



**SUSTAINABLE FOREST
MANAGEMENT PLAN FOR THE
CANFOR-QUESNEL DFA**

2007 ANNUAL REPORT

COMMITMENTS TO SUSTAINABLE FOREST MANAGEMENT

Canadian Forest Products Ltd. (Canfor) believes in conducting its business in a manner that protects the environment and ensures sustainable forest development.

The Canfor Environmental Policy and Forestry Principles detail the commitments to Sustainable Forest Management (SFM) for the Canfor Quesnel Defined Forest Area (DFA). These commitments are available for public viewing on the following link: www.canfor.com

Executive Summary

Purpose

This report is prepared as part of the annual assessment to confirm Canfor's continued implementation of SFM registered to the CSA Z809-04 Standard. This report provides a status, to December 2007, of the locally developed measures of the SFMP.

In this report, brief status update is provided and each measures condition is further described. For further reference to the intent of the measures, or the practices involved, the reader should refer to the Sustainable Forest Management Plan for the Canfor-Quesnel DFA (SFMP, November 15, 2005, *revised date*).

Overview of Achievements

Continued Improvement is shown in the role up of the results of the 2007 report from previous annual reports. Where measures are not met, or where they are pending, they identify areas for future opportunities to improve, or measures/targets that should be reviewed for revisions.

The 2007 reporting year 86 % (80 of 92) of the locally developed measures have been met, 8% (7) are pending and 4% (4) were not met.

For the 2006 reporting year 84% (79 of 94) of the locally developed measures have been met, 14% (13 of 94) are pending and 2% (2 of 94) were not met.

For the 2005 reporting year 69% (63 of 91) of the locally developed measures have been met, 31% (28 of 91) are pending and 0% (0 of 91) were not met.

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Introduction

Canadian Forest Products Ltd. (Canfor) - Quesnel achieved CSAZ809-02 certification in December 20, 2005 for the Defined Forest Area which is described as the management unit (operating area) that covers the replaceable Forest Licence A20011.

This Sustainable Forest Management (SFM) Plan implements the process provided by the SFM Framework. The SFM Framework Document identifies the concepts and rationales supporting this SFM approach. The overall objective of the SFM Framework has been to demonstrate to government and industry resource managers, area residents, stakeholders, and customers of forest resources that it is possible to implement sustainable forest management at the management unit level. The SFM Plan translates the strategic goals of the SFM Framework into operational indicators and measures of sustainability.

A public advisory group, called the North Cariboo Sustainable Forest Advisors (NCSFA) was formed (March 2004) to identify local level measures of SFM. The 91 measures identified by the NCSFA were detailed with associated forest management practices to achieve those objectives in a Sustainable Forest Management Plan (SFMP) for the Defined Forest Area (DFA) in September 2005. Generally, the status of the measures reported in SFM Plan (November 15, 2005) described the 2004 condition.

This report provides the 2007 performance update for each of the measures.

The annual report is intended to serve as a monitoring tool to track the progress and development of the measures. The document briefly describes the measures and provides a detailed status of their 2007 condition. Measures with significant import or trends will be compared to previous years where possible.

Note that where variances are expressed as percentages they are to be treated as the difference or range of variation by percentage points.

Table: Summary of 2007 Measure Status

Measure		Target Met	Target Pending	Target Not Met
1-1.1	Ecosystem representation		X	
1-1.2	Representation targets within the Forest Stewardship Plan		X	
1-1.3	Seral stage distribution	X		
1-2.1	Area retained on harvested areas	X		
1-2.2	Stand level retention	X		
1-2.3	Diversity of stand level retention	X		
1-2.4	Coarse woody debris on harvested areas in the THLB	X		
1-2.5	Riparian areas in the THLB	X		
1-2.6	Shrub areas across the DFA	X		
1-2.7	Deciduous leading areas across the DFA	X		
1-3.1	Vertebrate species	X		
1-3.2	Vertebrate species populations remain viable		X	
1-3.3	Management strategies for SARA species	X		
1-3.4	Listed species strategies followed	X		
1-4.1	Stream crossings -compliance with design standards	X		
1-4.2	Percent Stream crossings with SCQI ranking less than high	X		
1-4.3	Stream crossings — inspections & measures completed	-	-	-
1-4.4	Temporary stream crossings removed to standard	X		
1-4.5	Regen Delay Period	X		
1-5.1	Designated Protected areas	X		

Measure		Target Met	Target Pending	Target Not Met
1-5.2	Special sites with biological significance managed in FSP	X		
1-5.3	Management activities consistent – legal objectives	X		
1-6.1	Seeds and seedlings – accordance with regulation	X		
1-6.2	Natural regeneration	X		
1-6.3	Natural ingress in plantations	X		
2-1.1	Site Index in harvested areas	X		
2-1.2	Coarse woody debris in harvested areas	X		
2-2.1	Forest converted to non-forest land use	X		
2-2.2	Cutblock area with road/landing construction	X		
2-2.3	Soil disturbance targets met after harvesting and silviculture	X		
2-2.4	Landslides	X		
2-3.1	Regeneration delay	X		
2-3.2	Compliance with regeneration standards	X		
2-3.3	Compliance with free growing			X
2-4.1	Treatment plans for natural disturbance events	X		
2-4.2	Number of catastrophic natural disturbance events	X		
3-1.1	Carbon stored in trees	X		
3-1.2	Carbon stored in non-tree vegetation	X		
3-2.1	Carbon pool maintained		X	
3-2.2	Management practices to reduce carbon	X		
3-3.1	Measures that contribute to forest carbon cycle	X		
4-1.1	Total value of timber harvested	X		
4-1.2	Timber supply certainty - AAC	X		
4-1.3	Percentage harvested area regenerated to target species	X		
4-2.1	Employment in forestry sub-sector			X
4-2.2	Indirect/induced employment	X		
4-2.3	Percentage dollars spent by forestry sub-sector			X
4-2.4	Contracts to purchase logs from local sources	X		
4-3.1	Fees paid to municipal and provincial governments	X		
4-4.1	Opportunities for First Nations	X		
4-5.1	Competitive primary milling facility	X		
4-6.1	Assessment of damaging events or agents	X		
4-6.2	Management strategies for damaging events or agents	X		
5-1.1	List of marketed non-timber benefits and strategies for them	X		
5-1.2	Conformance with the non-timber benefit strategies	X		
5-1.3	Income from jobs in the NTF sector	-	-	-
6-1.1	Employment by sector – local economy		X	
6-1.2	Income by sector – local economy		X	
7-1.1	Stakeholder analysis	X		
7-1.2	Communication/participation plan	X		
7-1.3	Effective public advisory group	X		
7-1.4	NCSFA review of FSP	X		
7-1.5	NCSFA satisfaction with process	X		
7-1.6	NCSFA endorsement of SFM plan	X		
7-2.1	Effective communication of information with the public	X		
7-2.2	Reciprocal knowledge exchange	X		
7-2.3	Website developed and maintained	X		
7-2.4	Timely responses to public inquiries	X		
7-3.1	An adaptive management strategy	X		
7-3.2	A monitoring plan	X		
7-3.3	A forecasting plan	X		
7-3.4	An information management system	X		

Measure		Target Met	Target Pending	Target Not Met
7-3.5	Report and analysis	X		
7-3.6	Communication of monitoring data beyond DFA	X		
8-1.1	Percentage conformance to established rights	X		
8-2.1	First Nations identify resources	X		
8-2.2	Enabling access to resources for First Nations	X		
8-3.1	Consideration and accommodation of known First Nation cultural issues	X		
8-4.1	Accessibility of maps showing baseline cultural uses	X		
8-4.2	Logging details accessible to First Nations	X		
8-4.3	Meaningful First Nations participation	X		
9-1.1	Sustain baseline levels of outdoor recreational activities	X		
9-1.2	Access maintained for recreation use	X		
9-1.3	Balance of recreation opportunities maintained		X	
9-2.1	Compliance with visual quality objectives	X		
9-2.2	Compliance with visual quality set in CCLUP	X		
9-3.1	Identification of unique or significant places and features and protected areas	X		
9-3.2	Degree of protection of unique or significant social, cultural or spiritual value	X		
9-4.1	Number of safety incidences	X		
9-4.2	Observance of recognized safety standards	X		
9-4.3	Percent of companies with SAFE certification			X
9-4.4	Safety occurrence summary	X		
9-5.1	Policy for donations is in place	X		
9-5.2	List of donations	X		

~~Measures deleted in 2007~~

[Measures revised in 2007](#)

Description and Condition of the SFM measures for the Canfor Quesnel DFA

Ecological Values – Criterion 1, 2, and 3

Criterion 1	Biological richness and its associated values are sustained in the defined forest area (DFA)
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Indicator 1-1	Ecologically distinct ecosystem groups are represented in an unmanaged state in the DFA to sustain lesser known species and ecological function.
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Measure 1-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-1.1 An ecosystem representation analysis exists that describes the number, size and type of distinct ecosystem groups in both the THLB and NHLB and recommends proportion of area that should be represented in an unmanaged state.	1 analysis (0)	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Maintaining representation of the full range of distinct habitat types across the land base is a critical component of managing to sustain biological diversity. An ecosystem representation analysis is necessary first to establish the number and area of ecosystem types within a given area (and thus determine which types are common and which are rare), and second to identify which ecosystem types are poorly represented in the NHLB. Where adequate representation is achieved, more intensive use of the managed land base can occur; where representation is lacking, management strategies can be developed to transfer a portion of each under-represented type to the NHLB.

2007 Condition

This measure is pending awaiting completion of Predictive Ecosystem mapping for the Quesnel TSA. PEM information was made available for an Ecosystemt representation Project starting in January 2008. The initial analysis will be available at the end of March. Review of the analysis and the determination of target retention will continue in 2008/09.

Measure 1-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-1.2 Forest Stewardship Plan consistency with agreed upon representation targets	100% (0)	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Ecosystem representation is a cornerstone of the biodiversity approach proposed in this SFM Plan. This measure ensures Forest Stewardship Plan (FSP) compliance regarding ecosystem representation in the non-harvested land base. The process for the representation analysis will be peer-reviewed and presented to government staff for acceptance. The subsequent findings (i.e. the size of each distinct habitat type and its representation in an unmanaged state) will be presented to the NCSFA, local government agencies and provincial experts for review. Input from these groups will then be used to develop representation targets and set priorities for management.

2006 Condition

This measure is pending upon completion of ecosystem Representation Analysis the determination of target retention and then incorporation into district policy and the FSP. No change for this measure in 2007. Work can begin on this measure in 2008.

Measure 1-1.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-1.3 <i>Interim Measure:</i> Percent area by old and mature+old seral stage by Landscape Unit and BEC subzone for the Timber Harvesting Land base (THLB) within the DFA that is affected by forest management	Per CCLUP biodiversity strategy	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure determines the amount of early, immature, mature and old forest that occurs within each Landscape Unit by BEC variant. This interim measure is a surrogate for seral stage by habitat type, which will be determined after the completion of the representation analysis. Seral stage will be listed as a sub measure under measure 1-2.1 once the representation analysis is completed.

2006 Condition

No change for this measure in 2007 from the information by Landscape Unit provided in the SFMP(2005). The updates to the CCLUP biodiversity strategy have allowed for a onetime drawdown of the old+mature seral targets to allow for salvage of the Mountain Pine Beetle attacked stands. The measured is considered met.

Note that the extent of the MPB Epidemic will affect the old+mature targets and values well into the future. A new forest cover inventory will be required to provide information on the actual seral state of the forests following the MPB epidemic and salvage harvesting.

Indicator 1-2	The amount, distribution, and diversity of terrestrial and aquatic habitat type elements and structure important to sustain biological richness are sustained.
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The following “what and why” applies to all the 1-2 measures.

What is this measure and why is it important?

These measures address the availability of certain habitat elements that are important to the continued maintenance of forest-dwelling vertebrate and invertebrate species within the DFA. Until more detailed habitat data becomes available, the interim targets will rely on the baseline data provided by the Genus database. These targets will be modified to reflect improved data as it becomes available.

These elements or sub-measures provide critical foraging, breeding or shelter habitat to many species of birds, mammals, amphibians, insects, bryophytes and fungi. Species rely not only on the amount and distribution of these habitat features, but also on specific characteristics.

Examples of specific characteristics include:

- the size and decay class of standing dead trees determines the utility for cavity nesting bird species.
- riparian-associated shrubs that are used differently by shrub-nesting birds than upland-associated shrubs.

Measure 1-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.1 Average area retaining dead and/or live standing trees on harvested areas in the THLB	Average 8% (12%) of the area harvested annually across the DFA retains snags and/or live trees/ha where prescribed on harvested areas immediately following harvesting	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

The average area retained for blocks with harvesting completed in 2007 was 13%. The value for the measure is higher than the variance allowed for the target. This is considerably less than the average percentage in 2006. Of the 29 block with harvesting completed, fewer larger blocks (>200Ha) were found in 2007 (3) than in 2006(9). This is consistent with the increased retention that has been requested by the Ministry of Forests when larger blocks are proposed for the salvage of beetle killed timber.

Retention requirements are met by the cutting permit (containing one or more block). Some small blocks may have no retention while the larger blocks are expected to have more retention. This practice allows planners and fieldcrews to select the best locations for the retention. The

lower result in 2007 is partly due to harvest scheduling. Blocks with lower than average retention were harvested in 2007. 12 of the 29 blocks had retention of levels less than 9%. The block retention levels ranged from 0 to 37%.

The result is within the approved variance and consistent with the Quesnel enhanced retention strategy. The target is considered met.

Table : Average of the area retained on harvested areas

Year	Total Area with Harvesting completed (ha)	Average % Retention
2004	4622	10.6
2005	3730	10.4
2006	2319.7	22.0
2007	2267.6	13.0

Measure 1-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.2 Stand level retention (eg. WTPs)	100% conformance with the current district policy (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

Current practices follow the direction provided by the Quesnel District Manager for wildlife tree patch retention. Higher retention is being provided in the larger salvage blocks consistent with the *Quesnel District Enhanced Retention Strategy (Feb2006)*. Canfor worked other licensees and the Ministries of Forests and Range, and Environment to develop best practices for retention during the salvage AAC uplift. The measure is considered to be met.

Measure 1-2.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.3 Diversity of stand level retention	Conformance with stand level retention strategy in the SFMP (100)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

This measure is an SFMP strategy. Flexibility for retention is provided to planning, layout, and harvesting staff to place retention in order to best retain stand level values and to meet retention requirements. There were no instances where blocks were not in conformance with the stand level retention strategy.

Measure 1-2.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.4 Coarse woody debris on harvested areas in the THLB	≥ 4 logs (2m or > length with a 7.5 cm or > top) per ha	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

Harvesting supervisors note in the final inspection whether this condition has been met. Instances where the conditions have not been met are identified as environmental incidents, which are then tracked. There were no incidents identified in 2007. It is considered that all of the blocks harvested in 2007 met the target.

A project was completed in 2007 which tracked the levels of CWD prior to and following harvesting in a number of blocks. In all cases there was more CWD following harvesting. The attributes of the increased volume of CWD following harvesting tended to be smaller and shorter (due to machine traffic) with the older, mostly decayed, CWD being difficult to detect following harvesting. It was considered by the NCSFA that future efforts towards understanding CWD will be directed to the quality of CWD, for habitat, rather than quantity.

A pulp program started in 2007 has not significantly changed the amount of CWD left on the block. The pulp program targeted the remaining “non-sawlog” volumes left in the roadside debris piles. These piles are burned following harvesting. The pulp program increased the amount of volume recovered from the blocks by 15%.

Measure 1-2.5

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.5 Riparian areas in the THLB	Riparian strategies or standards will meet or exceed legal requirements (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

No change to this measure in 2007. Riparian strategies are designed to meet and/or exceed legal requirement. No incidents were identified in riparian areas. The target is considered to be met.

Measure 1-2.6

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.6 Proportion of shrub areas across the DFA	Minimum 3% of the area of the DFA (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

No change for this measure in 2007. The shrub areas mostly classed as Non commercial Brush areas (NCBr) comprised 3% of the crown forested land in the DFA. Information was provided by the 2005 forecasting project. The next SFMP forecast project will review shrub information. The target is considered to be met.

Measure 1-2.7

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-2.7 Proportion of deciduous leading areas across the DFA	1.5% of the area of the DFA (0.2%)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

2007 Condition

No change for this measure in 2007. The deciduous leading areas (>80% deciduous species) comprised 1.5% of the crown forested land in the DFA. Information was provided by the 2005 forecasting project. The next SFMP forecast project will review deciduous information. The target is considered to be met.

Indicator 1-3	Productive populations of selected species or species guilds are well distributed throughout the range of their habitat
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Measure 1-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-3.1 Develop report recommending vertebrate species needing monitoring.	1 report (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure addresses the identification and evaluation of appropriate vertebrate ‘indicator species’ on which monitoring should focus. While monitoring species is important to assess whether or not Indicators 1 and 2 (ecosystem representation, habitat elements) are maintaining persistent populations of species, it is simply not possible to monitor all species. Instead, a set of forest-dwelling species will be selected and evaluated as candidates for monitoring. These species must be practical to monitor, sensitive to forest practices, and able to provide information that can guide management. In addition, a list of species of special management concern will be identified for this area. Species of special management concern are not necessarily good indicators of habitat quality and quantity, but are deemed to be socially important in the Quesnel DFA.

This measure has been developed to ensure that a locally relevant set of vertebrate species is established for the DFA.

2007 Condition

A 2006 report narrowing down the potential species to monitor was completed. Further work by Canfor and researchers has identified songbirds to have potential for the monitoring of stand level values. Projects have inventoried birds at other Canfor divisions. A Quesnel project was started in 2007/08 with Forest Investment Account Funding.

Measure 1-3.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-3.2 Recommended vertebrate species populations remain viable	Monitoring Plan and baseline information to be developed	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure ensures that a commitment is made to monitoring the populations of those indicator species selected under Measure 1-3.1. Under this measure, a monitoring plan will be developed for select species, with baseline information being collected over the next two years. Baseline

data on the distribution and estimated numbers of each species within the DFA will allow overall trends in species populations to be monitored through time.

2007 Condition

Canfor has been corporately working on a songbird monitoring project. The piloting at other divisions has occurred. A Quesnel project has been set for baseline monitoring project in 2007/08. The project will also look at the retention practices to determine if and which retention areas are used by birds. Results for the project will be available in March of 2009.

Measure 1-3.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-3.3 Develop Management Strategies for identified local Forest-Dwelling Species at Risk as identified in Schedule One of SARA	1 strategy per species (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The Federal Species at Risk Act identifies specific species at risk for which industry must develop management strategies. The Ministry of Environment has determined that the list of species of wildlife in Schedule One of SARA are a category of species at risk that may be affected by forest or range management on Crown land and require protection in addition to that provided by other mechanisms. This measure ensures that a management strategy is developed for each Species at Risk identified within the Canfor Quesnel DFA in order to sustain populations within an acceptable range as influenced by forest management activities.

2007 Condition

No forest dwelling species at risk identified in the DFA. The target is considered to be met.

Further review in regards to identification of SAR plants may occur following results from the Ecosystem Representation Analysis.

Measure 1-3.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-3.4 Percentage of Listed Species from 1-3.3 management strategies that are followed	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure ensures commitment to the development and implementation of management strategies for Schedule One Species at Risk within the Canfor Quesnel DFA. The management and monitoring of endangered, threatened and special concern species reflects the commitment of

this plan. By following the recommended strategies, management can contribute to the long-term persistence of these species and their required habitats across the land base.

2007 Condition

No forest dwelling species at risk identified in the DFA. The target is considered to be met.

Indicator 1-4	Water resources will be sustained by maintaining water quality and quantity
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Measure 1-4.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-4.1 The percentage of Canfor stream crossings constructed which are planned and installed to design/standard	100% conformance (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure ensures that stream crossings within the DFA are designed and built according to the standards outlined in the Forest and Range Practices Act. The quality and quantity of water is important both as habitat for aquatic species and for agricultural or domestic use. Within the Canfor Quesnel DFA, the primary concern for water quality is the maintenance of habitat for aquatic species. Forestry roads can have a large impact on water quality when they intersect with streams including potentially increasing sedimentation into water channels. Monitoring the adherence of stream crossing construction to these standards ensure that crossings, particularly those posing a high risk to water quality, are built using the most current knowledge and technology.

2007 Condition

No crossing incidents were identified where Canfor stream crossings constructed were not planned and installed to design/standard in 2007. The target is considered to be met.

Measure 1-4.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-4.2 Percentage of Canfor’s measured stream crossings for selected watershed(s) with less than high (5-20) Stream Crossing Quality Index (SCQI) ratings.	85% (-10%)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure was developed for Canfor SFM Plans and identifies stream crossings that possess a high Stream Crossing Quality Index (SCQI). The primary concern around water quality within the Canfor-Quesnel DFA is the maintenance of habitat for aquatic species. The primary sources of sedimentation resulting from forestry practices are roads, landslides, and stream bank instability. Increases of sedimentation into streams over natural levels have been shown to have negative impacts on fish, other aquatic life, and their habitat (FSJ SFM Plan, 2003).¹ High SCQI ratings identify opportunities for improving performance. Generally newer stream crossing will have higher ratings until vegetation reduces the amount of sedimentation that can reach the stream. The design of stream crossings and their maintenance also plays a key roles in the prevention of sedimentation.

2007 Condition

The SCQI process was revised in 2007 to be a component of a Ministry of Forest and Range Water Quality Effectiveness Evaluation (WQEE). The measure was revised in 2007 following a presentation by a watershed hydrologist on SCQI. The NCSFA determined that the process would be used to quantify stream crossing management for Canfor-Quesnel’s crossings in the Baker creek watershed.

In 2007 Canfor staff and contractors received training in the use of the SCQI procedure and methods to reduce sediment transport into streams.

For the SCQI measures within the Baker creek watershed 100% of the measured crossings met less than high SCQI. 4 crossings were identified as being moderate. These will be reviewed in the course of road maintenance activities.

Much salvage activity continues to take place in the Baker Creek watershed. More monitoring will occur on newer crossing in 2008.

Measure 1-4.3 dropped in 2007

¹ Fort St. John Pilot Project. Sustainable Forest Management Plan. Fort St. John. 2003

Measure 1-4.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-4.4 The percentage of temporary stream crossings that are removed according to standards	100% compliance (10)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure ensures that temporary stream crossings within the DFA are removed in compliance with the requirements outlined in the Forest and Range Practices Act. These requirements include timing of removal as well as the procedure for removal. Resource managers have found that removal of crossings has the potential to cause significant sedimentation. This measure complements the others stream crossing measures and ensures the stream crossing through to the end of its use.

Supervisors track their performance with this measure during final inspections. Field audits by external parties' spot check this performance.

2007 Condition

No instances were identified where temporary streams were not removed according to standards.

Measure 1-4.5

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-4.5 Regen Delay period	See 2-3.1	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure relates to water quantity. The performance of meeting or beating the regen delay following harvesting ties to hydrological effects that a quickly established plantation will contribute to as it matures. This measure is particularly important with the increase harvesting levels to salvage the MPB killed stands. If the targets for regen delay are met then the stand will be on its way to contributing to the control of water quantity and this measure will have been met.

2007 Condition

No instances were identified where regen delay was not met. The target for 2-3.1 was met, therefore, this water quantity measure has been met.

Indicator 1-5	Government designated protected areas and sites of special biological significance are sustained at the site and sub regional level
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Measure 1-5.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-5.1 The percentage and hectares of total land-base comprised of government designated protected areas in the Quesnel District	1 list (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure examines the number and area of all existing parks, reserves and protected areas within the Quesnel Forest District. It identifies the overall contribution of parks to protection at the sub-regional level, and is the first step towards identifying the contribution of parks to ecological representation.

2007 Condition

No change to this measure. See list below. The total TSA area is 1.65 million ha; therefore, the total percentage of land base of government designated protected areas in the TSA is 12.6 %.

The target is considered to be met.

Table : Parks & Protected Areas in the Quesnel District²

Parks and Protected Areas*	Net Area(ha) within Quesnel District
Narcosli Lake ER + Goal 2	2301
Mount Tinsdale ER	419
Barkerville Park	54
Bowron Lake Park	113,968
Cariboo Mountains Park	29,378
Cariboo River Park	1,268
Cottonwood River Park	1
Dragon Mtn Goal 2	1839
Finger Tatuk Park	9
Ilgachuz Range ER	2,214
Itcha Ilgatchuz Park	38,074
Kluskoil Lake Park	15,362

² BC Parks website located at wlapwww.gov.bc.ca/bcparks and information provided by Canfor Quesnel

Parks and Protected Areas*	Net Area(ha) within Quesnel District
Pinnacles Park	128
Puntchesakut Lake Park	37
Ten Mile Lake Park	343
Titetown Lake (Goal 2)	1016
Wendle Park	208
Wentworth Lake (Goal 2)	617
Total area	207,187

*ER= ecological reserves, PA= protected areas, otherwise, it's a park.

Measure 1-5.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-5.2 The percentage of sites of special biological significance are managed for within the Forest Stewardship Planning process	100% of discovered and documented sites (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure ensures that biologically important sites are documented and appropriately managed for under the FSP. This analysis and inventory should include important or critical wildlife habitat, environmentally sensitive sites, and unusual or rare forest conditions, as established according to scientific and traditional criteria. The identification of these sites is important as they may represent high conservation values that are unique to the Canfor Quesnel DFA. The subsequent development of strategies to manage for and monitor these sites will contribute to their continued persistence within the Canfor-Quesnel DFA.

2007 Condition

The proposed FSP identified the known ecologically sensitive areas. No additional sites of special biological significance were identified in 2007.

Future work towards this measure may be identified by the Ecosystem Representation Analysis 2007/08 if rare vegetation communities are identified.

Measure 1-5.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-5.3 The proportion of forest management activities consistent with legal objectives and general wildlife measures of approved wildlife habitat areas, ungulate winter range, caribou management areas and critical fish habitat	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure ensures compliance of forest management practices with the legal objectives and general wildlife measures of approved habitat areas, ungulate winter ranges, caribou management areas and critical fish habitat. Compliance with these legislated objectives is important to safeguard against the potential degradation or loss of these values over time.

2007 Condition

No incidents identified. 100% compliance of forest management practices with the legal objectives and general wildlife measures of approved habitat areas, ungulate winter ranges, caribou management areas and critical fish habitat. The target is considered to be met.

Indicator 1-6	Forest management activities will conserve species genetic diversity
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Measure 1-6.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-6.1 The proportion of seeds for coniferous species collected and seedlings planted in accordance with the current regulation	100% compliance (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Genetic diversity of seedlings used for reforestation in BC is ensured through the seedlot registration policies and standards requirements of the Ministry of Forests (MOF). Cones and seed obtained from wild forest stands must be collected from a minimum of 10 trees. The MOF licenses tree seed orchards that ensure their seed sources maintain a recognized standard for genetic diversity. These rules are in place to ensure that the seed collected is appropriate for the seedlings planted in local conditions and that they contain sufficient genetic diversity to withstand natural disturbance events (including climate change to some degree).

2007 Condition

Planting was completed in conformance with approved stocking standards. Cone collection continued into 2007, to capture pine seed from the best known areas before the seed drops out of the dead cones. Collection and sorting of the cones complied with provincial standards.

The target is considered to met.

Measure 1-6.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-6.2 Of the area that is scheduled for regeneration, the proportion designated for natural regeneration	30% (15%)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Natural regeneration of local tree species contributes to the genetic diversity for those species. As with measure 1-6.1, maintenance of genetic diversity is important in ensuring that tree species are adapted to local conditions and can withstand natural disturbance events and agents.

The measure identifies the % area that was left or treated for natural regeneration in 2007 in contrast with the area planted.

This measure may require revision if the cones from the beetle killed pine are no longer providing viable seed. Silviculture foresters continue to monitor the viability of cones. To date the cones are still providing viable seeds.

2007 Condition

Natural regeneration was more commonly used in the past. In Quesnel, full planting started in 1993 and phased into almost 100% planting, following harvesting, by the year 1998. In recent years the silviculture strategy has looked to increase the amount of harvested area designated for natural regeneration. The results denote a yearly progression towards the target number.

The target was met

Table: Proportion of the area designated for natural regeneration.

Year	% Area designated
2002	3.3
2003	11.6
2004	17.5
2005	24.6
2006	24.1
2007	27.5

Measure 1-6.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
1-6.3 The amount of natural ingress of trees found during surveys of free growing stands.	90% (10) of stems in naturally regenerated stands 40% (20) of stems in planted stands	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Natural regeneration of local tree species contributes to the genetic diversity for those species. As with measure 1-6.2, maintenance of genetic diversity is important in ensuring that tree species are adapted to local conditions and can withstand natural disturbance events and agents. A query of the GENUS data derived from free growing surveys can demonstrate how many trees have grown from local seed sources.

2007 Condition

This year free growing surveys found that 95.0% of the stems in naturally regenerated stands and 78.2% of the stems in planted stands could be attributed to be grown from local genetic sources (natural ingress). This demonstrates that local genetic stock generally contributes significant numbers of trees within plantations even if these areas were planted with the ‘A’ class seed stock from provincial seed orchards.

The results also showed that the planted areas are more diverse. This is partly due to the selection for areas to plant versus natural regen. Areas designated for natural regeneration are selected based on the likelihood of the natural trees to out-compete brush and non crop trees. Dry pine sites, with little competition, are likely to regenerate themselves to pine. Areas with more deciduous competition are generally planted and can be more suitable sites for planting spruce.

The percent ingress for the natural regen stand was within the variance. The percent ingress for the planted stand was higher than the variance. This is considered acceptable, as it shows more of the local genetic stock continues to grow onsite. It is suggested that following one more year of data that if this trend continues this target should be reviewed if it is found that the local genetic stock continues to significantly contribute to these stands. Note that this local genetic potential may be affected by the dying seed source due the Mountain Pine Beetle epidemic.

The target is considered met.

Data from Free Growing Surveys by year

Year	Total Inventory (#Trees)	Total Area (Ha)	Ingress by (%)		
			Conifer	Deciduous	Total Ingress %
2004 Nat	21,000,000	2400	87.5	4	91.5
2005 Nat	5,061,406	789	93.6	1.8	95.4
2005 Plant	15,764,134	3091	70.6	11.3	81.9
2006 Nat	4,451,864	873.9	94.4	4.1	98.5
2006 plant	7,414,334	1452	71.5	12.7	84.2
2007 Nat	290,892	293.6	79	16.0	95.0
2007 plant	1,745,225	873	64.6	13.6	78.2

Criterion 2	The productive capability of forest ecosystems within the Timber Harvesting Land Base (THLB) is sustained.
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Indicator 2-1	Biological components of forest soils are sustained
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Measure 2-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-1.1 Interim measure - Site Index for harvested areas is sustained	Average post-harvest site index (at free growing) will not be less than average pre-harvest site index on harvested blocks	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Sustaining forest ecosystem productivity requires determining and designing forest practices that will maintain key soil resources so that harvesting does not cause continual degradation of site quality over time.

Site index is an expression of the forest site quality of a stand, defined as the height of the dominant or co dominant trees in a stand at a specified age. Site index equations are calculated for individual species using mensuration data. It is commonly used as an indicator of site productivity as it infers that trees or stands with greater growth at a given age have access to more key resources required for biomass production. The higher the site index for a given species in a given region, the higher the productivity or the quality of the site. Site index is sensitive to changes in ecological variables including soil nutrients, soil moisture, and others.

This measure provides a relative comparison of a post-harvest average site index (at free growing) compared to the pre-harvest site index (as represented by inventory estimates) in the THLB.

2007 Condition

The Site Index estimated from free growing surveys are on average 2.9 greater than the average Site Index estimate (16) from the Forest Cover mapping.

A Forest Sciences Program project was completed for the Canfor-Quesnel DFA in 2007 to measure the carbon in soils and model harvest rotation impacts on soil carbon. *The implications of management practices for mitigating Mountain Pine Beetle on ecosystem production and soil based indicators of SFM* (Welham and Seely March, 2007). The project modeled rotation lengths of sites with varying amounts of measured Soil Carbon (measure of productivity). The results found:

- Harvesting at the highest mean annual increment (volume/ha/year) was determined to contribute the highest productivity in terms of volume/ha without detriment to Soil Carbon levels.

- Shorter rotations are feasible however there are risks of degradation to soil productivity.
- Poorer sites may require inputs of fertilizer to avoid the risk of soil degradation.
- Fertilizer might not mitigate effects of soil degradation in the richer sites.

Processes developed during this project are being considered as a more direct method of measuring and monitoring soil productivity.

The measure is considered met for 2007. Future work on this measure is subject to priorities regarding MPB issues.

Measure 2-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-1.2 Amount of coarse woody debris on harvested areas (TBD-modeling of soil nutrients; forest floor mass and humus mass)	Interim Target: ≥ 4 logs (2m or greater length; 7.5cm or greater top diameter) per ha after harvesting (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Beyond providing food and habitat for animals and invertebrates and growing sites for plants, coarse woody debris is a source of nutrients for soil development and structure in streams to maintain channel stability. Past forestry practices have encouraged the removal of CWD from sites for a number of economic and/or safety reasons, potentially at the expense of soil nutrients.

This measure quantifies the retention of appropriate amounts of CWD on site following harvesting operations as part of the strategy for maintaining soil productivity within the Timber harvesting Landbase (THLB). Within the THLB, CWD is to be retained in blocks, within wildlife tree patches, riparian areas, and in unsalvaged timber (due to fire & insects). Within the non-harvesting landbase (NHLB) it is assumed that natural processes will result in the maintenance of appropriate levels of CWD.

At this time supervisors determine if the CWD left on the site following harvesting has met the target during their final inspection.

2007 Condition

No instances were identified where blocks did not meet the target. It is considered that all blocks harvested in 2007 met the interim target.

In 2007 a baseline study was completed in relation to CWD measurements pre and post harvest. Following harvesting CWD volumes dispersed on all the blocks measured were found to be higher than the preharvest CWD condition. The amount of CWD retained on site is primarily determined by the attributes of the harvested stand. The attributes include existing CWD volume, stand age, disturbance history, stem size, tree quality, stand type, species, etc. The NCSFA considered that developing a volume target for this measure would not be effective.

Note the pulp program mentioned in 1-2.4.

Indicator 2-2	Productive land-base loss as a result of forestry activities is minimized
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Measure 2-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-2.1 Area of THLB converted to non-forest land use through forest management activities	1.9% (1%) (from TSR 2 pg. 20)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

In addition to maintaining the resources necessary for sustaining the resiliency of forest ecosystems, a stable land base within which productive capability is assessed is also required. In order to assess the maintenance of the productive capability of the land base, this measure specifically tracks the amount of productive land base loss due to various non-forest uses. Removal of the productive land base occurs as a result of permanent access structures, including roads, landings and gravel pits, as well as converting forested areas to non-forest land use, such as agriculture use.

Conversion of the THLB to non-forest land also has implications for carbon sequestration. A permanent reduction in the forest means that the removal of carbon from the atmosphere and carbon storage will be correspondingly reduced.

2007 Condition

With the Genus implementation and the following assumptions on average permanent road width disturbance data calculated for the 2007 was 1%. Permanent road width is considered to be the top of the road cut to the toe of the fill for more operational roads and the running surface for short term roads. The value is less than the district average likely due to the flatter terrain in the DFA than that of the eastern portion of the district.

Permanent Road Width assumptions:

Canfor
 Highway 12m
 Public 10m
 Main 10m
 Access 8m
 Spur 6m

West Fraser
 BLOCK 6
 OPER 8
 FSR 10
 SKID 0
 TRAIL 0
 PUBLIC 10

HGWY 12

TRIM

Road (Rough)	6
Road (Gravel Undivided) - 1 Lane	8
Road (Gravel Undivided) - 2 Lanes	10
Trail	0
Road (Paved) - 1 Lane	10
Road (Rough - Overgrown)	0

The measure is met.

Measure 2-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-2.2 Average percent of all cutblock areas having roads/landing construction as a result of forest management activities	Average 5% (of cutblock areas) (2)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure quantifies the amount of productive land base loss due to road and landing construction in order to assess the progress towards the target. In order to continue with timber harvesting within the THLB, new roads and landings will need to be constructed over time in order to access available timber. Forest managers must balance the development of new roads in a road network system with the maintenance of existing roads, as well as the removal and rehabilitation of some existing roads.

The percentage of the land base classified as road and/or landings should be minimized in order to minimize the loss of the productive land base as a result of forestry activities.

As with the previous measure, conversion of the THLB to non-forest land also has implications for carbon sequestration. A permanent reduction in the forest means that the removal of carbon from the atmosphere and carbon storage will be correspondingly reduced.

A value less than negative variance is considered a good practice and if this condition occurs the measure will be considered met.

2007 Condition

The blocks harvested this year had 2.8% of their area comprised of roads.

The target is considered met.

Table: Average % of cutblock area with roads and landings as a result of Forest management activities.

Year	Average % of cutblock area
2004 baseline	3.8
2005	3.9
2006	2.9
2007	2.8

Measure 2-2.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-2.3 Percent of blocks meeting soil disturbance targets after harvesting and silviculture	100% compliance with targets (10%)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Soil is one of the most important physical resources in the planning area, as it is directly linked to the production of forest biomass and all of its associated attributes. The intent of Canfor is to ensure that the soil resource is adequately protected.

Soil disturbance is defined in this SFM Plan as disturbance caused by a forest practice on an area, includes the areas of the cutblock that may be compacted, rutted, screefed and areas of dispersed disturbance due to forest management activities (harvesting and silviculture). Indicator measures are designed to detect the loss of productive land area at the cutblock level and to ensure that cumulative impacts are within acceptable levels

Supervisors determine at the final inspection if the block or areas within the block have met the soil disturbance guidelines.

2007 Condition

No instances were identified where blocks did not meet soil disturbance targets after harvesting. The target is considered to be met.

Measure 2-2.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-2.4 Number and size of landslides resulting from forest management activities	< 10 cumulative ha in the THLB for slides greater than 0.5ha in size (0.5ha)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Landslides are mass movements of soil or debris that can result in non-productive areas or reduced productivity for forested sites. In both the NHLB and THLB, landslides can occur as a result of many natural processes. In the THLB, activities such as timber harvesting and road building can create conditions that initiate slides especially when these activities occur on unstable or potentially unstable terrain. Loss of soil productivity due to landslides related to forestry practices will be minimized as part of sustaining the overall productive capability in the THLB.

2007 Condition

No instances were identified where landslides greater than 0.5Ha occurred. The target is considered to be met.

<u>Indicator</u>	<u>Total growing stock of merchantable and non-merchantable tree species on forest land available for timber production</u>
2-3	

Measure 2-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-3.1 Regeneration delay period	Planted: 2 years after harvest (2) Natural: 4 years after harvest (3)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Regeneration delay is specified in a prescription and is defined as the time between the start of harvesting and the earliest date by which the prescription requires a minimum number of acceptable, well-spaced trees per hectare to be growing on the cutblock. The regeneration delay period varies by species and the regeneration method.

2007 Condition

No instances were found where scheduled regen delay in 2007 was not met.

The measure is considered met.

Table: Average years to declare regen delay met following the start of harvesting.

Year	Years for regen delay to be declared met	
	Planted blocks	Natural blocks
2004	3.5	5.4
2005	2.8	NA
2006	2.9	NA
2007	2.5	NA

Measure 2-3.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-3.2 The percent compliance with regeneration standards set in FSP (ha)	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Regeneration standards exist to ensure that appropriate species are reforested on harvested areas to within acceptable numbers. The Ministry of Forests and Range approves the Forest Stewardship Plan (FSP) which contains stocking standards that set out what species are preferred and acceptable for specific biogeoclimatic site series. The stocking standard is linked to the Allowable Annual Cut (AAC) calculations in terms of meeting the desired density and species composition of future stands.

2007 Condition

No instances were identified where regeneration standards did not comply with standards in the FSP. The FSP was developed in 2006, it was approved in 2007.

The measure is considered met

Measure 2-3.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-3.3 The percent of harvested area achieving free growing by assessment dates	100% (0)	<input type="checkbox"/> Met <input type="checkbox"/> Pending <input checked="" type="checkbox"/> Not Met

What is this measure and why is it important?

This measure tracks the percentage of harvested blocks that meet free growing obligations across the DFA, thereby ensuring sustained productive capability of forest ecosystems. A free growing stand is defined as a stand of healthy trees of a commercially valuable species that has met height

criteria and the growth of which is not impeded by competition from plants, shrubs or other trees. The free growing dates are established based on the biogeoclimatic classification of the site and the tree species prescribed for planting or left for natural after harvest.

2007 Condition

One instance was identified where a block did not meet regen delay in 2007. The 148-2 block has is a 3.1 Ha area associated with a wetland that has been heavily used by cattle and moose. It has been planted twice. Fill planted spruce seedlings have suffered frost damage. It is intended that this area be put forward as habitat area to release it from Free Growing obligation. The rest of the block has met Free Growing requirements.

All other areas that were scheduled to meet free growing in 2007 have achieved free growing status. By area this is 99.99%

In 2006 the GENUS report that was developed for this measure identified issues with the transition from Phoenix to GENUS. Most of the data issues were corrected in 2007 however, we anticipate minor errors surfacing as we work through the older blocks.

The target of 100% was not met in 2007. It is expected that the target is achievable even with the data issues.

Indicator 2-4	Natural disturbance levels and risk levels are managed for such that resistance to catastrophic change and the ability to recover on the landscape level is sustained.
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Measure 2-4.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-4.1 Percent of significant detected natural disturbance damaging events in the THLB which have treatment plans prepared and implemented	Plan for 100% within first year of detection, implement as scheduled (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Natural disturbance events occur at various times in the DFA. These events include wildfire, wind events and insect outbreaks. Significant or large scale damaging events can have a detrimental impact on ecosystem function if attempts are not made to lessen the impact. Canfor can assist government in developing and implementing treatment plans for significant damaging events. This measure is meant to ensure that natural disturbance damaging events are identified and that treatment plans are developed in a timely manner. A significant natural disturbance event is defined as an area of disturbance greater than 500ha.

2007 Condition

The **Mountain Pine Beetle** continues to be the significant damaging agent in the DFA. Planning and operational activities are ongoing to manage the effects of the epidemic that started in the mid 1990s. Canfor is working with other licensees, ministries, academics, and consultants to quantify

the extent of the damage, identify effects on timber and other values, and determine best solutions for salvaging and reforestation.

Three **natural fires** occurred during the summer of 2006. All three were lightning strikes that went unnoticed till they had reached large sizes. Their gross sizes were:

Watlus lake Fire (C10157) 8584Ha

Kluskoil Fire (C10161) 11485 Ha

Fire (C10204) 13ha

Canfor planted blocks that had not already been planted and to accessed funding to regenerate damaged plantations.

No other significant damaging agents were identified within the DFA during 2007.

Measure 2-4.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
2-4.2 Number/area of catastrophic natural disturbance events as a result of forest management practices	0% (Report variances)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Although natural disturbances may occur on the land base, forest practices should not create conditions or trigger a catastrophic event. Catastrophic is defined as long-term detrimental event with effects lasting 10 or more years.

2007 Condition

No instances of natural disturbance events as a result of forest management practices.

Criterion 3	Forest ecosystem contributions to global ecological cycles are sustained within the DFA
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Indicator 3-1	The total forest ecosystem biomass and carbon pool, by forest type, age class, and successional stage is sustained
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Measure 3-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
3-1.1 Estimated amount of carbon stored in trees in the TSA (converted from TSR M3/ha) is sustained	75 ton/ha (15)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Forest carbon has become a key SFM value, due to Canada’s international commitment to lower its net carbon outputs to the atmosphere as part of the Kyoto Protocol. Forest ecosystems are an integral part of the global carbon cycle. Trees and vegetation sequester carbon from the atmosphere through the process of photosynthesis and carbon is stored in several components of forests including tree biomass, plant biomass, coarse woody debris, forest floor litter and soil. Forest soils are a large but relatively stable reservoir of carbon with minimal changes over time. In contrast, variations in carbon storage in tree biomass are the dominant factor regulating temporal patterns in total ecosystem storage. Timber harvesting results in biomass carbon being transferred for use in forest products or the production of bio-energy while breakage and waste from timber harvesting can contribute to the detritus carbon pool. Discarded forest products are recycled, burned, or stored in landfills, thereby resulting in different rates and forms of carbon release.³

2007 Condition

The current value for this measure is 75 ton/ha. Information for this measure was derived by Forest Ecosystem Solutions from the 2005 scenario project. The measure will be recalculated upon a Timber Supply Review and/or when new tools or information are available.

The 2005 scenarios showed that this value is expected to drop over the next ten years as a result of the Mountain Pine Beetle killing the Pine stands. After the ten year period it is expected that Total Ecosystem Carbon will begin to recover. The forecasted “uplift scenario” (factors that could apply to uplift the timber available for harvest) identified ways to show increased carbon storage. For example,

- If site productivity can be proved to be higher than it is assumed,

³ Canadian Forest Service, Forest Carbon Accounting: <http://carbon.cfs.nrcan.gc.ca>

- fertilization showed that there is potential to increase the carbon stored close to 2005 levels after 30 years.

Measure 3-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
3-1.2 Estimated carbon in non-tree vegetation	75 ton/ha (15)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The rationale for the importance of the non-tree vegetation measure to the sustainability of carbon cycles is the same as for trees (3-1.1). This component of the forest carbon pool is likely to consistently act as a carbon sink over the course of a harvest rotation and across the DFA (i.e. not for a specific cutblock) whereas the tree component will act as both a sink and a source, depending on the silvicultural stage of the forest.

2007 Condition

The current value for this measure is 75 ton/ha. Information for this measure was derived by Forest Ecosystem Solutions from the 2005 scenario forecasting project. The measure will be recalculated upon a Timber Supply Review and/or when new tools or information are available.

Indicator 3-2	The forest products carbon pool is maintained or increased
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Measure 3-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
(Plan to developed carbon measure by using process being developed by Canadian Forest Service (CFS)	To be developed during the next SFMP forecast.	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure evaluates the role that forest products play in the sequestration, cycling, or emission of carbon. Harvested wood releases its carbon at rates dependent upon its method of processing and its end-use. Provided the forest is fully regenerated, forest harvesting could result in a net reduction in carbon emissions if the wood that is harvested is used for long-term products such as lumber.

2007 Condition

The CFS model has become available in 2007. Work regarding the carbon budget model was initiated using Canfor-Chetwynd TFL 48 information and the Canadian Forestry Service process in 2007. A number of other carbon budgeting processes are being developed. Canfor-Quesnel and the NCSFA agreed to perform a carbon budget process when the next forecast is undertaken.

Measure 3-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
Management practices that can reduce the rate of release of carbon	Develop and implement strategies to reduce carbon output rates	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure evaluates the role that forest management practices play in the release of carbon. Harvested wood releases its carbon at rates dependent upon its method of processing and its end-use. Provided the forest is fully regenerated, forest harvesting could result in a net reduction in carbon emissions and management strategies may be developed and implemented to slow the release of carbon.

2007 Condition

Strategies that reduce the output of carbon were implemented in 2006. These carbon strategies have been followed.

Particular work towards reducing carbon in 2007 resulted from a pulplog program that was implemented to take advantage of the roundlog pulp market and to reduce burning of roadside waste. On average where roadside waste was sent for pulp 15% of the blocks total volume was recovered that would have otherwise have been burnt.

Indicator 3-3	The processes that take carbon from the atmosphere and store it in forest ecosystems will be sustained
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Measure 3-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
3-3.1 Measures that contribute to the forest carbon cycle: <ul style="list-style-type: none"> • Deciduous 1-2.7, shrubs 1-2.6 • Area of THLB converted to non-forest land use through forest management activities 2-2.1 • The percent of cutblock area having road/landing construction 2-2.2 • The percent compliance with regeneration standards 2-3.2 • The percent of area in compliance with free growing measures 2-3.3 • Regeneration delay 2-3.1 • Volume of timber (AAC tracked as part of TSR) 4-1.2 	As per targets set under each measure.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The process that takes carbon from the atmosphere and stores it in forest ecosystems is termed carbon sequestration. The calculation of average net carbon sequestration rates within the timber supply area allows for a long-term evaluation of effects of management activities and/or natural disturbance on the rate at which the forested landscape is sequestering carbon. Average sequestration rates are based on changes in ecosystem carbon storage over time without accounting for carbon removed in harvested biomass. The rationale is that the carbon in harvested materials will be stored in wood products following harvest. An assessment of the sequestration rate provides a measure of the rate and direction of carbon exchange between the forest ecosystem and the atmosphere.

This measure, comprised of the other measures listed in the table above, all contribute to carbon sequestration. As they are individually met then the measure for carbon sequestration is considered to have been met.

2007 Condition

All of the measures that reflect this interim measure met their targets, therefore this interim measure is considered to have met its target. See 3-2.1 for comments on the CFS model.

Economic Values – Criterion 4, 5, and 6

Criterion 4	The flow of economic benefits from forests through the forest industry is sustained
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Indicator 4-1	Timber harvesting continues to contribute to economic well-being
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Measure 4-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-1.1 Total dollar value of the timber harvested by Canfor’s Forest Licenses within the DFA. (average dollar value obtained from relevant BCTS timber sale data during the year)	Report of the total average value (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Knowing the link between the amount of volume harvested (AAC and private wood purchase) and the value of the products derived from the harvest is be a powerful measure of sustainability. However, internal company data on the net value of the harvest and actual payments from customers is proprietary. Another way to value the harvest is to use sales information from BCTS. The BCTS sales in areas west of the Fraser River represent similar conditions to those in Canfor-Quesnel’s operating area. Trends of the measure will be interesting to track but targets for the value of the timber are not suitable due to the high variances of lumber markets that affect the bid values and due to the declining value of the timber in the DFA.

2007 Condition

The Market Pricing System was implemented April 1, 2006. The average value of the stumpage bid for the BCTS blocks in the Quesnel TSA was \$19.64. It is estimated that the value of dead pine blocks west of the Fraser River would be closer to \$13

Note that this value is strictly a value for the timber. It does not include the log sellers/consumers costs of admin, road construction/maintenance, harvesting, hauling, or silviculture.

Table: Value of Timber Harvested

Year	MPS Average value (\$/m3)	Quota Conifer harvested (m3)	Value of Harvested timber (\$)
2004	NA	619,448	NA
2005	NA	845,741	NA
2006	21.57	715,085	15,424,383
2007	19.64	797,373	15,548,77

Measure 4-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-1.2 Timber supply certainty – AAC	Report Canfor AAC within the DFA	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Timber supply certainty is important to the community (workers and local government), the corporation and the province as a whole. It is a component in investment decision making for corporations and their shareholders. It provides governments the ability to track revenue and to set budgets.

The long term harvest level is the AAC that can be sustained over a long period of time for the DFA given the specified management requirements for other forest resources. As harvesting interacts and potentially affects many of the other measures identified in this SFM Plan over long periods of time, understanding the outcomes of harvest levels are important economically as well as socially and ecologically.

2007 Condition

The measure is considered to be met by the table below. The table identifies the AAC for the Canfor Forest Licenses harvesting timber within the DFA.

Table: Annual Allowable Cut of Canfor Forest Licenses (m3)

	replaceable	non replaceable					
Year	A20011 replaceable	A57712 PFT		A67546 Salvage	A75167 Salvage	A59411 Salvage	Total
2004	382,194	120,000		140,000	NA	NA	642,194
2005	382,194	Ceased/traded		140,000	25,000	NA	547,194
Year	A20011 replaceable	A59411 Salvage	A67545 Salvage	A67546 Salvage	A75167 Salvage	A80597 Salvage	Total
2006	382,194	40,000	30,000	140,000	25,000	NA	617,194
2007	382,194	40,000	30,000	140,000	25,000	166,666	783,860

Canfor won the bid for the A75167 Salvage License in November 2004.

In 2005 the A57712 Poor Forest Type Forest (PFT) License ceased when the Canfor-Specialty mill was shut down. The license was traded to C&C for the A59411 Salvage forest license

The A67545 license was previously a Canfor-PG license that was split with West Fraser. Management of the license has been transferred to Quesnel the 2006 value was updated to reflect this.

In November 2007, Canfor was issued the A80597 Salvage License from a bid that was one in conjunction with Tolko and West Fraser. The non-replaceable license, for 10 years at 500,000m3, was split three ways.

Measure 4-1.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-1.3 The percentage of harvested area regenerated to target species composition by regeneration delay	100% (-10%)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measures the success in establishing second growth forests in harvested areas with approved target species (also known as preferred and acceptable species). Target species for specific sites have been recommended by the MOF on the basis of a species' productivity, reliability, and silvicultural feasibility. These target species provide the best potential for future timber for those sites.

2007 Condition

This measure is related to 2-3.2. The measure is considered to be met when all the block have met regen delay. To meet regen delay the stands have been surveyed to ensure they have sufficient stocking of the target species.

There were no instances where blocks did not meet regen delay. The target is considered to have been met.

Indicator 4-2	Citizens continue to receive a portion of the benefits.
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Measure 4-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
	Full Time Equivalentents (FTEs)	
4-2.1 Employment in FTEs for each forestry sub-sector (defined below) locally:	Road building, harvesting 51.6 (10)	<input type="checkbox"/> Met
	Hauling 19.7 (10)	<input type="checkbox"/> Pending
	Silviculture 24.3 (10)	<input checked="" type="checkbox"/> Not Met
	Planning 2.1 (0.5)	
	Layout cruising 5.9 (2)	

What is this measure and why is it important?

The economic health and stability of a community is largely dependent on steady employment for area residents. Forestry activities broken down by sub-sector show the percentage of expenses directed towards consultants. The harvesting, road, hauling, and layout sub-sectors are dominated by local operators. The 2004 baseline values have been updated with the calculation first used in 2005. The variance is considered to be acceptable if it is above the target value by any amount.

2007 Condition

Excepting the hauling target, the FTEs have met the targets (2004 baseline).

The 2007 values showed a substantial increase in FTEs from the previous year primarily due to the increase in quota volumes harvested. The less substantial increase in hauling is likely due the increased efficiency of hauling the lighter dead pine and the increased use of 4-bunk-loads, resulting in more volume hauled per truck. The layout and cruising increased to keep up with the additional quota harvesting and to increase the amount of Cutting Permit volume ahead of harvesting.

The Road building/harvesting, and the layout/cruising values are above the variances but this considered a positive value for the community so the measure is considered to be met for these.

The Planning/FIA is less than the allowed variance. This is primarily due to reduced FIA allowance and FIA dollars that were not spent in the 06/07 FIA fiscal year. Suggest that next year if the FIA funding continues to be reduced and additional funding cannot be accessed then the target and or variance will need to be changed.

Table: Canfor Quesnel Full Time Equivalents (FTE) by Sub-sector, 2004 baseline

Sub-sector	2004 Rev2007	2005	2006	2007
Road Building/Harvesting	51.6	70.5	52.2	62.6
Hauling	19.7	26.9	22.7	25.4
Silviculture	24.3	17.9	20.3	21.6
Planning & FIA	2.1	3.4	1.4	1.4
Layout/cruising	5.9	4.3	4.5	8.4
Total	103.6	123	101.3	119.9

Measure 4-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-2.2 Indirect/Induced employment and income estimates	1 py/1000m3 (0.2)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Induced employment is all employment generated providing goods and services to the forest sector, its employees and contractors. Measuring the amount of employment generated by related companies/individuals is an indicator of the economic impact of the forest industry in the DFA. It is also a measure that can be used to determine the resilience of the local economy.

2007 Condition

The Indirect/Induced employment and income estimate is set when Timber Supply Review (TSR) is conducted by the Chief Forester. TSR 2 estimated that the total provincial indirect and induced employment has a coefficient of 0.959 person years of employment per 1000m3 harvested. This coefficient multiplied by the Canfor quota wood harvested from the DFA is identified below. The coefficient will be updated in future TSRs.

Table: Estimate of indirect employment generated by Canfor forestry activities in the DFA

Year	Volume from DFA	Estimated indirect person years generated
2004	619,448	594
2005	845,741	811
2006	715,085	686
2007	797,373	765

Measure 4-2.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-2.3 Percentage of dollars spent locally on each forestry sub-sector in proportion to total expenditures: <ul style="list-style-type: none"> • Road building/Harvesting • Hauling • Silviculture • Planning supervision and layout/cruising • Other (includes stumpage and scaling) 	Percentage of \$ spent 40 (10) 17 (7) 8 (4) 9 (3) 26 (10)	<input type="checkbox"/> Met <input type="checkbox"/> Pending <input checked="" type="checkbox"/> Not Met

What is this measure and why is it important?

This measures the degree to which expenditures in forestry-related activities support the local economy. It would be an important measure to community leaders and public advisory groups. The development of a strong local economy promotes strong labor markets, educational opportunities and amenities to attract highly qualified individuals to the forest sector. Therefore, it contributes directly to the long run sustainability of the enterprise.

2007 Condition

The percentages of dollars spent by subsector were outside the target variances therefore the target is considered not to have been met.

Stumpage did increase following the change in pricing systems as of April 1, 2006. However, as the timber is checking and the lumber markets declining the stumpage value of the logs delivering was reduced in 2007. This significantly reduced the “other value”. As well the increase in the quota volume harvested and an increase in road building has moved some of the percentage spent towards the harvesting and road building sub-sector.

While the percent increase of the dollars spent on the road/harvesting subsector has exceeded expectations the reduction of revenue to the crown (stumpage) has been reduced. Note that during 2007 Canfor as a company experienced a net loss of \$360.6million primarily due to the dollar exchange with the US, the US housing market decline, and the 15% tariff for the softwood lumber agreement with the US. As these factors are out of Canfor’s control this measure can only be used as a reference to the baseline 2004 year to identify and seek to understand economic changes.

Table: Percent of dollars spent by forestry subsector

Sub-sector	2004	2005	2006	2007
Road Building / Harvesting	40	47	42	51
Hauling	17	21	19	22
Silviculture	8	6	7	4
Planning/supervision and layout	9	7	6	8
Other (includes stumpage and scaling)	26	20	26	15
Total	100	100	100	100

Measure 4-2.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-2.4 The number of contracts and volume of timber purchased from private local sources.	Number of contracts and m3 of local purchase by source category (BCTS, Woodlots, Private) use 2004 data as baseline	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The intent of the measure is to demonstrate that smaller timber sellers still have the opportunity to sell to large companies. This measure complements the other measures for this indicator and can also be used to test the diversity and resilience of the local economy. Local is defined as persons or businesses that have mailing addresses located in the TSA.

The yearly fluctuation of purchases makes a number or volume target difficult to forecast or meet. Therefore target is the following table updated annually which identifies the number of contracts and volumes log purchases, broken down by sector. This demonstrates that Canfor maintains an opportunity for smaller timber sellers to sell their wood by the number of log purchase contracts with local woodlots and/or private land owners.

2007 Condition

In 2007 locally purchased volume from woodlots and private sources comprised 5 contracts and 35,320m3 (8% of the locally purchased volume.). This follows a declining trend of reduced volumes from these sources since 2004.

- 2006 (14%)
- 2005 (23%)
- 2004 (32%)

The data shows that smaller timber sellers had the opportunity to sell wood to Canfor in 2007. The declining trend of volumes available from woodlots results from most of the woodlots having harvested their pine components. An opposite trend is shown with

BCTS volumes as the BCTS has increased the volumes it has let out for bids. The other component is mostly comprised of purchase from other licensees. This has reduced due to changes in configuration of competitors mills. They have developed lines to cut the pine logs between 6 and 14” in diameter that Canfor-Quesnel uses.

The intent of the measure has been met.

Table: Volume of Timber Purchased Locally by Canfor.

Purchased from	2004		2005		2006		2007	
	Number	m3	Number	m3	Number	m3	Number	m3
BCTS	2	11,380	5	128,821	13	197,656	22	303,498
Woodlots	15	131,496	14	77,716	6	27,565	4	25,200
Private land	7	5057	18	42,018	11	36,759	1	10,120
*Other	3	272,199	8	261,595	23	93,075	5	76,261
Total	27	420,132	45	510,150	55	450,791	32	425,079

* Other includes Forest Licensees, First Nations, logyards etc.

Indicator 4-3	Governments continue to receive a portion of the benefits
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Measure 4-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-3.1 Percentage of fees paid on time by industry to municipal and provincial governments	100% (0%)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The fees paid by the forest industry, including stumpage, local and provincial taxes and other rents are an important component of both local and provincial economies. Understanding what the contribution of the forest industry to the economy is an important aspect of economic sustainability.

2007 Condition

For 2007 Canfor has paid all the property taxes and water, sewer, and garbage fees to the Quesnel municipality. As well the provincial taxes and fees including timber rent, stumpage, and property taxes were all paid. The target has been met.

Indicator 4-4	Opportunities to share a portion of the benefits exist for local Aboriginals
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Measure 4-4.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-4.1 Number of documented opportunities for local Aboriginals, residing in the Quesnel TSA, to continue or enter into contracts with Canfor	5 opportunities (2)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure is intended to monitor the impacts of forest industry and government activities on the ability of Aboriginals to access forestry related economic opportunities. At present, this measure is not intended to assess how successful Aboriginals are at taking advantage of the opportunities.

A positive variance greater than the value is considered a good practice and the measure will be considered met.

2007 Condition

The number of opportunities for local aboriginals to enter into contracts is identified below. These contracts include a renewable harvesting contract, log purchase agreements, and MoUs for management of planning/harvesting.

Canfor-Quesnel has a long working relationship with the Nazko Band. The success of this relationship led to Canfor being approached in 2005 to consider working with the Kluskus Band. Following discussion an agreement was signed to plan and develop and harvest the Kluskus non-replaceable Forest Licence (NRFL) in exchange for access to their available volumes. The agreement also provides for opportunities for the Band to develop infrastructure and potential employment for Band members. One of the Kluskus Band's main goals of the agreement was to develop roaded access to the Kluskus Indian Reserve. Canfor completed the 25 km road to the Kluskus Reserve in 2007.

Following the initial success of the Kluskus project Canfor was approached by the Red Bluff Band to engage in a similar agreement which was signed in January of 2006.

Table: The number of opportunities for aboriginals to enter into contracts with Canfor-Quesnel

2004	2005	2006	2007
5	6	6	10

Indicator 4-5	A competitive, diversified forestry sector exists
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Measure 4-5.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-5.1 A competitive local primary milling facility is sustained	Minimum of 1 (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The existence of a forest industry primary processing facility can have a stabilizing affect on the economy of a DFA. A primary processing facility attracts other businesses and provides revenue to all level of government. The economic sustainability of many parts of BC, including Quesnel depends in part on a competitive primary processing facility(s).

2007 Condition

Canfor maintained 1 competitive milling facility in Quesnel in 2007. The mill continues to be one of Canfor's top performing facilities. At the end of 2007 it is one of the few Canfor mills to be maintaining 3 shifts. Many other mills had taken down time during the year and some mills were determined to be closed permanently. The target has been met.

Indicator 4-6	Levels of forest damaging events or agents are managed such that their economic impact is minimized
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Measure 4-6.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-6.1 Assessments of damaging events or agents (current status; risk potential)	1 assessment per damaging event or agent (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Insect and disease disturbances have the potential to cause significant economic, social and ecological impacts. The economic impacts can be measured in terms of volume losses. These are often referred to unsalvaged losses for disturbances, which lead to mortality, but incremental losses may also occur due to a variety of insects and diseases. Attempts are made to capture unsalvaged losses in Timber Supply Reviews, but often insufficient background material is

available to accurately define these losses. Adaptive management, coupled with hazard rating, will provide information required for future modeling endeavors designed to provide estimates of gains or losses associated with various management scenarios.

2007 Condition

Assessments of insect and diseases in the DFA are identified in the table below. The main change from 2005 is that Mountain Pine Beetle (MPB) is attacking some older plantations and younger age class stands. The MPB seems to be running its course in the Quesnel area as it has mostly killed the majority of the large pine and the broods are not doing well in the smaller diameter/younger stands.

The target has been met.

Table: Ranking of Pest Species by Potential Impact on Forest Management Activities.

Pests	Status	Ranking of Significance
Mature Forest Pests		
Mountain pine beetle	Epidemic continuing to damage mature and now immature stands	High
Plantation Pests		
Root collar weevil	Small pockets of plantations being killed by this beetle.	Low
Blister Rusts	Portions of plantations in high risk areas are being killed by this pathogen.	Medium
Mountain Pine beetle	MPB attacked older plantations in 2005 and more so through 2006 and 2007. Some plantations have had significant damage.	High

Measure 4-6.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
4-6.2 Management strategies in place to reduce the impact of damaging events or agents (including plans, suppression, salvage)	1 management strategy exists per damaging event or agent (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Once assessments of potentially damaging natural disturbance events or agents are in place, this measure ensures that management strategies are put in place to deal with any events or agents. Endemic levels of damaging agents are expected in the DFA. Strategies will be developed for damaging agents that begin to exceed historic endemic levels. These levels will be discussed with the MOF to determine when a strategy is required.

2007 Condition

Management strategies for mountain pine beetle and pine rust have been documented. Root collar weevil has not become a significant pest as yet, its occurrence will be monitored during regen surveys.

Criterion 5	The flow of marketed non-timber economic benefits from forests is sustained
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Indicator 5-1	Amount and quality of marketed non-timber forest resources does not decline over the long-term as a result of forest management activities
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Measure 5-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
5-1.1 List of current non-timber consumptive products/services marketed and non-marketed, and the strategies to manage these.	1 list updated annually (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The measures of this indicator will highlight trends in the non-timber economic benefits from local forests and assist in developing strategies for sustaining these benefits over time, within the limitations of the current forest management activities conducted by Canfor. The goal for Canfor is to not degrade the current or future potential for marketed non-timber benefits as a result of forest management activities and that, where possible, to contribute to improving the potential.

2007 Condition

No changes to the list developed for the SFMP.

The following list describes the known marketed non-timber economic activities in the DFA:

- 8 Guide outfitters who operate within specific guiding territories.
- Fishpot Lake and Tzenziacut Lake Lodges
- 36 Trapping Tenures
- 25 Range Tenures
- BC High Tech Forestry Tours

The following is a list of Economic Non-marketed Non-timber consumptive products/services within the DFA:

- Hunting
- Fishing
- Berry picking
- Mushroom picking
- Wild crafting
 - Medicinal use/herbs/shrubs/trees
 - Crafts, art, furniture

- Bedding plants

Strategies for sustaining these benefits over time include:

Other Tenure holders and marketed recreation businesses

1. Seek to have input from other tenure holders during the early stages of planning when it is considered that activities may affect their operations.
2. Liaise & cooperate with other tenure holders in the Canfor DFA.
3. Find mutually agreeable solutions when proposed landuse conflicts with other tenure holders.

Non marketed non-timber products

Activities related to these values can coexist with harvesting. Many benefit from harvesting and the new access it provides.

4. Seek to identify the potential for these values through liaison with users and information from studies/inventories.

With an updated list and strategies identified the newly revised measure is considered met.

Measure 5-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
5-1.2 Conformance with strategies for non-timber products/services identified in plans	100% (report on variances)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Understanding the potential impacts and trade-offs for non-timber resources will become increasingly important as more people begin to access these non-timber resources. This measure follows up on the strategies for the listed of the marketed non-timber values to assess performance.

2007 Condition

Works started in 2007 towards non-timber values include:

- Revised measure 5-1.1 to include non-marketed non-timber values.
- Working towards improving stakeholder contact by implementing Canfor's Creating Opportunities for Public Involvement (COPI) database.

The work towards this measure for 2008 will focus on further implementation of the COPI. Future work for inventories on the non-timber resources will be subject to funding. Work towards timber supply and ecological values affected by the MPB are considered a higher priority at this time.

The measure is considered met.

Criterion 6	Forest management contributes to a diversified local economy
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Indicator 6-1	Employment and income sources and their contribution to the local economy continue to be diversified
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Measure 6-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
6-1.1 Employment supported by each sector of the local economy (actual and percentage of total employment)	Establish baseline and report on trends over time	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Although the forest industry cannot directly control the diversity of the economy for the community in which it operates, understanding the impact of that diversity is an important component of SFM. If the community is not economically diverse, it will not be resilient to economic shocks. Services could decline and thus skilled workers and their families may move to more stable areas. As an important economic player, Canfor can potentially influence local policies that would encourage economic diversity in their communities.

2007 Condition

Readily accessible and useful current information on employment has not been found to be available. Further work in 2007 could not identify potential information sources that would effectively identify economic diversity in the community.

A revised measure was proposed at the end of 2007. It will be reported in the 2008 annual report.

Measure 6-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
6-1.2 Contribution of income sources from each sector of the local economy (actual and percentage of data)	Establish baseline and report on trends over time`	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure is directly related to 6-1.1 and is meant to measure the contribution of income sources as part of the economic benefit derived from each sector of the local economy. This information can be used to analyze the economic diversity for the DFA.

2007 Condition

Readily accessible current information on income sources has not been found to be available.

See comments for 6-1.2.

Social Values – Criterion 7, 8 and 9

Criterion 7	Decisions guiding forest management on the DFA are informed by and respond to a wide range of social and cultural values
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Indicator 7-1	Forest management planning adequately reflects the interests and issues raised by the public (stakeholders, residents and interested parties) in the DFA through an effective and meaningful (to the group members) Public Advisory Group (PAG)
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Measure 7-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-1.1 Implementation and annual update of a comprehensive stakeholder analysis of affected and interested parties	1 stakeholder database (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

As forest management recognizes a broader range of forest values, particularly on public land, it is increasingly important that all stakeholders have input into management concerns.⁴ The public, through a public participation process, has an opportunity to be involved proactively in the management of a DFA. Effective sustainable forest management planning for public land requires appropriate involvement of stakeholders and the general public in the development and implementation of plans.

2007 Condition

The List of stakeholders and interested parties was updated in 2006 for the Forest stewardship Plan referral. Work was begun to implement the Creating Opportunities for Public Involvement (COPI) tool linked to GENUS for identifying and tracking contacts with stakeholders.

Target met. Work will continue in 2008 to further improve COPI and referral processes.

Measure 7-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-1.2 Development and implementation of a communication plan that encourages participation and early input from a range of stakeholder representatives	1 Terms of Reference that includes a communication plan. Review every two years	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Focused involvement of interested parties is fundamental to effective public participation. The public participation process will be as unique as the DFA and the representatives, containing a range of interested parties, their values and needs. For this reason, an effective public participation process needs to accommodate local circumstances, yet remain structured. Establishing and implementing an agreed upon Terms of Reference (TOR) provides for a fair, effective, open and accountable process to exist. Communication and participation with parties outside of a formal public advisory group is required to ensure sustainable forest management input is being received from as wide a range of the public as possible.

2007 Condition

The TOR and communication plan were updated in April 2007. Target met.

Measure 7-1.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-1.3 The existence of an effective public advisory group	1 Public Advisory Group (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Effective public participation processes accommodate the public's wide range of knowledge, different interests, and varying levels of involvement with regard to SFM, as well as the public's differing cultural and economic ties with the forest. Building on the earlier two measures under this indicator, this measure highlights the practical advantages to including the public in the planning process, such as accessing local knowledge and increasing public understanding and support for sustainable forest management. An effective way to receive focused input from the public is to form a public advisory group. Representative members of various interests groups, as identified through the Stakeholder Analysis, will be involved in order to receive wide-ranging knowledge and input.

2007 Condition

The North Cariboo Sustainable Forest Advisors met five times in 2007. The group has continued to assist with the development and review of the SFMP measures.

Measure 7-1.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-1.4 The conduct of an open public process (with the NCSFA) prior to approval of Forest Stewardship Plans (FSP)	Minimum of 1 review process per FSP renewal or major amendment (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Public, stakeholder and First Nations input into planning can assist with accessing local knowledge that in turn will result in better management decisions. However, when public, stakeholders and First Nations interests are diverse, and a broadly supported plan is not achieved, decision makers need to weigh the input from a variety of perspectives before deciding on a plan or components of a plan. For this reason, it is important to consider and deliberate concerns brought forward by the NCSFA, as well as other public input processes, prior to making major management decisions.

2007 Condition

The North Cariboo Sustainable Forest Advisors reviewed the draft FSP and the proposed FSP in 2006. The FSP was approved in 2007. There were no major amendments in 2007.

The measure is considered met.

Measure 7-1.5

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-1.5 Group member satisfaction with the PAG process	75% good or very good on NCSFA surveys (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Transparent public processes which enable input from a wide range of stakeholders and interests, and which promote improved and shared understanding of sustainable forest management, can lead to greater public support and potentially more streamlined implementation of the SFM and other forest management plans. It also is a step to ensuring that local values and issues are identified and dealt with by Canfor. This measure is tied to measure 7-1.4 and ensures that the process set up for that measure, the responses and the participant's satisfaction will be documented.

2006 Condition

The North Cariboo Sustainable Forest Advisors responded to two surveys in 2007, Feb 15th, and Nov 22nd with an overall satisfaction of good or very good at 85%.

The target is considered met.

Measure 7-1.6

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-1.6 Endorsement of the SFM Plan by the NCSFA	Consensus reached	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The SFM Plan is the adaptation of the various inputs to balancing environmental concerns, community needs and economic values. It provides direction to forest managers in the Canfor Quesnel DFA for implementation of strategies that will achieve sustainable forest management as influenced by the NCSFA. This measure ensures that the Sustainable Forest Management Plan adequately reflects the management of the multiple and sometimes competing, social values that the NCSFA has identified as important. Annual endorsement of the SFM plan demonstrates acceptance that the public input provided by the NCSFA was included and responded to in an appropriate manner. The Terms of Reference document was revised in the April 2007 meeting to schedule review of this measure in the fall meeting of each year.

2006 Condition

The North Cariboo Sustainable Forest Advisors reached consensus and endorsed the SFMP as updated at the September 27, 2007 meeting.

The measure was met.

Indicator	
7-2	Information is exchanged between DFA forest resource managers and the public through a varied and collaborative planning approach in order to facilitate capacity building in the community

Measure 7-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-2.1 The number of effective communications with the public regarding information on the SFM indicators during the development and updates of the SFM Plan	1 PAG, 1 Annual Report, 1 FSP open house per plan renewal, 1 public communication strategy	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

The review of existing indicators and the development and addition of locally relevant indicators of sustainability is an important aspect of the public process. The public advisory group is one component of communicating with the public. Other venues that reach out to the larger

community will be developed. Each of these communication opportunities will be tested to ensure they are effective for those participating. This Measure is closely linked with measure 7-2.2, which ensures that there are a number of different communications with the public.

2007 Condition

1 PAG –The North Cariboo Sustainable Forest Advisors were active through 2007.

Annual report –This 2007 document

FSP open house – No FSP review required in 2007

1 public communication strategy – The strategy was developed in 2005

The Target is considered to be met.

The table below identifies other information communicated to the NCSFA.

Table: Communication of Information on Key Resource Indicators

Date	Author or Presenter	Paper or Presentation Notes ⁵
Feb 15, 2007	Steve Day, Canfor	Comparison of FSP to SFMP
Feb 15, 2007	Brad Eckford, Canfor	SAFE Company Certification
Apr 25, 2007	Steve Day, Canfor	SFMP 2006 Annual Report
Apr 25, 2007	Clive Welham, UBC Ecologist	<i>Implications of management practices for mitigating MPB on ecosystem production and soil based indicators</i>
Jun 11, 2007	Steve Planeta, Canfor	Canfor-Quesnel Mill Tour
Sept 25, 2007	Pierre Beaudry, Hydrologist	Stream Crossing Quality Index and Watershed Hydrology
Sept 25, 2007	Steve Day, Canfor	Coarse Woody Debris project
Sept 25, 2007	Pierre Beaudry, Hydrologist	<i>Effects of Mountain Pine Beetle on Snow Accumulation & Melt</i>
Nov 22, 2007	Judy Holbrook	North Cariboo Métis
Nov 22, 2007	Roxanne Yanishewski, Canfor	Canfor and relationships with Aboriginal People

⁵ Copies were provided each PAG member either before or after the presentation date. Copies of each can also be found in the Canfor Office.

Measure 7-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-2.2 Demonstration of reciprocal knowledge exchange between local stakeholders and resource managers through satisfaction surveys and responses to comments on the SFM Plan	Increasing trend of satisfaction with surveys of: tours, meetings, school presentations and the public. 1 written response per comment on the SFMP	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Merely undertaking meetings and providing extension on what has been done does not ensure that the communication with local stakeholders has been effective. As part of the development of measure 7-2.1, an approach for measuring whether or not the information provided to the community and stakeholders has resulted in increased knowledge of SFM will have to be developed. An informed public can better deal with potential trade-offs that may arise during the development of the SFM Plan or results of the SFMP Annual Report.

2007 Condition

All the relevant ratings of the June QSS field tour were good to very good. There were no comments that required written responses in regards to the SFMP.

Measure 7-2.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-2.3 A website containing relevant SFM information is developed and maintained	Canfor website	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Merely undertaking meetings and providing extension on what has been done does not ensure that the communication with local stakeholders has been effective. One way to provide information to the general public is through the Internet with a site specific to the SFM initiatives of Canfor. An informed public can better deal with potential trade-offs that may arise during the development of the SFM Plan or results of the SFMP Annual Report.

2005 Condition

The SFMPortal was damaged by a hacker in 2006. It was determined by the Sustainable Forestry group that one website should be used and this should be the Canfor website. The Canfor Website contains updated SFM information for all the company certifications.

The Target is considered met

Future improvements to the Canfor website are planned to assist with providing information for Public Advisory Groups. These improvements will be subject to fiscal restraints during the current market downturn.

Measure 7-2.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-2.4 The percentage of timely responses to Public inquiries	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Members of the public deserve a timely response to requests for information on forest management issue conducted by Canfor. Canfor operates on public land and has a responsibility to respond to legitimate public inquires in a timely manner.

2007 Condition

Requests for information from the public in 2007 were in regard to operational issues. Requests for information for these were responded to through use of verbal information letters, email, maps, and field reviews.

Two visitors, Dutch Forest Service and a Netherlands mill owner, were provided a bush and mill. They asked questions about environmental certification and biodiversity. Information was provided to them. They were very appreciative of the hospitality.

The Target is considered met

Indicator 7-3	An adaptive management program is implemented for all levels of the Framework (Strategic, Tactical, Operational)
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Measure 7-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-3.1 Adaptive Management strategy is developed, documented and acted upon	1 Strategy reviewed annually	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Adaptive management (AM) is the process by which a commitment is made to adjust management strategies to better cope with change while seeking a better understanding of how

management goals can be achieved. An adaptive management approach recognizes change as a constant factor. Therefore it is necessary to understand the root causes of what has, and may be changing. To do so requires learning about the economic, social and ecological systems that are constantly moving through a cycle that is changing and reconfiguring in response to human attempts to manage them.

2006 Condition

An SFM adaptive management strategy was revised April 23, 2007. It includes the monitoring, analysis and reporting strategies articulated throughout the SFM Plan. The components of the plan include the SFMP, the SFMP annual report, the Forest Management System (FMS), Audits, the SFMP Knowledge Gap matrix, the Canfor-Quesnel Environmental Program, and the FMS management review.

The Target is considered met

Measure 7-3.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-3.2 Monitoring plans for indicators as identified in the SFM Plan	1 plan reviewed annually (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

As local public advisory groups select indicators and measures of sustainability, credible and cost effective monitoring plans for each are developed. The information gathered during monitoring is used in modeling/forecasting and assists in the development of management scenarios. The monitoring data also allows managers to determine if their management activities are effectively achieving the targets set out in the SFM plan, SRMP, FSP, etc.

The plan summary will include the following parameters:

Measure	Threshold / Targets	Variance	Monitoring protocol	Responsibility	Knowledge gaps	Actions
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2007 Condition

The annual report template(s) in combination with the Responsibility Action Matrix serve as the monitoring plan for the SFM plan.

The Target is considered met

Measure 7-3.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-3.3 Forecasting plans for indicators as identified in the SFM Plan	1 summary plan (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Forecasting is a component of the adaptive management process. It is necessary for the evaluation and identification of SFM scenarios and forest practices that will achieve the desired future forest condition (i.e. targets). Forecasting is an explicit statement of the expected future condition, through time, of an indicator or measure and will be used in this SFM Plan to predict forest conditions within the DFA based on a locally defined set of assumptions. Projections will be used to compare measures and sustainability targets over time with use of current and best management practices in order to assess the level of risk for each indicator or measure.

2007 Condition

In 2005 a forecasting plan for indicators was developed and analyzed with the NCSFA and Forest Ecosystem Solutions. A number of measures that could be analyzed using GIS technology were forecasted with a number of scenarios. See *Scenario Design and Indicator/Measure Forecasting for the Quesnel Defined Forest Area*.

For some measures forecasting is not easily applied. It was suggested that some measures could be forecasted using what if scenarios. Discussion regarding the forecasting of these measures was undertaken by the NCSFA in 2006 however the group was not able to identify scenarios that provided value for those measures.

It is considered that the 2005 FES report and the SFMP measure summaries provide the forecasting summary requirement. The measure is considered met.

Measure 7-3.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-3.4 Information Management system is in place to track inputs into the SFM Plan	1 plan reviewed annually (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Resource managers have been collecting data for decades on a variety of resource attributes. In the past, most of the data was collected, as part of the business cycle and information was stored in a rudimentary fashion. Recently, advances in computer hardware and software have allowed for the storage, retrieval and analysis of large data sets. A robust information management system is required to input a variety of economic, ecological and social data sources. The information management system is comprised of the systems in place at Canfor. Analysis may be

undertaken through other software packages, but will be based upon the information stored in Canfor's system.

2007 Condition

Canfor-Quesnel has implemented GENUS and subscribes to the Woodlands Information Management Group to manage forestry information. A number of SFM measure queries and reports are now automated through GENUS.

The measure is considered met.

Measure 7-3.5

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-3.5 Reports and analysis of monitoring information	1 (0) Annual Report	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Analysis of the results of status and trend monitoring is an important aspect of adaptive management. It is a component of accountability and allows the public to see how progress is being made in implementing resource management strategies. Analysis of monitoring data will be reported to area resource managers and the public so that changes to the SFM Plan, to practices or to measures can be evaluated. The SFMP Annual Report will provide the reports and discussion on analysis of the measures. The development and use of the SFMP Annual Report will assist with the improving of the measures and improving with SFM in an ongoing basis.

2007 Condition

This report captures the information for developed measures in 2007.

This measure is considered met

Measure 7-3.6

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
7-3.6 Communication of monitoring data on Criteria and indicators beyond the DFA	1 table annually documenting SFM related meetings with licensees, government agencies and stakeholders	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Communication of monitoring data is an important aspect of sustainable forest management. It is a component of accountability and allows the public to see how progress is being made in implementing resource management strategies. Analysis of monitoring data will be reported to the public, government agencies and other licensees so that changes to the SFM Plan, to practices or to measures can be evaluated.

2007 Condition

The table identifying SFM related communications with other resource managers is shown below.

This measure is considered met

Table: SFM Related Communications with to Other Resource Managers

Date 2007	Author or Presenter	Paper or Presentation Notes
Feb 1,2; Apr 19,20; Sep 26,27	Canfor Sustainable Forest Group	Meetings with other Canfor Planners to discuss development of SFM indicators and measures corporately
Monthly meetings	Cariboo Chilcotin Licensee Landuse Subcommittee	Licensee Planning regarding CCLUP and MPB. Joint response to government initiatives. Coordination with other CCLUP groups and the CCBAC
Jan 21,	Forest Health	Meetings with MoFR staff and Licensees in regards to beetle control (Sx and Fd)
Feb 9	SARCO	Review of proposed caribou strategy for BC
Apr 25	Clive Welham	Presentation of FSP Soil Carbon project to Licensees MOFR and Quesnel Plateau Staff
May 4	Canfor Planning and Certification Forester	FMS review with Canfor Contractor Supervisors and the Safety Day presentation to crewmembers.
Jun 7	Pierre Beaudry	SCQI workshop with road crew and Canfor staff
Sep 10-13	Steve Day, Charles von Hahn	Assisted with the FMS internal audit in Grande Prairie
Jul 31-Aug 2	Canfor-Radium Staff	Assisted the Quesnel Internal Audit
Mar. 22	Baker Creek Watershed group	Meetings with MoF, MoE and Licensees and public to discuss the effects on hydrology from Mountain Pine Beetle mortality and salvage harvesting.
Jun 25-27	Silviculture Kaizen	Quesnel staff working with other division's staff to improve Silv processes.
Jun 29	MoFR Effectiveness Evaluation	Field review with MoFR regarding stand level measures for biodiversity, stream invertebrates and stream condition
Sep 21	Quesnel Strategic Analysis Group	To identify and develop information and tools for mitigating the midterm falldown
2007	Quesnel Forest Investment Account Group	Meetings with other licensees to work towards identifying FIA projects for the Quesnel TSA.
2007	Jason Neumeyer, Karri Lee, Canfor	Director for the Gavin Lake Forest Education Society. Grade 5 and 6 students are provided camp programs that broaden their understanding of the forests

Criterion 8	Forest management sustains or enhances the cultural (material and economic), health (physical and spiritual) and capacity benefits that Aboriginals derive from forest resources
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Indicator 8-1	Forest management recognizes and respects Aboriginal and treaty rights
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Measure 8-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
8-1.1 Percentage conformance to legally established treaty rights and customary use rights established through written documents.	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Documentation is important in order to track trends and ensure the target is being met. This measure ensures that a mechanism has been established and that there is documentation associated with procedures to resolve disputes.

2007 Condition

Currently there are no legally established treaties or customary use rights in the DFA.

The target is considered met.

Revisions for the First Nations indicators and measures were proposed and discussed through 2007. It is expected that the following First Nation indicators (8-2, 8-3, 8-4) and their measures will be revised in 2008.

Indicator 8-2	Local management is effective in maintaining and enabling access to resources for First Nations
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Measure 8-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
8-2.1 First Nations identify important resources	Trend upwards	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Forest management strategies and practices can impact resource attributes important to First Nations. Participation by Canfor in the implementation of treaty and use rights strategy ensures that forest management strategies are maintaining access to resource attributes important to First Nations. This measure assumes that either First Nations identify treaty and use rights strategies or that they can be predicted and accommodated through planning efforts. Opportunities to participate must be set up by First Nations.

2007 Condition

First Nations were invited to share information during the FSP referral process in 2006. All stakeholders were sent letters prior to development of the FSP, and again upon referral of the FSP. Presentations of the FSP were made to three First Nation Bands. No input or information was provided by First Nations.

Although there has been no spatial or planning information provided by First Nation the opportunity for First Nation input is provided through continuing referral of Cutting Permits. There is room for improvement. The target is considered met.

Measure 8-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
8-2.2 Success in implementing and monitoring management practices related to maintaining and enabling access to resources for First Nations	Trend upwards in strategies through the Forest Stewardship Plan	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

A Traditional Use Site is any geographically defined site (on land or water) used traditionally by one or more groups of people for some type of activity. These sites may lack the physical evidence of human-made artifacts or structures, yet maintain cultural significance to a living community of people.

This measure is intended to ensure that management of forests should provide and improve access to resources for survival and maintenance of traditional values and heritage.

2007 Condition

Results and strategies regarding Cultural heritage resources were approved in the FSP in 2007. Although there is room for improvement the target is considered met.

Indicator 8-3	The relationship between forest management and First Nations culture is acknowledged and respected as important
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Measure 8-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
8-3.1 Forest management plans demonstrate consideration and accommodation of known First Nations cultural issues.	Trend upwards by protecting/or enhancing culturally sensitive areas/features. (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure contributes to respecting the social, cultural and spiritual needs of local First Nations who have traditionally, and who currently use the forest resource within the DFA for the maintenance of the traditional aspects of their lifestyle. Working with local First Nations to identify, define and develop management strategies that encompass traditional values and uses is an important component of the forest industry's SFM initiative.

2007 Condition

Work towards this measure has not been effective from a planning and referral perspective. This is partly due to lack of resources available to First nations to follow up on the many referrals and that First Nations having other interests that are more important to them as this time.

More progress has been made towards this measure with the business relationships described in 4-4.1. To date no culturally sensitive areas have been identified to Canfor

Although the current status is zero the target is considered met for 2007.

Indicator 8-4	Reciprocal knowledge pertaining to forest use as well as forest management plans is exchanged prior to government approval and implementation
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Measure 8-4.1

<u>Measure:</u>	<u>Target (Variance)</u>	<u>Status of Target</u>
8-4.1 Accessibility of plans, maps and/or visual simulations showing baseline cultural uses of local forest resources, recognizing First Nations' concern for privacy for specific features.	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

First Nations have Traditional Use Studies in their Traditional Areas. In some cases, this information is considered confidential by First Nations. In order to accommodate other measures under this Criterion, Canfor will need some level of access to these plans. While Canfor cannot control whether access is made available, it is important to ensure that they access information when it is made available and that they respect First Nations' concern for privacy.

2007 Condition

The referral process for the Canfor-Kluskus-Red Bluff FSP approved in 2007 provided opportunity for First Nations to be presented information. Presentations were provided to First Nation Bands that requested them. Three Bands attended FSP presentations. The FSP and FSP maps were provided to all the First Nation Bands

Canfor will continue to provide information to First Nations as required by legislation, and as requested by First Nations.

Although there is room for improvement the target is considered met.

Measure 8-4.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
8-4.2 Accessibility of current plans, maps and/or visual simulations that outline logging details such as cutting areas, road construction, and include temporal aspects made available for First Nations.	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Canfor develops plans, maps and/or visual simulations that outline logging details such as cutting areas, road construction, and other management strategies. In order for First Nations to effectively provide input into any potential interactions between their identified uses and forest

management, all relevant material must be made accessible to First Nations. In order to accommodate other measures under this Criterion, First Nations will need some level of access to these plans.

2007 Condition

Canfor has continued to provide mapped information when the FSP was proposed. Canfor will seek to develop agreements with the First Nations regarding referrals and maps.

The target is considered met.

Measure 8-4.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
8-4.3 Meaningful First Nations participation in forest management plans is enabled through a working relationship	Culturally appropriate opportunities for inclusive participation. 100% compliance with current legal requirements (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure was designed to list and report out on all documented opportunities provided to Aboriginal people to be involved in forest management planning processes, and that cultural needs of First Nations are accommodated. Incorporation of Aboriginal people into the forest planning process is an important aspect of SFM. This measure will contribute to respecting the social, cultural and spiritual needs of the people who traditionally and currently use the DFA for the maintenance of traditional aspects of their lifestyle. Including Aboriginal people in planning and communication processes is fundamental to recognizing their unique interests in the forest resource present in the DFA.

2007 Condition

Work towards this measure was combined with the business agreements noted in 4-4.1. This approach has been effective in building relations with the First Nation bands and in encouraging First Nation participation in forest management.

Steve Day attended a workshop September 25th presented by the Nazko Band in regards to the residential schools, First Nation treaties, and other First Nation issues and linking with stakeholders in the community.

The target is considered met.

Criterion 9	Forest management sustains ongoing opportunities for a range of quality of life benefits
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Indicator 9-1	Resources and opportunities for recreation (including quality of experience) are maintained or enhanced
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Measure 9-1.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-1.1 Forest area managed primarily for one or more compatible recreation activities (by activity) relative to base line status as identified in the Cariboo-Chilcotin Land Use Plan (CCLUP)	No decline from the baseline (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Forested landscapes provide local communities, area residents and tourists the opportunity for outdoor recreation activities. These activities include summer and winter pursuits both on land and on water. They range from hiking, camping, hunting, trail riding, wildlife viewing, fishing, canoeing, jet boating to cross country skiing and snowmobiling. The activities rely on one or a number of combinations of the following: a remote wilderness experience, undisturbed setting, scenic areas, and access to fish, wildlife, and water.

2007 Condition

No change to Areas identified in the SFMP.

The target is considered met.

Measure 9-1.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-1.2 Access, in accordance with approved access management plans is maintained for recreational use.	No decline from baseline (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Motorized access is one of the most important influences on recreation and recreation opportunities. Recreation activities are as varied as the type of access required to get to the desired area. ROS (Recreation Opportunity Spectrum) delineation criteria include remoteness, the type of roads, volume on roads, and patterns on roads in its classification system for

recreation (measure 9-1.3). Many outdoor recreation activities require the user to drive, access the desired area.

2007 Condition

Currently there are no approved access management plans in the DFA.

The target is considered met.

Measure 9-1.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-1.3 The balance of primitive, semi-primitive, & developed recreation opportunities as defined in identified strategy documents (CCLUP) is maintained, relative to baseline status.	No decline from baseline (0)	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Much of the work in describing recreation opportunities was completed under the CCLUP process. The CCLUP defined areas within the DFA that would fall into the above categories. This measure quantifies and assures that all types of recreation opportunities are available within the DFA. The NCSFA has determined that providing for a balance of these opportunities will allow for a balance of associated quality of experience.

2007 Condition

The Recreation Opportunity Spectrum Completed in the early 1990s requires updating.

The target will be considered pending until new information can be developed. Given the ecological and economic concerns created by the Mountain Pine Beetle this measure is not considered a priority.

Indicator 9-2	Visual quality of harvested/managed landscape is acceptable to a broad range of residents, stakeholders and visitors
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Measure 9-2.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-2.1 Forest management compliance with approved Visual Quality Objectives (VQO's) established by the BC Ministry of Forests for the area	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Areas with scenic attributes are more likely to entice travelers to stop and explore the area, thereby generating tourism revenues. Many travelers are interested in outdoor activities experienced along the way, including stops for hiking, fishing, camping and general sightseeing of scenic and historic areas.

2007 Condition

No areas were harvested in the DFA areas with VQO's in 2007.

This measure is considered met.

Measure 9-2.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-2.2 Compliance with visual objectives set in the CCLUP	100% (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

In addition to the VQO set by the Ministry of Forests, the CCLUP process provided Visual Quality Classes (VQC) with regard to visuals. This measure ensures that the SFM Plan builds on the desires of visuals values established during this process. This measure requires that future management activities incorporate these comments for the identified areas. This ensures that those values can be enjoyed by future generations.

2007 Condition

Portion of 478-1 and 543-1 were harvested in a Partial Retention VQC area near Tzenzaicut Lake. The closest viewing is 4 km. The partial view of the 478-1 opening in the large landscape is in conformance with the Partial Retention visual quality class.

Note that the Tzenzaicut Lake area is being heavily logged to salvage the MPB killed trees by a number of licensees. In the long run it is expected to be the best solution for the area but the Partial Retention description may not be able to be met in the short term (0-20 years).

The measure is considered met

Indicator 9-3	Forest management conserves unique or significant places and features of social, cultural, spiritual importance (including protected areas) at the landscape and site level
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Measure 9-3.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-3.1 Identification of unique places, significant places, features and/or protected areas	100% of identified sites will be tracked (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

In order to manage values for, or to ensure measures are in place to mitigate any potential damage of sites such as unique or significant places and features and protected areas, a manager must be able to identify, locate and track these values on the land base. There are provincial guidelines in place to protect such sites, once identified. This measure is to ensure that sites and features are identified and tracked.

2007 Condition

The list below identifies unique and significant places, features and protected areas

The measure is considered met

Table: Parks & Protected Areas within the Canfor Quesnel DFA

Park & Protected Area	Area (ha)	Maintaining Agency	Activity Type
Kluskoil Lake	15,548	BC Parks	Hiking, riding, motorized riding

Table: Recreation Sites within the Canfor Quesnel DFA

MOF Recreation Sites	Maintaining Agency	Activity Type
Fishpot Lake South	Ministry of Forests	Camping, fishing
Tzenziacut Lake	Ministry of Forests	Camping, fishing
Honolulu Site	Ministry of Forests	Camping, hiking
Snaking River	Ministry of Forests	Camping
West Road	Ministry of Forests	Camping, fishing

Table: Recreation Trails within the Canfor Quesnel DFA

Trails	Maintaining Agency	Activity Type
Collins Overland Telegraph trail	None	Hiking, horseback riding
Crater Lake Trail	Ministry of Forests	Hiking, viewing

Measure 9-3.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-3.2 Management strategies for existing and newly discovered unique or significant places, features and protected areas will have a documented description of their degree of protection.	100% conformance (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure builds on measure 9-3.1 by requiring forest managers to track newly discovered unique or significant places and features and protected areas.

2007 Condition

New unique or significant places and features and protected areas discovered within the DFA are currently noted and a strategy developed and incorporated into operational plans to protect the unique area. Local government agencies are consulted as required.

Existing areas identified in the FSP have management strategies developed by government agencies. The FSP commits to following these strategies.

No significant newly discovered areas were identified in 2007. The target is considered met.

Indicator 9-4	Worker and community safety is maintained within acceptable levels
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Measure 9-4.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-4.1 Number of Canfor related safety incidences occurring in the DFA related to forest management strategies (i.e. not related to machinery or human error)	Declining trend to zero	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Forest related safety incidences for this measure are those specific to Canfor. Health and safety of forest workers is a primary quality of life objective. Canfor considers employee safety as a primary focus of all forestry related operations. This measure is meant to evaluate the impact of forest management strategies in relation to safety incidences, particularly for workers. Some forest management strategies that will result from Canfor’s attempt to balance values may require different strategies or practices to occur on the ground. Until these practices become tested, refined and proven effective and safe, it is important to have a measure such as this to gauge the effectiveness of these practices in promoting worker and community safety. The measure is intended to promote forest management strategies that result in safe conditions for workers and communities.

2007 Condition

No safety incidences occurred in the DFA related to forest management strategies in 2007.

The measure is considered met.

Measure 9-4.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-4.2 Observance of recognized safety standards in forest engineering (roads and bridges and layout) and operations.	# of incidents where Recognized Safety Standards were not followed. Trend to zero	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

Health and safety of forest workers and members of the public is a primary quality of life objective. Canfor considers employee and public safety as a primary focus of all forestry related operations. This measure was developed to track conformance of observance or implementation of recognized safety standards in forest engineering and forest management operations.

2007 Condition

No safety incidences occurred where recognized safety standards were not followed in 2007.

The measure is considered met.

Measure 9-4.3

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-4.3 Percent of companies employed by Canfor, with activities in the DFA that achieve and maintain SAFE Certification.	End of 2007 70% (-10) End of 2008 100% (0)	<input type="checkbox"/> Met <input type="checkbox"/> Pending <input checked="" type="checkbox"/> Not Met

What is this measure and why is it important?

Canfor has been a proactive member of an initiative for SAFE (Safety Accord Forestry Enterprise) Certified Companies. All Canfor divisions and contractors working for Canfor are expected to achieve and maintain this standard. See <http://www.bcforestsafesafe.org/program-council-index.htm> for more information.

2007 Conditionr

Canfor-Quesnel woodlands developed, implemented, and achieved certification to the SAFE standard.

Contractors for Canfor-Quesnel were encouraged to develop implement and register their companies. Canfor staff were made available to assist this transition. Only 8% of the contractors achieved certification in 2007.

As most of the remaining contractors are now going through the process of registering it is considered that the target of 100% by the end of 2008 will be met.

The measure was not met for 2007.

Measure 9-4.4

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-4.4 Safety occurrence summary exists	1 summary annually (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

This measure is important because it provides a synopsis of safety activity so that unsafe situations can quickly be addressed and corrected.

2007 Condition

Eighteen documented safety incidents involving Canfor woodlands and Canfor contractors in 2007. The most severe incident was one near fatality due to a head-on crash on a Forest Service Road. Many of the incidents were near misses which are now tracked as incidents.

The SAFE certification and observation measures in the program have increased the incidents and potential incidents (near misses) that are tracked. The measure is considered met.

Indicator 9-5	Quality of life benefits sustained or improved through donations to community/groups
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Measure 9-5.1

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-5.1 Policy for donations is in place	1 corporate policy (0)	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

A transparent public processes which enables Canfor to assist community groups and organizations to share in the benefits of sustainable forest management. This will also help ensure that Canfor supports local values and issues identified as being important to the community in a meaningful manner. Written policies ensure that a transparent process exists for guidance to ensure a fair distribution of donations.

2007 Condition

A corporate policy is kept on the Canfor intranet. The measure is considered met.

Measure 9-5.2

<u>Measure:</u>	<u>Target (Variance):</u>	<u>Status of Target</u>
9-5.2 List of Donations	1 list of communities/groups receiving Corporate and/or Divisional donations	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Pending <input type="checkbox"/> Not Met

What is this measure and why is it important?

A transparent public process which, enables Canfor to assist community groups and organizations to share in the benefits of sustainable forest management. The development and maintenance of a list of all recipients receiving donations from Canfor will also help ensure that donations are being fairly distributed to a variety of community causes. A list that is maintained will help ensure that a transparent process exists for a fair distribution of donations.

2007 Condition

A list of donations is shown below. Canfor – Quesnel made 6 donations to local organizations in 2007. The very poor economic conditions have resulted in reduced donations.

The measure is considered met.

local organizations that received donations from Canfor-Quesnel in 2007.

- Quesnel Youth Soccer Association
- Billy Barker Days Festival
- Quesnel Palliative Care
- Quesnel & District Minor Hockey Assoc

School District #28 Scholarship & Bursary