessity of sound business practices for the initiative to be economically sustainable. The PCFA tenure is held by the volunteer, non-profit Bella Coola Resource Society. Management and day to day business of the tenure is by contractual arrangement with the Bella Coola Community Forest Ltd, which is made up of local investors. All work is done by contractors. A volunteer Community Advisory Committee also provides input to the BCCFL and BCRS on forest management matters.

Through these organizations the vision and mission of the Community Forest has been articulated and management objectives have been defined by public process to reflect the values of the community.

Adaptive Management to Enhance Human Wellbeing

For this pilot project, the AM steps identified in the Practitioners Guide were to be applied to the Human Well-being aspects of the Bella Coola Community Forest:

- **Pre-requisites to Adaptive Management**
 1. Collaboration
 2. Legal Feasibility

- **Adaptive Management Steps**
 1. Set Objectives
 2. Gather and Assess Knowledge
 3. Design Management Strategies
 4. Design Research & Monitoring
 5. Implement Strategies
 6. Conduct Research & Monitoring
 7. Learn & Adjust

Community Forest Human Wellbeing Objectives

The successful realization of the human wellbeing component of the Community Forest vision rests on three key strategic areas:

1. Utilize the forest land to its optimal potential for a broad range of economic benefits within the sustainable capacity of a healthy environment.
2. Contribute to enhancement of the local economy.
3. Maintain and enhance the quality of life of all residents.

Management objectives have been grouped into these three strategic areas. In total, the Community Forest has set 33 Objectives related to human wellbeing and each of these has associated implementation strategies and indicators of achievement (See Appendix A).

Community Forest Indicators with Greatest Relevance to Human Wellbeing

Based on the work done by Sheltair and Rubus EcoScience Alliance on indicators, the most relevant Community Forest indicators are:

- Actual harvest volume by year
- Number of full time equivalent jobs, % local capture and as per m³ harvested.
- Worker income
- Volume of logs sold locally
- Number of various natural resource tenures, guide outfitters, mineral exploration, & power generation on Community Forest.
- Training implemented by Community Forest
- # of maintained recreation sites & km of trails maintained
- Equity investment
- # cultural heritage sites protected
- # of new archaeological or traditional use studies

Priorities for Adaptive Management Projects

The AMF includes a Project Prioritization Procedure and it was used to evaluate which objectives and indicators have the highest priority for application of AM. There are four categories of priority.

- Planning Priority** – 6 Community Forest indicators identified (see Table 4).
Implementation Monitoring Priority – 8 Community Forest indicators identified.
Validation Monitoring Priority – 11 Community Forest Objectives identified

Effectiveness Monitoring Priority – 1 Community Forest Objective identified.

Checklist Summary

The AMF includes a checklist summary for evaluating potential success of implementing AM. The main weaknesses for the Community Forest in successfully implementing AM are:

- **Setting Objectives** – targets have only been specified for very few objectives (harvest the AAC) and trade-offs between objectives have not been addressed.
- **Designing Management Strategies** – trade-offs between strategies have not been addressed.
- **Implementation Strategies** – training is required
- **Research & Monitoring** – sampling and analysis needs are not well understood.
- **Learn & Adjust** – there are no protocols between organizations to inform managers about potentially important results.

Evaluation of Application of Adaptive Management

The trial application of the AM process, as described in the AM Guidebook, to the human wellbeing aspects of the Bella Coola Community Forest revealed the following observations and findings:

1. The AM Framework developed for the Central and North Coast is methodical and comprehensive.
2. Application of the AM Framework can be expected to identify issues that require new or better information, prioritize issues to focus on and produce strategies that will address the issues in a systematic and collaborative manner.
3. The broad application of the AMF requires an institutional structure/organization devoted to its implementation. EBM is all-encompassing and crosses many jurisdictions, planning scales and sectors and it is too broad for any one sector or local organization to undertake.
4. EBM is an elaborate system which does not lend itself to application by small business. Individual organizations will likely only apply the AMF for very specific issues, through development of a targeted AM Plan.
5. The Community Forest is a unique institution as it has very broad social, economic and environmental goals that reflect the values of the community; and as such, it is one of few private organizations appropriately-structured to potentially apply the AMF at the local level.
6. The framework utilized for forest certification (Forest Stewardship Council, Sustainable Forest Initiative) may provide opportunity for incorporating AMF tracking.
7. The HW indicators recommended by Rubus and Sheltair, generally depend on government data which is too coarse for application at the local business level.

Most HW indicators at the local business level need to be tracked by the business entity itself.

8. Implementation of AMF will require training for practitioners. There are a number of complex documents and procedures to understand. The Prioritization Procedure is especially tricky to work through.
9. Given the comprehensiveness of the AMF, it is not clear whether it is a component of planning or whether the AMF procedures are the planning?
10. The AMF itself should be subject to Adaptive Management as well, so that it can evolve in response to planning and operational needs.

Limitations facing the Community Forest to Deliver Economic Development

Pierce Lefebvre identified the forestry as an industry facing difficulties in this region. The main constraints are:

- Access to resources in viable operating areas.
- Costs and competitiveness
- Planning process requirements
- Access to markets and market knowledge
- Need for longer term or renewable tenures
- Access to capital
- Social Issues, capacity and training.

These constraints apply to the Community Forest by varying degrees and there are additional local issues of concern affecting the Community Forest:

- Small volume licence
- Timber profile
- Stumpage

The report describes these issues more fully and identifies initial set of strategies to address them.

Achieving the Intent of the Legal EBM Orders

The South Central and North Coast Land Use Orders do not apply to the Community Forest; however, there is interest in having the Community Forest apply EBM principles and evaluating how it measures up to the intent of the Orders. The Human Wellbeing aspects of the Legal EBM Orders are captured in Objectives 2-7 and they only relate to First Nations values. It is believed nonetheless, that all of them are captured in the Community Forest's objectives and strategies.

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1 INTRODUCTION

Adaptive Management (AM) is an integral component of the Ecosystem Based Management (EBM) regime being applied to the Central and North Coast region. EBM aims to preserve ecological function and improve human wellbeing and as the details of EBM are unfolding, so is the framework and institutional design of AM. With the AM Framework near completion, the EBM Working Group is interested in evaluating its application and the Bella Coola Community Forest presents an opportunity to apply the AM Framework to the Human Wellbeing (HW) side of the EBM concept.

1.1 Pilot Project Objectives

The EBM Working Group is sponsoring this pilot to demonstrate the application of Adaptive Management Framework to the Human Well-being aspects of the Bella Coola community forest. The pilot will learn from the Bella Coola community forest management model, report on strategies to mitigate challenges identified in the Economic Development Initiatives (Pierce Lefebvre, 2008) and review the links to community Human Well-being baseline information (Sheltair, 2008).

Specifically, the project objectives are:

1. Frame the pilot project to report into the AMF and on how AM is applied.
2. Develop strategies to address known and expressed limitations.
3. Monitor strategies identified under Objective 2 and provide feedback.
4. Identify how the pilot can achieve the intent of the legal order.

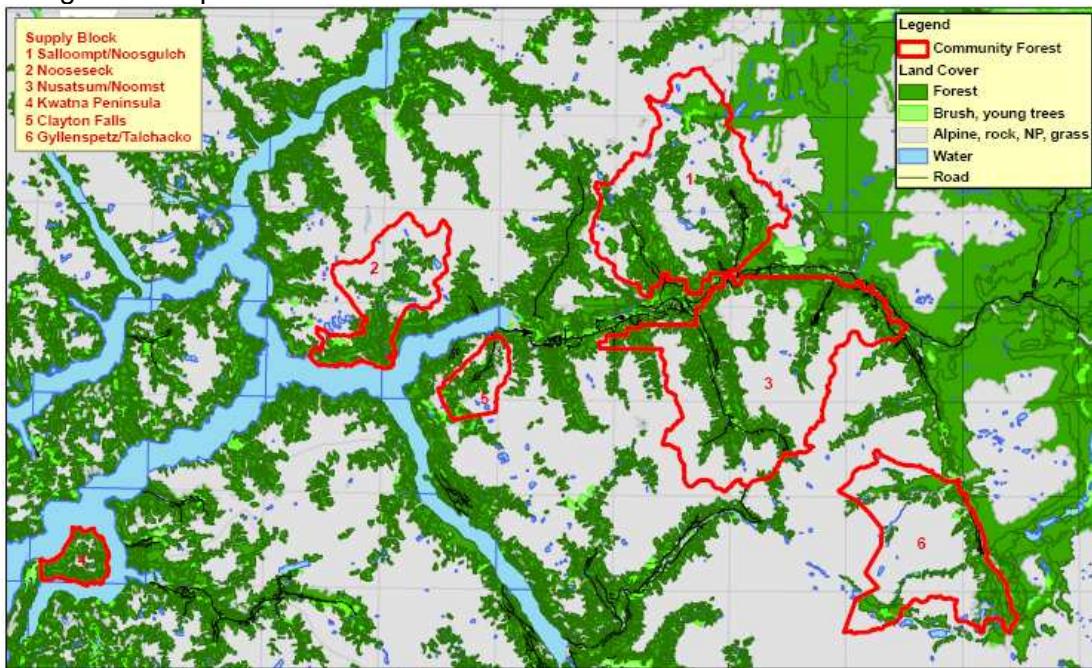
During the course of the Pilot Project, the AMF was evolving with more detailed information and procedures being delivered over time to the EBM Working Group. In response to this, the Pilot Project was changed to include a trial application of the *Adaptive Management Guidebook for the Central and North Coast* and the *Guide to Using the Adaptive Management Knowledge Summary and Prioritization Procedure for the Central and North Coast* (Daust, Tyler, Price, 2008).

1.2 Bella Coola Community Forest

Bella Coola's sustainability is inextricably tied to the sustainability of the spectacular natural environment surrounding the community. Accordingly, it has been a long-standing community goal to gain greater certainty over its destiny by directly managing the resources on which it depends. In 2007, after many years of lobbying, a Probationary Community Forest Agreement (PCFA) was awarded to the Bella Coola Resource Society, thus enabling the community to become the stewards of the forest on which it depends.

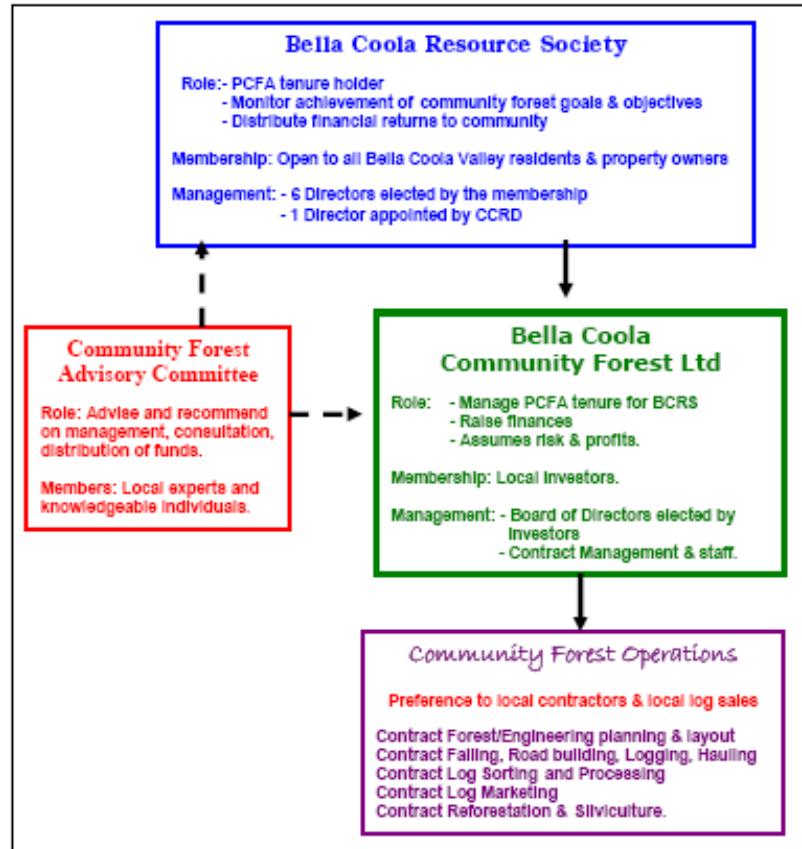
The PCFA has an Annual Allowable Cut (AAC) of 30,000 m³ per year and the licensed lands include much of the Bella Coola valley, its tributary watersheds and lands further out the inlet to the west (see Fig 1).

Figure 1. Map of the Bella Coola PCFA.



The organizational structure of the community forest initiative has been designed to enable broad participation and to entrench community values while recognizing the necessity of sound business practices for the initiative to be sustainable.

Figure 2. Organizational structure of the community forest initiative.



1.2.1 Role of Bella Coola Resource Society

The Bella Coola Resource Society was formed to pursue and acquire the PCFA on behalf of the community and as such, it is the license holder. Membership in the BCRS is open to residents or property holders in the valley for a nominal fee of \$5 thus making it easy for anyone to join the initiative. Members elect the Board of Directors. Once the community forest is up and running, the role of the BCRS will be to periodically (annually) review the performance of the community forest in terms of meeting the broad goals and objectives and to ensure contractual obligations with Bella Coola Community Forest Ltd are met.

As holder of the PCFA tenure, BCRS will be entitled to a share of profits, amounting to 15% of dividend distributions. These profits are available for the BCRS to donate to community interests, projects and organizations.

1.2.2 Role of Bella Coola Community Forest Ltd

Commercial forestry requires considerable financial resources and there are significant financial, environmental and safety risks; therefore, the BCRS determined that a professionally managed, community-based corporation be established to manage and run the community forest. As a result, Bella Coola Community Forest Ltd (BCCFL) was formed. Accordingly, the BCCFL is the main entity operating and conducting the day to day management of the tenure. Under a Management Agreement contract with the BCRS, the company's role is to conduct the business of the community forest by carrying out planning, harvesting operations, financial matters and other activities related to running the community forest. It also assumes all the risk associated with the initiative.

BCCFL is a local company, made up of investors that reside in or have property in the Bella Coola area. In total \$263,000 was invested by locals as seed capital to enable company start up. The company is operated by a Board of Directors in accordance with the Management Agreement contract with the BCRS. Six Directors are elected by the shareholders and one Director is appointed by the BCRS.

1.2.3 Role of the Community Forest Advisory Committee

Given the multitude of resource values and community concerns regarding use of surrounding forests, management is complex and can be controversial. Therefore, a Community Forest Advisory Committee, made up of knowledgeable local individuals and experts, is being formed to help advise BCCF Ltd and the BCRS on issues of concern. The scope of the CFAC is to review and advise on matters of resource management, not the day to day business matters of BCCF Ltd.

1.2.4 Vision and Mission

The Vision for the Bella Coola Community Forest, as expressed by the BCFS:

Vision Statement

The Community Forest contributes significantly to achieving a self reliant and sustainable community through a locally controlled, financially sound and responsible community forest business that operates within the sustainable capacity of a healthy environment to enhance the quality of life for all valley residents.

The Mission of the community forest, as expressed by the BCCFL:

Mission Statement

The Bella Coola Community Forest Company will manage the Probationary Community Forest Agreement on behalf of the Bella Coola Resource Society to generate an attractive return for the investors and the Society. Community benefits will be achieved through economic development, employment, access to timber resources and opportunities for people to enjoy the use of the area. Operations will be designed and conducted safely in a manner that assures environmental sustainability and respect for multiple-use.

1.2.5 Reporting Achievement of the Community Forest

Given that the Community Forest is an initiative driven by the community, there is an expectation that the performance of the Community Forest in achieving the intended benefits be reported to the residents. This will be done through the following processes:

1. To shareholders of the BCFS and BCCFL at the Annual General Meetings
2. To the Community Forest Advisory Committee
3. To the public through local newspaper articles
4. Distribution of newsletters
5. Tenure renewal review at the end of the Probationary period

Currently, the only formally designated performance measures relate to the reporting requirements associated with tenure extension at the end of the 'probationary' period. These performance measures are specified in the Forest Management Plan and they are basically a list of achievements to be completed during the probationary period. Examples include approval a Forest Stewardship Plan and establishment of the Advisory Committee. However, there are a few measures that relate to Human Well-being that can be modified as indicators:

- Harvest full AAC
- Distribute surplus revenue to community & shareholders
- Establish communication/consultation program
- Formalize management & education program with School District

In reporting to the community, there is an expectation that the following indicators, related to Human Well-being, be tracked and reported on:

- Annual harvest
- Volume sold locally
- MD employment – total and local
- Dollars spent locally
- Funds allocated to community (profit share)
- Community communications
- Km of roads available for recreation access
- Recreation site development and maintenance
- Number of archaeological assessments
- Training initiatives

1.3 Adaptive Management to Enhance Human Wellbeing

This pilot project is an application of the draft Adaptive Management Framework and the accompanying draft Practitioners Guide developed by Stephen Tyler, Dave Daust, Cristina Soto and Richard Overstall.

Tyler *et al* explain in the AM Framework that key components of adaptive management for Human Well-being still require development.

There are fewer and less clearly defined objectives and strategies, less data available for key variables no synthesis of cause-effect relationships to guide development of strategies ... Information can be summarized from relevant fields in the social science literature, however given the nature of social systems, experts tend to be less conclusive in terms of identifying cause and effect. Even when cause-effect relationships are well understood, it is hard to apply them to human behaviour because while there may be statistically valid relationships over a large group or a long time frame, individuals or groups are able to make choices and defy the averages. As a result, the predictive powers of social science are relatively low.

This does not mean that HWB requires a completely different process. The main principles of clarifying knowledge to design strategies and monitor actions are the same. But the value of experimentation or hypothesis testing is limited in the case of HWB because conclusions have lower predictive value in new situations. There is still an important role for AM in monitoring implementation and in generating and sharing knowledge about how different strategies perform, relative to their intended effects. AM also emphasizes the importance of using broader evidence and accumulated knowledge to guide strategies or explain outcomes.

For this pilot project, the AM steps identified in the Practitioners Guide will be applied to the Human Well-being aspects of the Bella Coola Community Forest:

- **Pre-requisites For Adaptive Management**
 3. Collaboration
 4. Legal Feasibility

- **Adaptive Management Steps**
 8. Set Objectives
 9. Gather and Assess Knowledge
 10. Design Management Strategies
 11. Design Research & Monitoring
 12. Implement Strategies
 13. Conduct Research & Monitoring
 14. Learn & Adjust

Incorporation of Other EBM Working Group Initiatives

This pilot project will incorporate and build on work already completed by the EBM Working Group. Specifically, the findings and recommendations of the following reports will be reviewed in the context of their applicability to the Community Forest initiative:

- **Inventory of Economic Development Initiatives in the BC Central & North Coast Region.** Pierce Lefebvre Consulting, May 31, 2007.
This report identifies issues and constraints facing the forest industry and the challenges of operating a business in this remote area. The report will help inform the development of strategies to address the key obstacles.
- **Indicators of Human Well-Being for the Central & North Coast: Review and Recommendations for Schedules C & G.** Rubus EcoScience Alliance, August 20, 2007.
This report provides a list of recommended indicators and their applicability to the Community Forest will be evaluated.
- **Ecosystem Based Management Human Well Being Indicators: 2006 Baseline Report – Revised Draft.** Sheltair Group, September, 2007.
This report documents the methodology for measuring human well being, establishes a baseline for pertinent indicators and recommends how to set targets for these indicators.

2 PRE-REQUISITES FOR ADAPTIVE MANAGEMENT

The AM Framework calls for involvement of stakeholders and legal and institutional arrangements that are responsive to new knowledge and enable implementation of innovative strategies.

2.1 Collaboration

The Bella Coola community forest is a grass roots, 'bottom up' initiative with broad support and participation from a wide spectrum of local people and organizations. As the group tasked to spearhead the effort to acquire community forest tenure, the BCRS itself is indicative of the level of community awareness, involvement and support there is for the initiative. Throughout its existence, the BCRS has taken direct steps to inform, consult and acquire direction from the Nuxalk Nation, the local public and other

community organizations regarding the establishment and management of the community forest.

In pursuing its mandate, the BCRS has been careful to uphold the community's expectations of an open, inclusive and collaborative process. Therefore, membership is open to residents and property owners and Directors are elected from the members. The Society membership consists of over 85 individuals which is a significant number, given the valley's small population. Members come from all walks of life and the Directors also represent a cross section of the population.

The support for this initiative is further demonstrated by the contributions made by the community and other organizations:

- \$13,800 was raised after one public fund raising meeting where 68 individuals contributed \$200 installments to the initiative.
- The local citizens group 'Voice of Mid Coast Communities' has transferred all of its funds towards this initiative.
- The local Professional Foresters committee transferred all of its funds towards this initiative.

The formation of the BCCFL not only required public support, it needed the public to provide start-up financing. The fact that over \$250,000 was raised from local residents and property owners for this purpose is a remarkable demonstration of local support and commitment to the initiative. Thus, BCRS' and BCCFL's existence demonstrates the high level of community awareness, support and collaboration surrounding the community forest initiative.

Furthermore, the Community Forest is working with government and non-local entities, as demonstrated by its participation in this project with the EBM Working Group. Therefore, the collaborative prerequisite of AM as developed by the EBM Working Group is met.

2.2 Legal Feasibility

If the legal framework is not responsive to the outcomes of AM, then AM will not be successful. The human wellbeing related objectives of the Province's community forest program

(<http://www.for.gov.bc.ca/hth/community/objectives.htm>) are to:

- Provide long-term opportunities for achieving a range of community objectives, values and priorities
- Diversify the use of and benefits derived from the community forest area
- Provide social and economic benefits to BC
- Promote community involvement and participation
- Promote communication and strengthen relationships between Aboriginal and non-Aboriginal communities and persons
- Advocate forest worker safety.

Community forests are a new type of tenure and the regulations surrounding their implementation are still in a state of evolution. This creates an environment of

flexibility and opportunity for positive change if and when needed. Accordingly, there is an optimistic view that the legal framework will be responsive to AM efforts to improve human well being under the community forest model.

That said, there are some government policies (identified in section 5) that can enhance the community forests ability to improve the local human well being condition if they are adjusted as proposed.

3 ADAPTIVE MANAGEMENT STEPS

In applying the AM Steps to the Bella Coola Community Forest, the objectives of the Community Forest related to HW, as developed by the community driven process, are reviewed, in conjunction with the indicators of HW as recommended by Rubus EcoScience Alliance, 2007 and refined by the Sheltair (draft, 2008) study.

3.1 *Community Forest Human Wellbeing Objectives*

The Human Well-being related objectives of the Bella Coola Community Forest were developed in support of the PCFA tenure application through a series of public information sessions and meetings with stakeholders.

In total, 42 goals and objectives were defined to achieve the human well being component of the *vision* reproduced above. Furthermore, there are 46 human well being-related objectives for various resource values, like timber, scenery, non-timber forest products, tourism, recreation, range and culture. Some of these objectives are actually strategies and to facilitate efficient application of the AM framework, the goals and objectives have been refined to the following set.

The successful realization of the human well being component of the Community Forest vision rests on three key strategic goals:

4. **Utilize the forest land to its optimal potential for a broad range of economic benefits within the sustainable capacity of a healthy environment.**
5. **Contribute to enhancement of the local economy.**
6. **Maintain and enhance the quality of life of all residents.**

The objectives have been grouped into these three strategic areas. Objectives have outcomes, or indicators of achievement and the delivery of these outcomes will be accomplished by carrying out the respective strategies.

Strategy Area 1 – Utilizing the forest land to its optimal potential for a broad range of economic benefits within the sustainable capacity of a healthy environment.

Outcome: *Community Forest is viewed by local residents, First Nations and government to be harvesting an appropriate amount of timber and opportunities for other economic activities are maintained or enhanced.*

Objectives

Timber:

1. Establish an annual rate of harvest consistent with forest productivity, inventory, environmental protection, forest health, non-timber resource interests and optimal timber flow.
2. Harvest this AAC on a regular basis.
3. Enhance sustainable timber harvesting opportunities through improved management, site restoration, better inventories, tighter utilization and use of new technologies.

Non-timber Forest Products:

4. Maintain and enhance opportunities to harvest non-timber forest products (NTFP).
5. Integrate NTFP opportunities in forest development and access management planning.

Water:

6. Maintain water quality, quantity and timing of flows within natural range of variability to support licenced water use and hydro electric generation.

Tourism:

7. Maintain visual resource values & aesthetic quality in important scenic areas.
8. Protect important tourism features.
9. Integrate tourism interests in access management planning.
10. Accommodate and encourage maintenance of existing recreation trails and facilities and establishment of new sites.

Guide Outfitting & Trapping:

11. Maintain opportunities for guide outfitting and trapping.
12. Integrate guide outfitting and trapping interests in forest development and access management planning.

Energy, Subsurface Minerals or Aggregates:

13. Support efforts to explore and develop energy, aggregate and mineral resources.
14. Incorporate energy, subsurface and aggregate resource interests into access management plans.

Cattle Ranging:

15. Maintain and support opportunities for cattle range.
16. Minimize damage to young plantations from cattle.
17. Incorporate cattle range interests in forest development plans and access management plans.

Strategy Area 2 – Contribute to Enhancement of Local Economy

Outcome: *Community Forest is viewed by shareholders, BCRS and residents to be positively influencing the local economy to the greatest extent practicable.*

Objectives

18. Generate a fair and attractive rate of return for investors and BCRS.
19. Maintain and enhance opportunities for viable, diversified and profitable local businesses in the timber and non-timber harvest sectors.
20. Create employment opportunities in timber harvesting, silviculture, processing, forestry/engineering, administration and management.
21. Provide variety of opportunities for local people and businesses to purchase timber or logs at fair market value.
22. Support efforts to enhance local capacity in skilled labour, management, contract services and processing.
23. Identify and pursue management and harvesting rights for new forest products.
24. Optimize economic benefits to community as a whole by balancing use of forest resources.

Strategy Area 3 – Maintain and enhance the quality of life of all residents.

Outcome: *Community Forest is viewed by residents as having a positive effect on their quality of life.*

Objectives

25. First Nation's rights and title are recognized and accommodated.
26. Maintain natural diversity of species, ecosystems, seral stages and ecosystem functions across scales and through time.
27. Maintain opportunities for residents to pursue all the various resource uses and activities available (forestry, NTFP's, culture, tourism, recreation, water, guide outfitting, trapping, hunting, mining, cattle ranging).
28. Inform community about forestry activities and provide opportunities for public to comment and participate in planning.
29. Promote education in forest stewardship.
30. Minimize fire risk and promote enhancement of a resilient interface fire zone.

Culture:

31. Protect or conserve cultural heritage features.
32. Maintain opportunities for harvest and use of forest resources for cultural purposes.
33. Integrate cultural heritage resource interests into forest development and access management planning.

Strategy Area 3 – Maintain and enhance the quality of life of all residents.

Recreation:

- 7¹. Maintain visual resource values and aesthetic quality in important scenic areas.
8. Protect important recreation features.
9. Integrate recreation interests in access management planning.
10. Accommodate and encourage maintenance of existing recreation trails and facilities and establishment of new sites.

Hunting & Fishing:

11. Maintain opportunities for hunting and fishing.
12. Integrate hunting and fishing interests in forest development and access management planning.

3.2 Gathering and Assessing Knowledge

Some of the information and knowledge needed to achieve the human well being objectives and the stated desired outcomes is available but the majority will have to be produced or distilled from existing data by the Community Forest.

Achievement of the desired outcome to have broad concurrence that the Community Forest having a positive effect on life in the Bella Coola valley will be demonstrated through the public consultation process. Surveys may also be conducted from time to time.

3.2.1 Strategy Area 1 – Utilizing the Forest to its Optimal Potential

Much of the information necessary to address the objectives for Strategy Area 1, which deals with land management, is available through forest inventories and various other government resource data. This information is documented through the Forest Management Plan and Forest Stewardship Plan. However, there are also some knowledge gaps to be filled.

Timber

The information and system for establishing the AAC and tracking annual harvest are in place and can easily be tracked and monitored for adaptive management purposes.

Non-Timber Forest Products

There is very little formal information on the harvest of NTFP's on the Community Forest. There is general knowledge that NTFP's are harvested in the Bella Coola valley, particularly pine mushrooms; however, how much

¹ Numbers are repeated for objectives that overlap with previously stated objectives.

comes from the Community Forest is not clear. Map information depicting the extent of pine mushroom occurrence would be very useful in demonstrating how opportunities for harvest are maintained or enhanced through access management.

First Nation and public consultation is relied on for feedback on use of NTFP's and this is incorporated into forest management plans.

Water

Licenced water use information is available from government sources along with hydrological mapping. There are two community watersheds and there is one run-of-river hydro-generating operation and two proposed run-of-river generating operations in the Community Forest. Conservation of water resources is accomplished through riparian protection requirements specified in the Forest Planning and Practices Regulation. GIS analysis is required to determine extent of harvesting activity in watersheds (ie. equivalent clearcut area).

Tourism

Scenic areas and their associated management are established and integrated into forest management planning. Features like trails, camping and picnic sites are identified on maps. Consultation with tourism operators will provide information to incorporate into access management plans.

Guide Outfitting & Trapping

Guide outfitting areas and trap line information is available from government. Information gained through the public consultation process can be incorporated into access management plans. Conservation of wildlife is accomplished through FPPR and Ministry of Environment Orders.

Energy, Subsurface Minerals or Aggregates

There is no known activity or exploration of energy, sub-surface or aggregates in the Community Forest. Geological mapping data is very crude for the area. Consultation with developers will provide information to incorporate into access management plans.

Cattle Ranging:

There are three active Range Permits in the Community Forest. Consultation with ranchers will provide information to incorporate into access management plans.

3.2.2 Strategy Area 2 – Contribute to Enhancement of Local Economy

Information regarding profitability, direct employment, associated business opportunities, training, capacity building, development of new forest products and interaction with other sectors will have to be generated and tracked by the Community Forest.

3.2.3 Strategy Area 3 – Quality of Life

Information regarding the Community Forest's ability to contribute to the 'Quality of Life' will be required from a number of different sources.

Accommodation of First Nation's rights and title will be demonstrated through the review and comment process that authorizes issuance of harvesting permits.

Information demonstrating conservation of environmental values is provided through Forest Stewardship Planning, site prescriptions and inspection of practices.

Efforts to inform and engage the public and to support forest stewardship education will be documented by the Community Forest.

Efforts to enhance the resiliency of the interface fire zone will be documented through the Fire Protection Plan.

Culture

Information regarding cultural heritage features is available but incomplete. There are also confidentiality concerns that need to be respected. Information will be generated through the First Nation and public review and comment process. Archaeological assessments will also generate new information. Similarly, information on the harvest and use of forest resources for cultural purposes will have to be generated through the review and comment process.

Recreation

Scenic areas and their associated management are established and integrated into forest management planning. Features like trails, camping and picnic sites are identified on maps. Public consultation is expected to provide information to incorporate into access management plans.

Hunting and Fishing

Information on hunting and fishing will be generated through First Nation and public review and comment process and this will also inform access management planning.

3.3 Designing Management Strategies

Strategies to achieve the objectives were developed by the BCRS as the tenure application was drafted. The BCCFL continues to refine and add strategies to the evolving business plan. Appendix A contains the initial Objective/Strategy/Indicator/Implementation matrix.

There are a number of basic assumptions that went into the design of these strategies and these assumptions may pose opportunities for future AM project investigations. For example, it is assumed that a policy of hiring local, buying local and selling local first will create greater economic benefit to the community. However, this may also lead to inefficiencies that can compromise the viability of the

Community Forest or reduce its overall ability to contribute economic activity. So, at what point does a policy of local hire, local purchase, local sales become detrimental?

3.4 Designing Research & Monitoring

The EBM Working Group commissioned Rubus EcoScience Alliance to propose a practical monitoring framework for human well-being in the Central and North Coast region. The first step in monitoring is to establish the baseline to monitor from. Accordingly, the Sheltair Group was commissioned to report baseline data on the indicators recommended by Rubus. In so doing, Sheltair refined the recommended list of indicators based on further analysis, efficacy and availability of data. These two studies informed the development of the AM Framework for human well-being.

The initial set of indicators describing the Community Forest's influence on human well-being (Appendix A) was evaluated in view of the insights provided by Rubus and Sheltair to finalize a list of indicators for tracking. The Prioritization Procedure recommended in the draft "Guide to using the Adaptive Management Knowledge Summary and Project Prioritization Procedure for the Central and North Coast (Daust, Price, Tyler December, 2008) was then applied to identify priorities for Community Forest human well-being AM projects.

3.4.1 Review of Rubus Recommended Indicators

Through literature review, Rubus recommended five common themes for measuring human well-being:

1. Social Processes (eg. social capital & sense of place)
2. Education
3. Economics
4. Health (physical & mental)
5. Culture

The enhancement of human well-being will be achieved through the application of a suite of strategies under each of these themes. Some of these strategies are linked with land use planning while others are not. To demonstrate the connections, Rubus developed Logic Model diagrams that illustrate which strategies are related to land use and how performance could be measured in the short, medium and long term. In total, Rubus recommended 45 indicators (17 primary, 28 secondary).

Many of the identified strategies and indicators are broader in scope than the Community Forest's influence; however, there is a subset that is applicable or related to the Community Forest as summarized in Table 1.

Table 1 Strategies and Indicators Identified by Rubus that are applicable to the Community Forest

Strategy Group	Primary Indicator	Secondary Indicator	Comment
1 Social Processes: Long term goal is increased social capital (trust, civic cooperation, altruism rate, formal group membership) and increased sense of place.	Five strategy groupings identified, only one directly applicable to Community Forest: <i>Strategies to increase access to natural capital for communities in plan area.</i>	Two primary indicators identified, both go beyond scope of community forest.	Implementation of the Community Forest contributes indirectly to Social Processes as it can contribute to an increased 'sense of place' by: <ul style="list-style-type: none">• Providing access and management of natural resources by local community,• Providing work for residents.
2 Health: Long term goal is improved physical and mental health performance.	Five strategy groupings identified, three are applicable to Community Forest: <i>Strategies to increase human capital</i> <i>Strategies to increase access to credit and capital</i> <i>Strategies to increase access to natural capital for communities in plan area</i>	Five primary indicators identified, all go beyond scope of community forest.	Implementation of the Community Forest contributes indirectly to health as it is a strategy that is expected to increase human capital, increase access to credit and capital and increase access to natural capital.
3 Education: Long term goal is to increase education levels.	Four strategy groupings identified, three are applicable to Community Forest: <i>Strategies to increase human capital</i>	Three primary indicators identified, all go beyond scope of community forest.	Implementation of the Community Forest can contribute indirectly to education as it is a strategy that is expected to increase human capital, increase access to credit and capital and increase access to natural capital. Furthermore, the Community Forest can contribute directly to education through its proposed integration

Strategy Group	Primary Indicator	Secondary Indicator	Comment
<i>Strategies to increase access to credit and capital</i>			of Community Forest management into the elective school program.
<i>Strategies to increase access to natural capital for communities in plan area</i>			

4. Economics: Long term goals are to increase population, economic diversity, employment and individual income and decreased income distribution gap.

Four strategy groupings identified, three are applicable to Community Forest:	Five primary indicators identified, Community Forest contributes to each; however, only one is appropriate to track at Community Forest level:	Fifteen secondary indicators identified, seven are appropriate to track at Community Forest level:	This area presents greatest opportunity for Community Forest to contribute to well being and the indicators are directly relevant.
<i>Strategies to increase human capital</i>		<i>D7- Number of businesses and employment by employer in each of the basic & non-basic sectors</i>	Tracking the number of other resource tenures overlapping with Community Forest provides measure of cooperation between sectors.
<i>Strategies to increase access to credit and capital</i>	<i>D2 – Number of individuals with formally reported incomes.</i>	<i>D8–Number & percent of workers in the plan area who are permanent residents.</i>	
<i>Strategies to increase access to natural capital for communities in plan area</i>		<i>D9- Commercial loan levels</i> <i>D10- Commercial equity investments</i>	
		<i>D11- Percent of AAC levels held by plan area residents and communities</i>	
		<i>D12- Number and volume of productive activity for Backcountry tenures, Guide</i>	

Strategy Group	Primary Indicator	Secondary Indicator	Comment
	<p>Two strategy groupings identified, one is applicable to Community Forest:</p> <p><i>Strategies to increase access to natural capital for communities in plan area</i></p>	<p>Outfitters, and Sport Fishing Lodge licences by plan area residents.</p> <p><i>D17- Number of jobs in forestry and wood processing per cubic meter harvested in the plan area</i></p>	<p>5. Culture: Long term goal is to increase sense of connection to culture by First Nations.</p> <p>Implementation of Community Forest can contribute indirectly to the number of First Nation community members using traditional cultural resources by enabling road access to remote areas.</p> <p>Five secondary indicators identified, two are appropriate to track at Community Forest level:</p> <p><i>E3- Number of new archaeological studies or Traditional Use Studies conducted and number reviewed by First Nations.</i></p> <p><i>E5- Number of hectares of protected/managed specifically for enhancement of cultural resources.</i></p>

The majority of the indicators recommended by Rubus, although influenced by the implementation of the Community Forest, are too broad to be meaningful for direct application at the Community Forest level. The contribution of the Community Forest to local human well-being goals needs to be evaluated by more specific sets of criteria and indicators.

3.4.2 Review of Sheltair Recommended Indicators

Sheltair built on the work initiated by Rubus and identified 28 indicators that were organized into seven themes:

1. Population
2. Economics
3. Governance
4. Culture
5. Health
6. Education
7. Recreation.

The recommended indicators are listed in Table 2 along with evaluation in terms of their applicability to the Community Forest.

Table 2 Applicability of Sheltair Human Well-Being Indicators to the Community Forest.

Ref #	Indicator	Applicability to Community Forest
Population		
Pop-1	1a) Total population and growth rate by community and plan area; 1b) Percent of population that is Aboriginal	Not applicable
Pop-2	Demographic breakdown by age cohort	Not applicable
Pop-3	Rate of population turnover	Not applicable
Economics		
Empl-1	a) Labour force by sector b) Labour force by age cohort	Size of local labour force is useful information as it relates to local capacity. Difficult for Community Forest to track. Easier to monitor amount of non-local workers as a measure of local capacity.
Empl-2	Employment rate	Not applicable
Empl-3	Number of jobs in forestry and wood processing per cubic meter harvested in land use area	Number of jobs associated with Community Forest can be tracked by amount of harvest.
Sub-Theme: Wages & Income		
Inc-1	Median household income	Not applicable
Inc-2	Individual income distribution	Not applicable
Inc-3	Breakdown of total income by source	Total employment income from Community Forest can be estimated (difficult to get exact worker income from contractors).
Inc-4	EI claimants as % of labour force	Not applicable
Sub-Theme: Access to Resources		
Acc-1	Percent of aquaculture tenures owned by plan area residents and percent of productive activity by plan area residents.	Not applicable
Acc-2	Percent of Mineral Exploration tenures owned by plan area residents and percent of productive activity by plan area companies.	Number of Mineral Exploration tenures in Community Forest would be indicator of cooperation between sectors for greater community benefit.
Acc-3	Number of commercial fish licences held locally and non-locally, number of First	Not applicable

Ref #	Indicator	Applicability to Community Forest
	Nations fish licences, and percentage of productive activity by plan area companies and First Nations	
Acc-4	First Nation and community forest sector revenues and employment	Directly applicable.
Acc-5	Timber harvest level	Directly applicable.
Acc-6	Percent Backcountry Tenures, Guide Outfitters, Sport Fishing lodge licences owned by plan area residents and percent of productive activity by plan area companies.	Number of various tenures active in Community Forest would be indicator of cooperation between sectors for greater community benefit
Acc-7	Number of power generation tenures.	Number of various tenures active in Community Forest would be indicator of cooperation between sectors for greater community benefit.
Acc-8	Number of natural resource tenures, by sector, held locally and percentage of productive activity by plan area companies.	Number of various tenures active in Community Forest would be indicator of cooperation between sectors for greater community benefit.
Acc-9	Economic diversity index.	Not applicable.
Acc-10	Ferry ridership and service.	Not applicable.
Governance		
Gov-1	Number and percent of Plan Area covered by Government to Government Agreements	Not applicable.
Culture		
Cul-1	Percent of First Nation community members in plan area speaking tribal languages.	Not applicable
Cul-2	Number of returning salmon to key waterways in plan area.	Not applicable. Although could be indicator of watershed condition.
Health		
Hea-1	Life expectancy at birth	Not applicable
Hea-2	Infant mortality rate	Not applicable
Education		
Edu-1	Education attainment	Not applicable
Edu-2	Skill domain	Not applicable
Edu-3	a) Number of locally delivered skills training programs; b) number of people enrolled	a) number of skills training programs sponsored by Community Forest b) number of people attending training programs sponsored by Community Forest
Recreation		
Rec-1	Distribution of recreation opportunity classes	Number of established and maintained recreation sites.

Sheltair also identified the indicators that would be suitable for setting outcome targets and implementation targets. Of the indicators that are applicable to the Community Forest, the following are suitable for target setting:

Empl-3 Number of jobs in forestry and wood processing per cubic meter harvested on Community Forest

Acc-4 First Nation and community forest sector revenues and employment

The following is suitable for implementation target setting:

Edu-3 Number of locally delivered skills training programs and number of people involved.

Sheltair also evaluated the linkages of various existing and emerging industries to the indicators. The forest industry was found to have:

- **Low** linkage to **Context** – population, demographics & turnover
- **Low** linkage to **Employment** – labour force, employment rate, # jobs in forestry per m³.
- **Moderate** linkage to **Wages and Income** – median household income by source, EI %.
- **Moderate** linkage to **Access to Resources** - % local tenure, harvest level, resource revenue.
- **High** linkage to **Governance** - % area under SLUPA or conservation management agreements.
- **High** linkage to **Culture** – tribal language, returning salmon, % cedar harvested, harvest of traditional resources.
- N/A to **Health**
- **Moderate** linkage to **Education** – attainment, local skills programs.
- **Moderate** linkage to **Recreation** – recreation opportunities.

High means there is a strong linkage of the industry with the indicator and strategies can have significant effect on enhancing human well-being.

Moderate linkage means that strategies are less likely to effect the indicator.

Low linkage means effect on HWB is indirect and tenuous.

It is surprising that the forest industry is seen as having a low linkage to employment but this conclusion is likely based on the historic low local employment levels. This is changing as First Nations and Bella Coola now have acquired their own forest tenures and we believe the forest industry will have at least a moderate linkage to local employment going forward.

3.4.3 Community Forest Indicators with Greatest Relevance to HW

The Community Forest indicators that are most relevant to the Human Wellbeing condition as described by Rubus and Sheltair are summarized in Table 3.

Table 3. Most relevant HW Community Forest indicators

Community Forest Indicator	Rubus Reference	Sheltair Reference	Comment
Actual harvest by year	D11 – Secondary under Economics	Acc-5. Access to Resources, sub-theme under Economics.	
Number of full time equivalent jobs, % local capture and as per m3 harvested.	D2, D7, D8, D17 under Economics	EMPI-1, EMPL-3 under Economics. Acc-4 Access to Resources	Indicator showing employment by m ³ harvest is additional to existing set.
Worker income	D2 under Economics	Inc-3 under Economics	This would be a new indicator for the Community Forest and it would not be possible to get exact data.
Volume of logs sold locally	D-17 under Economics.	Empl-3 under Economics	Can be used to express jobs by m ³ .
Number of various natural resource tenures, guide outfitters, mineral exploration, power generation on Community Forest.	D12 – under Economics	Acc-2, Acc-6, Acc-7 Access to Resources sub-theme under Economics.	Local and non-local ownership would be additional information.
Training implemented by Community Forest		Edu-3 under Education	
# of maintained recreation sites & km of trails maintained		Rec-1 under Recreation	
Equity investment	D10 under Economics		This indicator is additional to existing set and captures actual \$ if available.
# cultural heritage sites protected	E5 under Culture		
# of new archaeological or traditional use studies	E3 under Culture		This indicator is additional to existing set.

Neither Rubus nor Sheltair identified road access as an indicator worth tracking. However, the maintenance of an extensive road network is one of the most important contributions of the Community Forest as this enhances opportunities for tourism, recreation and the harvest of traditional and non-traditional non-timber forest products. And they can also be a liability in terms of maintenance and environmental impact.

3.4.4 Priorities for Adaptive Management Projects

The AM Framework includes a process for prioritizing AM projects (see Adaptive Management Knowledge Summary and Project Prioritization Procedure for Central and North Coast; Daust, Price and Tylor). The procedure prioritizes objectives and indicators in terms of planning, implementation monitoring, validation monitoring and effectiveness monitoring. The trial application of this prioritization to the Community Forest objectives is contained in Appendix B and the priority rankings are summarized in Table 4.

Planning Priority – prioritizes indicators for setting targets based on whether targets exist and the ability to estimate future outcomes. Higher priority is assigned for indicators where targets have not been set and future state can not be estimated.

Implementation Monitoring Priority – prioritizes indicators for collecting data based on whether data exists, ability to estimate and ease of collecting data. Higher priority is assigned for indicators where there is no data and can not be estimated.

Validation Monitoring Priority – prioritizes objectives based primarily on the amount of uncertainty related to risk. Higher priority is assigned for objectives with high uncertainty of risk and for objectives with moderate likelihood of success and moderate uncertainty.

Effectiveness Monitoring Priority – prioritizes objectives based on probability of success and the amount of uncertainty. Higher priority is assigned for objectives with low probability of success and low to moderate uncertainty of risk.

Table 4 Priority AM elements for the Bella Coola Community Forest

Planning Priority	Priority indicators for implementation monitoring	Priority to reduce uncertainty through validation monitoring and research	Priority for detection of negative consequences through effectiveness monitoring
4 – Non-Timber Forest Products (NTFP)	<ul style="list-style-type: none">• Mapped area of NTFP• # planning interactions with NTFP sector• # NTFP management considerations incorporated into plans• # of licenced & active guide outfitters & trappers	<ul style="list-style-type: none">3 - Enhance sustainable timber harvesting opportunities9 - Integrate tourism & recreation interests in access management planning12 - Integrate guide outfitting, trapping, hunting & fishing interests in forest development and access	

Planning Priority	Priority indicators for implementation monitoring	Priority to reduce uncertainty through validation monitoring and research	Priority for detection of negative consequences through effectiveness monitoring
		management planning 13 - Support efforts to explore and develop energy, aggregate and mineral resources	
Strategy Area 2 – Enhancement of Economy			
19 - Opportunities for viable, diversified and profitable local businesses 20 - Employment 21 – Local timber sales	<ul style="list-style-type: none"> • # new forest products developed • # of positive & negative responses from other economic sectors to proposed development 	18 - Generate a fair and attractive rate of return 19 - Opportunities for viable, diversified and profitable local businesses 22 - Local capacity in skilled labour, management, contract services and processing 23 - Identify and pursue management and harvesting rights for new forest products 24 – Optimize economic benefits to community as a whole by balancing use of forest resources	23 - Identify and pursue management and harvesting rights for new forest products
Strategy Area 3 – Quality of Life			
31 - Protect of cultural heritage features 32 - Opportunities use of forest resources for cultural purposes	<ul style="list-style-type: none"> • # sites protected • Monumental cedar inventory 	30 - Minimize fire risk and promote enhancement of a resilient interface fire zone 31 - Protect or conserve cultural heritage features	

It should be pointed out that all the Community Forest indicators (Appendix A) will be monitored, but the ones identified above have highest priority for formalized AM planning.

It should also be noted that the prioritization process is difficult to understand and apply. Consequently, the results shown above may not be the correct interpretation. Training would be required for practitioners to properly work through this process. It is also important to apply the prioritization process by incorporating different perspectives and values to ensure issues with the broadest influence are identified and duly addressed.

3.5 Implementation Strategies, Monitoring & Conducting Research

As the Community Forest goes about its business, it will do so by implementing the strategies in Appendix A and tracking the corresponding indicators. In so doing, data and information will be generated as part of the on-going business cycle. Therefore, the majority of monitoring activities will consist of tracking of implementation indicators as opposed to designed research.

To date, work on the community forest has mainly involved planning, engineering and setting up administrative control systems. Minor field work has occurred through right-of-way timber falling, silviculture surveys and trail maintenance work so there is not much to report for the first year.

The Community Forest intends to summarize and report results on a yearly basis as part of its Annual Report to the shareholders, the Bella Coola Resource Society and the community. Appendix C contains the indicator tracking matrix with first year results.

Based on future trends of the various indicators and knowledge gained through this report, the Community Forest will decide whether to pursue more detailed research of the elements of concern. This would then entail development of an AM Plan that looks at the specific issue. The cost and benefits and/or availability of funding would also determine the extent of the AM Plan.

3.6 Learning & Adjusting

Given the public nature of the Community Forest and the annual performance review, the continuous improvement loop of learning and adjusting is ingrained in the Community Forest model. There are a number of occasions when performance is reported (see Figure 2 above):

- to the shareholders at the AGM,
- to the Bella Coola Resource Society as requested,
- to the Advisory Committee as requested and
- to the MOFR at tenure extension review.

Each one of these entities has the ability to affect change to improve future outcomes. Strategies associated with indicators showing unsatisfactory performance will be reviewed and adjusted accordingly.

3.7 Checklist Summary

To facilitate a review of anticipated AM success, a checklist is included in the Adaptive Management Guidebook for the Central and North Coast. Table 5 shows the application of the checklist to the Community Forest.

Table 5. Checklist: questions answered “yes” lead to adaptive management success.

Prerequisites to adaptive management	Community Forest
Collaboration	
• Have key stakeholders been identified?	• Yes
• Have stakeholders committed to participate over the long term, from setting objectives to reviewing monitoring results?	• No. Some stakeholders willing to participate but no long term commitment.
• Can stakeholders influence decisions?	• Yes
• Has a process been established to foster effective communication and participation?	• Yes
• Can the adaptive management process adapt to changes in stakeholder and public views?	• Yes
Legal feasibility	
• Do managers, scientists and stakeholders understand relevant laws and regulations?	• Yes
• Are laws and regulations sufficiently flexible to allow adaptive management, particularly experiments?	• No, but laws regarding community forests are evolving.
• Has a process been developed to ensure compliance with laws and regulations?	• Yes
Adaptive management steps	
Set Objectives	
• Do objectives have specific subjects and specific targets?	• Yes/No. Some objectives have specific targets, some do not.
• Have tradeoffs among objectives been considered?	• No, not formally.
• Have stakeholders agreed to objectives?	• Yes
Gather and Assess Knowledge	
• Is model scope sufficient to address objectives?	• Yes, using community forest as the model
• Are relevant environmental processes included?	• Yes
• Are relevant management options included?	• Yes
• Do models express resource management options as testable hypotheses?	• No, but may be possible to incorporate.
• Do models adequately represent current understanding?	• Yes
• Are models calibrated with available data (e.g., current resource status)?	• Yes
Design management strategies	
• Are the strategies specific and measurable—can they be expressed as an indicator and a target?	• Yes
• Do strategies reflect current knowledge?	• Yes
• Are strategies consistent with management objectives?	• Yes

<u>Prerequisites to adaptive management</u>	<u>Community Forest</u>
• Have tradeoffs among strategies been considered?	• No, not formally
• Were stakeholders informed and consulted when strategies were developed?	• Yes
<u>Design research and monitoring</u>	
• What are the monitoring priorities, based on relevance of information and costs of collection?	• Numerous
• Has the desired accuracy of data been specified?	• No
• Have experimental studies been designed (where applicable)?	• No, but could be.
• Will results be available in time to allow strategy adjustments?	• Yes
• Are managers scientists and other stakeholders sufficiently committed to support an ongoing monitoring program?	• Yes
<u>Implement strategies</u>	
• Do estimates of the current level of implementation exist (necessary to determine amount of additional change allowed)?	• Yes
• Do existing inventories describing resource status provide other information necessary to support implementation?	• Yes
• Have the specific tasks needed to implement the strategies been described?	• Yes/No. Some have, some not.
• Has necessary training been provided?	• No
• Is feedback from implementation monitoring used in a “quality-control process”	• Yes
<u>Conduct research/monitoring</u>	
• Are sampling and analysis needs understood?	• No but it is an opportunity to address.
• Is data collected in a timely manner?	• Yes
• Is data collection consistent with established standard methodologies?	• Yes
• Are data managed in a way that allows long-term storage and easy retrieval?	• Yes
<u>Learn and adjust</u>	
• Are results peer reviewed?	• Yes/No. No formal peer review but results are reviewed by knowledgeable locals.
• Are results interpreted for management relevance?	• Yes
• Are results integrated into the existing knowledge base?	• Yes
• Does a protocol exist to inform managers about potentially important results?	• No

The main weaknesses for the Community Forest in successfully implementing AM are:

- **Setting Objectives** – targets have only been specified for very few objectives (harvest the AAC) and trade-offs between objectives have not been addressed.
- **Designing Management Strategies** – trade-offs between strategies have not been addressed.
- **Implementation Strategies** – training is required
- **Research & Monitoring** – sampling and analysis needs are not well understood.

- **Learn & Adjust** – there are no protocols between organizations to inform managers about potentially important results.

4 EVALUATION OF ADAPTIVE MANAGEMENT

This project entailed a trial application of the AM process, as described in the AM Guidebook, to the human wellbeing aspects of the Bella Coola Community Forest. This exercise revealed the following observations and findings:

11. The AM Framework developed for the Central and North Coast is methodical and comprehensive.
12. Application of the AM Framework can be expected to identify issues that require new or better information, prioritize issues to focus on and produce strategies that will address the issues in a systematic and collaborative manner.
13. The broad application of the AMF requires an institutional structure/organization devoted to its implementation. EBM is all-encompassing and crosses many jurisdictions, planning scales and sectors and it is too broad for any one sector or local organization to undertake.
14. It is an elaborate system which does not lend itself to application by small business. Individual organizations will likely only apply the AMF for very specific issues, through development of a targeted AM Plan.
15. The Community Forest is a unique institution as it has very broad social, economic and environmental goals that reflect the values of the community; and as such, it is one of few private organizations structured to potentially apply the AMF at the local level.
16. The framework utilized for forest certification (Forest Stewardship Council, Sustainable Forest Initiative) may provide opportunity for incorporating AMF tracking.
17. The HW indicators recommended by Rubus and Sheltair, generally depend on government data which is too coarse for application at the local business level. Most HW indicators at the local business level need to be tracked by the business entity itself.
18. Implementation of AMF will require training for practitioners. There are a number of complex documents and procedures to understand. The Prioritization Procedure is especially tricky to work through.
19. Given the comprehensiveness of the AMF, it is not clear whether it is a component of planning or whether the AMF is the planning?
20. The AMF should itself be subject to Adaptive Management as well so that it can evolve in response to planning and operational needs.

5 DISCUSSION

The Bella Coola valley has been in a downward economic spiral for well over a decade. So, one of the primary expectations of the Community Forest is to help enhance the local economy. Given the decline of the coastal forest industry and the precarious economic times, the start up of a new forestry operation is a highly risky endeavor. Furthermore, the ability of the Community Forest to contribute to achievement of the principles of EBM depends on its economic performance as it can not deliver any of the Human Wellbeing goals if it does not survive. Consequently, elements that affect the short and long term financial viability of the Community Forest are of the greatest interest, followed closely by the expectation to capture as much of the economic benefit locally as possible.

5.1 *Limitations Facing the Community Forest to Deliver Economic Development*

The first step in addressing the economic difficulties is to identify the limitations that are significantly affecting performance. Pierce Lefebvre Consulting undertook a review of economic development initiatives in the Central and North Coast and identified a number of constraints affecting the forest industry in this region. There are also more local constraints that are affecting the viability of the Community Forest. The next step is to develop strategies to try and overcome these limitations. This may involve development of Adaptive Management Plans.

5.1.1 Pierce Lefebvre Report - Summary of Issues & Challenges

Pierce Lefebvre identifies forestry as an industry facing difficulties in this region. The main constraints are:

- Access to resources in viable operating areas.
- Costs and competitiveness
- Planning process requirements
- Access to markets and market knowledge
- Need for longer term or renewable tenures
- Access to capital
- Social Issues, capacity and training.

These constraints apply to the Community Forest by varying degrees.

5.1.2 Local Constraints Affecting the Community Forest

In addition to the items identified by Pierce Lefebvre, there are a number of more specific constraints affecting the Community Forest.

- Small volume licence – affects economy of scale, difficult to keep efficient crew and equipment with only partial work year, transport to market.
- Timber profile – over 70% of the Community Forest timber inventory consists of hemlock/balsam, most of which is currently uneconomic.
- Stumpage – The methodology for determining community forest stumpage in this area is flawed.

5.2 Strategies to Address Economic Development Limitations

The following strategies will be applied to address the limitations facing the Community Forest.

Issue: Access to Resources in Viable Operating Areas

In establishing the Community Forest operating areas, options for including areas with attractive timber profile and low cost access were very limited. As a result of the long history of logging in the area, mature timber is primarily available in scattered fringe areas of the tenure thus exacerbating access and logistical costs. With an area based tenure, there are no options to relocate to other operating areas, so the Community Forest has to make the best of what it has, by:

- Concentrating operations as much as possible to one road system
- Pursuing funding opportunities and partners to share road maintenance costs
- Explore development of non-timber forest products as a means to help finance road maintenance.

Issue: Costs and Competitiveness

The high operating costs on the coast are well documented and given its isolated and remote location, costs for the Community Forest are even more acute. This is further compounded for a new business at start up. As with any business, cost reduction is a constant necessity on all fronts, but areas of initial focus for the Community Forest are:

- Reduce barge costs by pursuing export shipment from Bella Coola.
- Work with neighboring operators to ‘piggy-back’ transportation of logs and supplies.
- Minimize administrative overhead by relying on contract services.

Issue: Planning Process Requirements

Given the challenging terrain and multiple resource values, planning and engineering requirements are intense. The close proximity to the community adds another level of scrutiny requiring enhanced external communication. And, although EBM planning requirements do not apply to small tenure holders, the Community Forest supports the principles of EBM and is working to incorporate EBM elements into its planning. To achieve planning efficiencies the Community Forest will:

- Pursue funding opportunities to conduct EBM related planning projects to supplement existing planning requirements.
- Pursue opportunities for joint planning with neighboring operators.
- Participate in government/industry/NGO led planning initiatives

Issue: Access to Markets and Market Knowledge

Bella Coola is a very isolated community and it is challenging to maintain a contact network with the market. And although, modern communications and access to the internet is reducing the ‘isolation’, it takes time and concerted effort to stay in touch with the market. The Community Forest’s strategies for dealing with this weakness are:

- Establish a working agreement with a log brokerage firm.

- Build a customer list and maintain contacts
- Encourage development of local value added/niche products
- Maintain membership in British Columbia Community Forest Association (BCCFA) to tap into community forest marketing initiatives
- Develop a website
- Use industry periodicals and web services to stay informed about emerging markets.

Issue: Need for Longer Term Renewable Tenure

The Community Forest tenure is a Probationary Community Forest Agreement. The ‘probation’ period is five years after which there is a review and the tenure may, or may not, be extended to a 25 year evergreen licence. Capital investment requirements are substantial in forestry and the uncertainty in regards to the length of the tenure is not conducive to acquiring the necessary financing. To address this, the Community Forest is:

- Working with the BCCFA to lobby for removal of the ‘probationary’ aspect of the tenure.
- Pursuing logging opportunities that do not require long term capital investments
- Fulfill requirements to achieve favorable performance review so that the tenure is converted to 25 year evergreen tenure.

Issue: Access to Capital

Forestry is a risky business endeavor and access to financial capital is very difficult, especially for a business attempting to start up during the current credit crunch. The risks associated with the business go beyond the tolerances of conventional lending institutions and the main economic legacy coming out of the Coast Agreements (Coast Opportunity Funds), for some reason, are not available to non-First Nation people or businesses in the area. So, other funding mechanisms are required. The Community Forest’s innovative approach to raising the necessary start up and operating capital entailed the following strategies:

- Raise >\$250,000 start up financing through a share offering to people residing in or owning property in the Bella Coola area.
- Develop a financing agreement with an established log brokerage firm having access to the necessary financing.
- Pursue logging opportunities that do not require long term capital investments

Issue: Social – Capacity and Training

Although forestry was the leading economic sector in Bella Coola for much of the 20th century, there has been an exodus of human capacity since the collapse of the local industry in 2001. Consequently, rebuilding this capacity is an added challenge for a start up company. To tackle this, the Community Forest plans to:

- Maintain a master list of local skilled persons, contractors & equipment
- Hire qualified local contractors first

- Coordinate operations with neighboring licenses to extend work periods (small licenses have short work periods) and provide more stable employment opportunities.
- Assist with organizing training opportunities
- Assist with organizing certification opportunities
- Pursue funding opportunities for training/mentoring programs

Issue: Small Volume Licence

Annual Allowable Cut of the Community Forest is 30,000 m³. For any particular phase (falling, yarding, loading) of efficient logging, this amounts to about two months work. So, unless there are other logging opportunities in the area, it is a very short work season and difficult to justify investment in machinery. The low volume also increases the per unit fixed overhead costs. Furthermore, barging of logs to non-local markets is costlier in smaller batches. To address these issues, the Community Forest will:

- Coordinate operations with neighboring licenses to extend work periods (small licenses have short work periods) and provide more stable work opportunities.
- Overhead administration costs will be minimized by contracting out the management, so there will be no full-time employees.
- Coordinate log transportation and use of services with neighboring operators.
- Pursue opportunities to increase AAC through enhanced silviculture, use of hardwood species and addition of un-allocated lands.

Issue: Timber Profile

The low market value of hemlock/balsam is well documented and it poses the greatest challenge for the Community Forest as more than 70% of the forest inventory is comprised of hembal. The following strategies are being employed to address this.

- Design logging blocks to contain adequate amounts of Douglas-fir and red cedar to raise average stand value to make block economic.
- Pursue maximum hemlock values by utilizing ability to export logs.
- Support efforts to enhance the marketability of hemlock.
- Explore development of local commercial fire wood cutting program using low value wood.

Issue: Stumpage and Fee in Lieu of Manufacture

A tabular stumpage fee system is used to price timber from community forests and although there are benefits to a tabular system, in the Bella Coola Community Forest's case, stumpage fees go up, which is contrary to the intent of the tabular system.

- Working with BCCFA to lobby for adjustments to the tabular rate system.

5.3 Achieving Intent of Legal EBM Order

The Human Wellbeing aspects of the Legal EBM Orders are captured in Objectives 2-7 and they only relate to First Nations values. It is believed that all of them are captured in the Community Forest's objectives and strategies.

<u>Legal EBM Order Objective²</u>	<u>Corresponding Community Forest Objective</u>
3 - Maintain traditional forest resources in a manner that supports First Nations' food, social and ceremonial use of the forest.	25 - First Nation's rights and title are recognized and accommodated.
4 - Protect traditional heritage features other than culturally modified trees.	31 - Protect or conserve cultural heritage features. <i>Interpreted to include CMT's. LUO allows for alteration or removal of features in certain circumstances which is covered under 'conserve'.</i>
5 - Protect culturally modified trees and reserve culturally modified tree areas.	32 - Maintain opportunities for harvest and use of forest resources for cultural purposes. <i>Intended to include traditional food, social, ceremonial use, red & yellow cedar and monumental cedar. Given that the Community Forest only covers portions of the First Nations territories, the 'sufficient' amount to maintain will be determined through consultation.</i>
6 - Maintain sufficient volume and quality of monumental cedar to meet present and future cultural use.	
7 - Maintain sufficient volume and quality of red and yellow cedar to support cultural use.	33 - Integrate cultural heritage resource interests into forest development and access management planning.

6 CONCLUSION

The trial application of the AMF to the human wellbeing aspects of the Bella Coola Community Forest revealed a number of findings. Most notably:

- The AMF is comprehensive and methodical in its approach.
- Implementation of formal AM will require a devoted institution/organization as it is too large a task in most cases for a single entity to undertake.
- Individual organizations will likely only apply the AMF for very specific issues, through development of a targeted AM Plan.
- The Community Forest is a unique organization in that it has comprehensive goals and objectives that reflect the values of the community and it has obligations to report out to the community on how it is performing on various fronts. As such it is one of few private organizations structured to potentially apply the AMF at the local level.
- Implementation of AMF will require training for practitioners. There are a number of complex documents and procedures to understand.

² For efficiency the objectives have been summarized to show intent. Refer to LUO for actual text.

The project also helped identify and prioritize the Community Forest Objectives for AM planning and monitoring based on uncertainty, availability of data, potential for success and effectiveness. The main issues facing the Community Forests economic viability were also identified and initial strategies to address them were documented.

Going forward the Community Forest will use the indicator tracking matrix to measure performance and decide which areas need focused attention for improvement and development of AM strategies.

APPENDIX

Appendix A – Community Forest Objectives/ Strategy/ Indicator/ Implementation Matrix

Appendix B - Objectives / Indicator Prioritization Ranking

Appendix C - Community Forest Indicator Tracking Matrix

APPENDIX A – OBJECTIVES / STRATEGIES / INDICATORS / IMPLEMENTATION MATRIX

OBJECTIVES	STRATEGIES	INDICATOR	IMPLEMENTATION
Strategy Area 1 – Utilizing the forest land to its optimal potential for a broad range of economic benefits within the sustainable capacity of a healthy environment.			
1 - Establish an annual rate of harvest consistent with forest productivity, inventory, environmental protection, forest health, non-timber resource interests and optimal timber flow.	<ul style="list-style-type: none"> AAC established through Forest Management Planning and timber supply review 	<ul style="list-style-type: none"> AAC – 30,000 m³ 	<ul style="list-style-type: none"> Complete for 5 year probationary period. Complete in accordance with government policy.
2 - Harvest the AAC on a regular basis	Core business function, numerous operational strategies dependent on efficiency of delivery, therefore not elaborated on here.	<ul style="list-style-type: none"> Actual harvest by year 	<ul style="list-style-type: none"> Tracked by scaled volume and waste assessment system for reporting.
3 - Enhance sustainable timber harvesting opportunities through improved management, site restoration, better inventories, tighter utilization and use of new technologies.	<ul style="list-style-type: none"> Apply hectares treated and enhancements to the timber supply review process to document improvements in sustainable timber supply. 	<ul style="list-style-type: none"> AAC change Regen delay status Free to grow status 	<ul style="list-style-type: none"> Analytical review during timber supply review process. On going reforestation monitoring.
4 - Maintain and enhance opportunities to harvest non-timber forest products (NTFP)	<ul style="list-style-type: none"> Identify the NTFP's currently being used or available on the community forest Identify extent (map) of NTFP's on community forest Work with NTFP sector to acquire information about NTFP's. Integrate NTFP interests in forest development planning 	<ul style="list-style-type: none"> Mapped area of NTFP production 	<ul style="list-style-type: none"> Pursue funding to acquire inventory mapping of NTFP's. Invite persons harvesting NTFP's to provide information about use on the Community Forest.
5 - Integrate NTFP opportunities in forest development and access management planning	<ul style="list-style-type: none"> Maintain and enhance road network to enable access to tributary valley forests. Identify and engage NTFP sector in development planning to seek opportunities for mutual benefit. 	<ul style="list-style-type: none"> Km of maintained road access. # of planning interactions with NTFP sector # of NTFP management considerations incorporated into plans 	<ul style="list-style-type: none"> Summarize on yearly basis to show trends. Roads to be maintained in conjunction with active forestry operations. Advertise and hold public information meeting regarding yearly logging plans and future developments. Maintain open door policy to receive information.
6 - Maintain water quality, quantity and timing of flows within natural range of variability to support licenced water use and hydro electric generation	<ul style="list-style-type: none"> Identify watersheds with licenced users. Apply FRPA riparian protection measures. Review ECA status for identified watersheds where harvesting is proposed. Do not exceed >20% non-hydrological green up. 	<ul style="list-style-type: none"> FRPA riparian protection compliance. ECA % 	<ul style="list-style-type: none"> Conduct GIS analysis of ECA status of identified watersheds where harvesting is proposed.
7 - Maintain visual resource values and aesthetic quality in important scenic areas	<ul style="list-style-type: none"> Apply MOFR visual management strategies. Conduct Visual Impact Analysis of proposed operations in scenic areas. Consult with public and tourism sector at planning stages. 	<ul style="list-style-type: none"> # VIA's conducted Compliance with Visual Quality Objectives standards. 	<ul style="list-style-type: none"> Advocate and hold public information meeting regarding yearly logging plans and future developments. Maintain open door policy to receive information.
8 - Protect important tourism & recreation features	<ul style="list-style-type: none"> Consult with public, recreation and tourism sectors to ID important features. Identify and map important tourism & recreation features. 	<ul style="list-style-type: none"> # important features # protected from impact 	<ul style="list-style-type: none"> Maintain and update listing based on input.
9 - Integrate tourism & recreation interests in access management planning	<ul style="list-style-type: none"> Establish and maintain ongoing, regular communication link with tourism & recreation sector. List licenced commercial recreation operators and areas of interest. Maintain and enhance road network to enable access to tributary valleys. 	<ul style="list-style-type: none"> Km of maintained road access to tourism & recreation features. # of licenced commercial recreation license holders # of planning interactions with tourism & recreation sectors # of specific management considerations incorporated into plans. 	<ul style="list-style-type: none"> Acquire list of licenced commercial recreation operators from ILMB. Roads to be maintained in conjunction with active forestry operations. Advertise and hold public information meeting regarding yearly logging plans and future developments. Maintain open door policy to receive information.
10 - Accommodate and encourage maintenance of existing recreation trails and facilities and	<ul style="list-style-type: none"> List and map existing trails and facilities. 	<ul style="list-style-type: none"> Total # of sites and km of 	<ul style="list-style-type: none"> Allocate portion of Forest Investment Account

OBJECTIVES	STRATEGIES	INDICATOR	IMPLEMENTATION
establishment of new sites	<ul style="list-style-type: none"> Work with tourism & recreation sectors to identify opportunities for new trails & site developments. Pursue funding opportunities for maintenance and construction of new sites. 	<ul style="list-style-type: none"> # sites & km trails maintained by year. \$ spent on trail/site maintenance or construction. 	funding towards maintenance.
11 - Maintain opportunities for guide outfitting, trapping, hunting & fishing	<ul style="list-style-type: none"> List and map territories of active, licenced guide outfitters and trappers Maintain and enhance road network to enable access to tributary valleys. 	<ul style="list-style-type: none"> # of licenced & active guide outfitters & trappers. 	<ul style="list-style-type: none"> Acquire updated listing of guide outfitters, trappers. Roads to be maintained in conjunction with active forestry operations.
12 - Integrate guide outfitting, trapping, hunting & fishing interests in forest development and access management planning	<ul style="list-style-type: none"> Establish and maintain ongoing, regular communication link with guide outfitters and trappers. Hunting and fishing interests to be incorporated through public consultation process. 	<ul style="list-style-type: none"> # of maintained roads. # of planning interactions with tourism & recreation sectors # of specific management considerations incorporated into plans. 	<ul style="list-style-type: none"> Advertise and hold public information meeting regarding yearly logging plans and future developments. Maintain open door policy to receive information.
13 - Support efforts to explore and develop energy, aggregate and mineral resources	<ul style="list-style-type: none"> Work with energy and mining sector to provide available information regarding potential resource opportunities 	<ul style="list-style-type: none"> # of planning interactions with energy & mining sectors 	<ul style="list-style-type: none"> Connection with energy & mining sector through forest stewardship planning and public consultation process.
14 - Incorporate energy, subsurface and aggregate resource interests into access management plans	<ul style="list-style-type: none"> Maintain and enhance road network to enable access to tributary valleys. Establish road use agreements with energy and mining sectors to share maintenance burden. 	<ul style="list-style-type: none"> # km of maintained roads. 	<ul style="list-style-type: none"> Advertise and hold public information meeting regarding yearly logging plans and future developments. Maintain open door policy to receive information.
15 - Maintain and support opportunities for cattle range	<ul style="list-style-type: none"> List and map active, licenced range permits. 	<ul style="list-style-type: none"> # active range permits 	<ul style="list-style-type: none"> MOFR to provide information on current and new range permit holders.
16 - Minimize damage to young plantations from cattle	<ul style="list-style-type: none"> Incorporate cattle protection measures in reforestation plans Work with range permit holder to develop plantation protection measures. 	<ul style="list-style-type: none"> Regeneration survey - % seedling damage due to cattle range 	<ul style="list-style-type: none"> Record cattle damage to plantations during regeneration assessments.
17 - Incorporate cattle range interests in forest development plans and access management plans	<ul style="list-style-type: none"> Establish and maintain ongoing, regular communication link with range permit holders. Maintain and enhance road network to enable access to valleys with range permits. 	<ul style="list-style-type: none"> # of planning interactions with range permit holders. # km of maintained roads accessing range permit areas. 	<ul style="list-style-type: none"> Roads to be maintained in conjunction with active forestry operations in the area.
Strategy Area 2 – Contribute to Enhancement of Local Economy			
18 - Generate a fair and attractive rate of return for investors and BCRS	Core business function, numerous operational strategies dependent on efficiency of delivery, therefore detailed strategies not elaborated on here.	<ul style="list-style-type: none"> Corporate % profitability Funds provided to BCRS. 	<ul style="list-style-type: none"> AGM reporting
19 - Maintain and enhance opportunities for viable, diversified and profitable local businesses in the timber and non-timber harvest sectors	<ul style="list-style-type: none"> Utilize local goods and service providers at fair market value as a priority Identify new opportunities for local provision of goods & services 	<ul style="list-style-type: none"> % funds spent locally & service providers used. Number of local goods & service providers used. 	<ul style="list-style-type: none"> Utilize contractor questionnaire to track employment – local & non-local
20 - Create employment opportunities in timber harvesting, silviculture, processing, forestry/engineering, administration and management.	<ul style="list-style-type: none"> Utilize local qualified contractors at fair market value where possible. Promote contractors to use qualified local workers as priority where possible. 	<ul style="list-style-type: none"> Number of md & full time equivalent jobs % local capture 	<ul style="list-style-type: none"> Utilize contractor questionnaire to track employment – local & non-local
21 - Provide variety of opportunities for local	<ul style="list-style-type: none"> Promote opportunities for local purchase of logs at fair market value. Promote opportunities for local ongoing, regular 	<ul style="list-style-type: none"> Volume logs sold Establish and maintain ongoing, regular 	<ul style="list-style-type: none"> Volume logs sold Establish and maintain ongoing, regular

OBJECTIVES	STRATEGIES	INDICATOR	IMPLEMENTATION
people and businesses to purchase timber or logs at fair market value	<ul style="list-style-type: none"> Incorporate local timber requirements into development and harvesting plans Maintain local customer list for timber sales – millers, carpenters, artists 	locally as % of total	<ul style="list-style-type: none"> communication link with local processing sector. Establish web site to promote local sales and availability of log supplies.
22 - Support efforts to enhance local capacity in skilled labour, management, contract services and processing	<ul style="list-style-type: none"> Identify capacity shortfalls. Investigate opportunities to enhance local capacity Work with local government, Nuxalk, employment agencies and other institutions to enhance local capacity. 	• Documentation of implemented training	
23 - Identify and pursue management and harvesting rights for new forest products	<ul style="list-style-type: none"> Maintain contact with timber, NTFP and research sectors to foresee opportunities for new products Acquire tenure rights for management & harvest of new forest products. 	<ul style="list-style-type: none"> Documentation of development of new forest products on the community forest Documentation of win-win outcomes # of positive and negative responses from other economic sectors to proposed development 	<ul style="list-style-type: none"> Participate in British Columbia Community Forest Association (BCCFL) Subscribe to various industry trade journals
24 – Optimize economic benefits to community as a whole by balancing use of forest resources	<ul style="list-style-type: none"> Review/document positive and negative impacts of proposed activities on affected sectors Develop decision rationale for situations where optimal economic benefit is not clear. 		<ul style="list-style-type: none"> Close interaction with various sectors is critical in situations where there may be conflicting benefits.
Strategy Area 3 – Maintain and enhance the quality of life of all residents.			
25 - First Nation's rights and title are recognized and accommodated	<ul style="list-style-type: none"> Develop protocol with interested First Nations Meet or exceed provincial government requirements to provide review and comment opportunities for First Nations. 	<ul style="list-style-type: none"> # of protocols # of review and comment meetings 	
26 – Maintain natural diversity of species, ecosystems, serial stages and ecosystem functions across scales and through time	<p>It is recognized that the maintenance of a healthy environment is fundamental to the social and economic well being of Bella Coola Valley. Numerous legal and non-legal strategies will be employed for environmental protection.</p>	<ul style="list-style-type: none"> Compliance with FRPA requirements Performance tracking of EBM elements as identified in Land Use Orders. 	<ul style="list-style-type: none"> Audits & inspections Tracking of FRPA & EBM elements Potential to conduct survey of residents perceptions
27 - Maintain opportunities for residents to pursue all the various resource uses and activities available (forestry, NTFP's, culture, tourism, recreation, water, guide outfitting, trapping, hunting, mining, cattle ranging	<ul style="list-style-type: none"> See above strategies for implementation of multiple use and access to forest resources. 	<ul style="list-style-type: none"> # of complaints regarding reduced opportunity. 	<ul style="list-style-type: none"> Potential to survey residents about perceptions
28 - Inform community about forestry activities and provide opportunities for public to comment and participate in planning	<ul style="list-style-type: none"> Maintain open door policy to provide and receive information from public and other resource users. Provide information updates in local newspaper Hold public information meetings. Conduct woods tours 	<ul style="list-style-type: none"> Office set up # newspaper articles # public meetings 	<ul style="list-style-type: none"> Establish a visible and readily accessible office location
29 - Promote education in forest stewardship	<ul style="list-style-type: none"> Work with school district to develop integration of community forest with school education. Work with school district to designate portion of community forest for management by students. 	<ul style="list-style-type: none"> # school education sessions Joint education/management agreement with SD 49. 	<ul style="list-style-type: none"> Establish protocol agreement with SD49 Develop community forest management program for inclusion in curriculum. Pursue funding opportunities
30 - Minimize fire risk and promote enhancement of a resilient interface fire zone	<ul style="list-style-type: none"> Incorporate interface fire protection measures in Fire Protection Plans Promote interface fire protection practices with public. Pursue opportunities to enhance resiliency of interface fire zone. 	<ul style="list-style-type: none"> # initiatives to promote awareness # interface fire zone treatments 	<ul style="list-style-type: none"> Look for matching funding opportunities, tie with FIA

OBJECTIVES	STRATEGIES	INDICATOR	IMPLEMENTATION
31 - Protect or conserve cultural heritage features	<ul style="list-style-type: none"> Work with First Nations to identify and development of protection measures. Identify and map cultural heritage features (in accordance with any information sharing protocols with First Nations). Map feature where appropriate based on information sharing protocols Apply protection measures in site plans. 	<ul style="list-style-type: none"> # sites protected 	<ul style="list-style-type: none"> Start with information from Arch Branch and add sites based on FN consultation.
32 - Maintain opportunities for harvest and use of forest resources for cultural purposes	<ul style="list-style-type: none"> Work with First Nations and other interested groups to identify forest resources used for cultural purposes. Incorporate First Nation and public interests in maintenance of opportunities to harvest forest resources for cultural purposes into site plans (resources present and availability in other areas). Develop inventory of potential monumental cedar 	<ul style="list-style-type: none"> # of complaints of missed opportunities resulting from community forest operations Monumental cedar inventory. 	<ul style="list-style-type: none"> Various communications to be tracked – correspondence, telephone, public meetings etc
33 - Integrate cultural heritage resource interests into forest development and access management planning	<ul style="list-style-type: none"> Establish and maintain ongoing, regular communication with First Nations and other cultural entities. 	<ul style="list-style-type: none"> # of planning interactions with First Nations and Cultural organizations holders # km of maintained roads accessing tributary valleys. 	<ul style="list-style-type: none"> Incorporate topic into protocol agreements.

Goal	Raw data used to determine monitoring priorities	Indicator	Secondary Score (bigger # = higher priority)		Planning	Collect Data	Prob. of Success ± Uncertainty	Reduce Uncertainty	Detect Consequences
			Current Priority	Ease of Monitoring					
Strategy Area 1 Optimal Land Use	Community Forest Objective 1 - Establish an annual rate of harvest consistent with forest productivity, inventory, environmental protection, forest health, non-timber resource interests and optimal timber flow.	AAC – 30,000 m ³	2	1	1	1	E	H/L	1
	2 - Harvest the AAC on a regular basis	Actual harvest by year	2	1	1	1	E	H/L	1
	3 - Enhance sustainable timber harvesting opportunities through improved management, site restoration, better inventories, tighter free to grow status	Change in AAC Regen delay status Free to grow status	2	1	2	2	M	H/L	2
	4 - Maintain and enhance opportunities to harvest non-timber forest products (NTFP)	Mapped area of NTFP	1	1	3	3	E	L/H	1
	5 - Integrate NTFP opportunities in forest development and access management planning	Km maintained roads # planning interactions with NTFP sector	3	1	3	1	V	H/M	2
	6 - Maintain water quality, quantity and timing of flows within natural range of variability to support licenced water use and hydro electric generation	# licenced water users # NTFP management considerations incorporated into plans	2	1	3	2	M	H/L	2
	7 - Maintain visual resource values and aesthetic quality in important scenic areas	FRPA riparian protection % ECA	2	1	2	2	D	H/M	3
	8 - Protect important tourism & recreation features	# V/A conducted Compliance with V/A # important features	1	1	2	2	E	H/M	3
	9 - Integrate tourism & recreation interests in access management planning	# protected from impact Km maintained roads to tourism & recreation features # licenced commercial recreation license holders # planning interactions with tourism & rec sectors # of specific management considerations incorporated into planning.	2	1	1	5	E	H/L	2
	10 - Accommodate and encourage maintenance of existing recreation trails and facilities and establishment of new sites	Total # of sites & km of trails # sites & km trails maintained \$ spent on trail/site maintenance or construction	2	1	2	7	M	M/H	2
	11 - Maintain opportunities for guide outfitting, trapping, hunting & fishing	# of licenced & active guide outfitters & trappers # km of maintained roads	3	1	1	2	M	H/M	1

Goal	Raw data used to determine monitoring priorities Indicator	Secondary Score (bigger # = higher priority)		Planning	Collect Data	Prob. of Success ± Uncertainty	Reduce Uncertainty	Detect Consequences
		Current Priority	Ease of Monitoring					
	Community Forest Objective							
	12 - Integrate guide outfitting, trapping, hunting & fishing interests in forest development and access management planning	# of planning interactions with guide outfitters, trappers hunters	1 1 2	3 7	X E	M/M	M/H	2
		# of specific management considerations incorporated into planning.	2 1 2	2 7	X M			
	13 - Support efforts to explore and develop energy, aggregate and mineral resources	# of planning interactions with energy and mining sectors	2 1 2	3 8	X E	M/H	M/H	3
	14 - Incorporate energy, subsurface and aggregate resource interests into access management plans	# km of maintained roads	3 1 2	2 8	2 E	M/M	M/M	3
	15 - Maintain and support opportunities for cattle range	# active range permits	2 1 1	1 5	X X	M/L	M/L	3
	16 - Minimize damage to young plantations from cattle	% seedling damage due to cattle range	1 1 3	3 8	2 X	M H/L	M/M	3
	17 - Incorporate cattle range interests in forest development plans and access management plans	# of planning interactions with range permit holders	2 1 2	3 8	X E	M/M	M/M	3
		# km maintained roads accessing range permit areas	3 1 2	2 8	2 E			
	18 - Generate a fair and attractive rate of return for investors and BCRS	Corporate % profitability	3 2 1	1 7	X E	M/H	H/H	1
	Total funds provided to BCRS		2 2 1	1 6	X E			
	19 - Maintain and enhance opportunities for viable, diversified and profitable local businesses in the timber and non-timber harvest sectors	% funds spent locally	3 2 1	2 8	2 M	M/H	H/H	1
	Number of local goods & service providers used	1 2 1	2 6	1 2	M			
	20 - Create employment opportunities in timber harvesting, silviculture, processing, forestry/engineering, administration and management.	# full time equivalent jobs	3 2 1	1 7	X M	H/M	H/L	1
	% local capture	3 2 1	1 7	1 X				
	21 - Provide variety of opportunities for local people and businesses to purchase timber or logs at fair market value	Volume of logs sold locally	3 2 1	1 7	1 X	M/M	H/L	1
	# sponsored training							1
	22 - Support efforts to enhance local capacity in skilled labour, management, contract services and processing	2 2 2	2 8	2 X	E M/H	M/H		
	# new forest products developed	2 2 3	3 10	2 1	D L/H	M/H	1	2
	23 - Identify and pursue management and harvesting rights for new forest products							
	24 - Optimize economic benefits to community as a whole by balancing use of forest resources	1 2 2	2 7	X M				1

APPENDIX C – COMMUNITY FOREST INDICATOR PERFORMANCE TRACKING

Objective	Indicator	2008	2009	2010	2011	2012
Strategy Area 1 – Utilizing the forest land to its optimal potential for a broad range of economic benefits within the sustainable capacity of a healthy environment						
1 - Establish an annual rate of harvest consistent with forest productivity, inventory, environmental protection, forest health, non-timber resource interests and optimal timber flow.	• AAC – 30,000 m ³					Complete – See PCFA Licence document & Forest Management Plan.
2 - Harvest the AAC on a regular basis	• Actual harvest by year	0 m3				
3 - Enhance sustainable timber harvesting opportunities through improved management, site restoration, better inventories, tighter utilization and use of new technologies.	• AAC change Regen delay status Free to grow status	• No change N/A – no activity N/A – no activity				
4 - Maintain and enhance opportunities to harvest non-timber forest products (NTFP)	• Mapped area of NTFP production	• No mapping available				
5 - Integrate NTFP opportunities in forest development and access management planning	• Km of maintained road access. • # of planning interactions with NTFP sector • # of NTFP management considerations incorporated into plans	• ~ 76 km • 3 - public info & Nuxalk meetings • No specific items				
6 - Maintain water quality, quantity and timing of flows within natural range of variability to support licenced water use and hydro electric generation	• # Licenced water users • FRPA riparian protection compliance. • ECA %	• 4 known • No activity • No activity				
7 - Maintain visual resource values and aesthetic quality in important scenic areas	• # VIA conducted • Compliance with Visual Quality Objectives standards.	• 1-Nusatsum • No activity				
8 - Protect important tourism & recreation features	• # important features • # protected from impact	• 8 • 8				

Objective	Indicator	2008	2009	2010	2011	2012
9 - Integrate tourism & recreation interests in access management planning	<ul style="list-style-type: none"> Km of maintained road access to tourism & recreation features. # of licenced commercial recreation license holders # of planning interactions with tourism & recreation sectors # of specific management considerations incorporated into plans. 	<ul style="list-style-type: none"> ~76 km TBA 1 public info meeting No specific items 				
10 - Accommodate and encourage maintenance of existing recreation trails and facilities and establishment of new sites	<ul style="list-style-type: none"> Total # of sites and km of trails # of sites and km trails maintained by year. \$ spent on trail/site maintenance or construction. 	<ul style="list-style-type: none"> 8 sites, 13.5 km trails 1 site, 5.5 km 				
11 - Maintain opportunities for guide outfitting, trapping, hunting & fishing	<ul style="list-style-type: none"> # of licenced & active guide outfitters & trappers. # km of maintained roads. 	<ul style="list-style-type: none"> TBA ~76 km 				
12 - Integrate guide outfitting, trapping, hunting & fishing interests in forest development and access management planning	<ul style="list-style-type: none"> # of planning interactions with guide outfitters & trappers # of specific management considerations incorporated into plans. 	<ul style="list-style-type: none"> 1 public meeting FSP visual strategy 				
13 - Support efforts to explore and develop energy, aggregate and mineral resources	<ul style="list-style-type: none"> # of planning interactions with energy & mining sectors 	<ul style="list-style-type: none"> 1 public meeting 				
14 - Incorporate energy, subsurface and aggregate resource interests into access management plans	<ul style="list-style-type: none"> # km of maintained roads. 	<ul style="list-style-type: none"> No specific action 				
15 - Maintain and support opportunities for cattle range	<ul style="list-style-type: none"> # active range permits 	<ul style="list-style-type: none"> 2 active, 1 dormant 				
16 - Minimize damage to young plantations from cattle	<ul style="list-style-type: none"> Regeneration survey - % seedling damage due to cattle range 	<ul style="list-style-type: none"> No activity 				
17 - Incorporate cattle range interests in forest development plans and access management plans	<ul style="list-style-type: none"> # of planning interactions with range permit holders # km of maintained roads 	<ul style="list-style-type: none"> 2 direct contact ~ 12 km 				

Objective	Indicator	2008	2009	2010	2011	2012
Strategy Area 2 – Contribute to Enhancement of Local Economy						
18 - Generate a fair and attractive rate of return for investors and BCRS						
19 - Maintain and enhance opportunities for viable, diversified and profitable local businesses in the timber and non-timber harvest sectors	<ul style="list-style-type: none"> Corporate % profitability Funds provided to BCRS. % funds spent locally Number of local goods & service providers used. 	<ul style="list-style-type: none"> No revenue N/A 95% 7 				
20 - Create employment opportunities in timber harvesting, silviculture, processing, forestry/engineering, administration and management.	<ul style="list-style-type: none"> Number of md & full time equivalent jobs % local capture 	<ul style="list-style-type: none"> 200.8 md, 0.8 fte 97% 				
21 - Provide variety of opportunities for local people and businesses to purchase timber or logs at fair market value	<ul style="list-style-type: none"> Volume logs sold locally as % of total 	<ul style="list-style-type: none"> No harvest 				
22 - Support efforts to enhance local capacity in skilled labour, management, contract services and processing	<ul style="list-style-type: none"> Documentation of implemented training 	<ul style="list-style-type: none"> None 				
23 - Identify and pursue management and harvesting rights for new forest products	<ul style="list-style-type: none"> Documentation of development of new forest products on the community forest 	<ul style="list-style-type: none"> None 				
24 – Optimize economic benefits to community as a whole by balancing use of forest resources	<ul style="list-style-type: none"> Documentation of win-win outcomes # of positive and negative responses from other economic sectors to proposed development 	<ul style="list-style-type: none"> FIA trails None received 				
Strategy Area 3 – Maintain and enhance the quality of life of all residents.						
25 - First Nation's rights and title are recognized and accommodated	<ul style="list-style-type: none"> # of protocols # of review and comment meetings 	<ul style="list-style-type: none"> No protocol Nuxalk 3 meetings 				
26 – Maintain natural diversity of species, ecosystems, serial stages and ecosystem functions	<ul style="list-style-type: none"> Compliance with FRPA requirements 	<ul style="list-style-type: none"> FSP submitted 				

Objective	Indicator					
		2008	2009	2010	2011	2012
across scales and through time	<ul style="list-style-type: none"> Performance tracking of EBM elements as identified in Land Use Orders 	<ul style="list-style-type: none"> No activity 				
27 - Maintain opportunities for residents to pursue all the various resource uses and activities available (forestry, NTFPs, culture, tourism, recreation, water, guide outfitting, trapping, hunting, mining, cattle ranging	<ul style="list-style-type: none"> # of complaints regarding reduced opportunity. 	<ul style="list-style-type: none"> None received 				
28 - Inform community about forestry activities and provide opportunities for public to comment and participate in planning	<ul style="list-style-type: none"> Office set up # newspaper articles # public meetings 	<ul style="list-style-type: none"> Office leased 3 articles 3 public meetings 				
29 - Promote education in forest stewardship	<ul style="list-style-type: none"> # school education sessions Joint education/management agreement with SD 49. 	<ul style="list-style-type: none"> No sessions No protocol 				
30 - Minimize fire risk and promote enhancement of a resilient interface fire zone	<ul style="list-style-type: none"> # initiatives to promote awareness # interface fire zone treatments 	<ul style="list-style-type: none"> No initiative No treatments 				
31 - Protect or conserve cultural heritage features	<ul style="list-style-type: none"> # sites protected 	<ul style="list-style-type: none"> 8 CMT's 				
32 - Maintain opportunities for harvest and use of forest resources for cultural purposes	<ul style="list-style-type: none"> # of complaints of missed opportunities resulting from community forest operations Monumental cedar inventory 	<ul style="list-style-type: none"> No complaints Monumental cedar inventory TBA 				
33 - Integrate cultural heritage resource interests into forest development and access management planning	<ul style="list-style-type: none"> # of planning interactions with First Nations and cultural organizations holders # km of maintained roads accessing tributary valley's. 	<ul style="list-style-type: none"> 3 meetings with Nuxalk ~ 76 km maintained roads 				