

**Tolko/Gorman Bros./BCTS/WFN
Okanagan Operations
Sustainable Forest Management Plan**



April 1, 2011 to March 31, 2012

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Vision Statement

The Tolko/Gorman Bros./B.C. Timber Sales/Westbank Okanagan Sustainable Forest Management Plan will foster forest management practices based on science, professional experience and local public and First Nations input that contribute to the long-term health and productivity of forest ecosystems and related forest economies

Executive Summary

When the SFM process in the Okanagan was initiated in May, 2000 the public, including First Nations, were invited to participate in the process. The SFM Advisory Group that was established involved individuals with backgrounds related to recreation, ranching, forestry, conservation, water and community.

During the summer of 2003, Weyerhaeuser and Tolko began discussions on the benefits of working together with the SFM Advisory Group to expand and include Tolko's Lavington operating areas within the Okanagan-Shuswap Forest District. This approach was presented at the October, 2003 SFM Advisory Group field trip and was supported in principle by the members. With this revised process Tolko invited members of the public, including First Nations that have identified resource use/interest within Tolko's operating areas, to participate in the public advisory group. The licencees and the SFM Advisory Group started implementing this new approach at their December, 2003 meeting. As a result of Tolko acquiring Riverside Forest Products Limited in late 2004, the DFA was expanded in 2006 to include the Riverside operating area, and additional members were brought into the PAG. In 2006, Gorman Bros. Lumber joined the SFM group, following the same steps as described above for the Tolko expansion/inclusion. In late 2007 B.C. Timber Sales (BCTS) also joined the Okanagan SFM Plan. In 2010, Weyerhaeuser elected not to continue its involvement with the SFM Advisory Group and process and Westbank First Nation (WFN) elected to be included in the SFM Plan.

The SFM Plan includes a set of values, objectives, indicators and targets that address environmental, economic and social aspects of forest management in Tolko's, Gorman Bros., and BCTS and WFN's (the Licencees) primary operating areas in the Okanagan, as well as Tolko's operating areas in the Arrow and Boundary Forest District. The plan area also includes block specific areas that fall outside of the primary plan area. The SFM Plan is based on the Canadian Standards Association (CSA) Sustainable Forest Management Standard (CAN/CSA Z809) one of the primary certification systems currently being used in British Columbia and Canada. The CSA system sets performance objectives and targets over a defined forest area to reflect local and regional interests. Consistent with most certifications, the CSA standards require compliance with existing forest policies, laws and regulations.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values. Each year the SFM Advisory Group reviews an annual report prepared by the Licencees, to assess achievement of performance measures. This monitoring process provides the licencees, public and First Nations with an opportunity to bring forward new information and provide input concerning new or changing public values that can be incorporated into future updates of the SFM Plan.

Current information on the SFM Plan and process can be viewed on the website:

http://thompsonokanagansustainableforestry.ca/okanagan_top.htm

1.0 Introduction and Overview

In recent years there has been an increasing demand worldwide for “certified” wood products. This has led to the development of a number of certification systems to provide assurance to consumers that forest products have been produced using environmentally and socially responsible forest practices.

The Canadian Standards Association (CSA) *Sustainable Forest Management Standard (CAN/CSA Z809)*; is one of the primary forest certification programs currently being used in British Columbia and Canada. The CSA system requires the development of performance objectives and targets over a defined forest area to reflect local and regional interests. The process of CSA certification includes advisory committees composed of a range of public, stakeholders with specified interests and First Nations. Tolko Industries Ltd., Gorman Bros. Lumber Ltd., B.C. Timber Sales (BCTS) and Westbank First Nation (WFN) are the participating entities in the Okanagan Sustainable Forest Management Plan. These organizations are commonly referred to in the plan as the “participating Licencees” or “Licencees”. The Licencees, with advice from the SFM Public Advisory Group, have used the CSA certification system as the basis to develop the Okanagan Sustainable Forest Management (SFM) Plan. This Plan provides management direction for all of Tolko’s operating areas in the Okanagan-Shuswap Forest District and Arrow Boundary Forest District, and Gorman Bros., BCTS and WFN operating areas within the Okanagan-Shuswap Forest District.

The licencees have been consulting with the public to develop responsible forest management plans for over 25 years. Many planning processes, including those for Forest Stewardship Plans, provide for public and First Nations review and comment. The Licencees prepare Forest Stewardship Plans that incorporate the direction provided through these various planning processes. Licencee standards and operating plans are continuously updated as new information comes forward. The SFM Plan is one component of the licencees’ commitment to adapt their management practices in response to changes in societal values.

The Sustainable Forest Management Plan is a “roadmap” to current and future strategies related to long-term performance. The values, objectives, indicators and targets described in this document were developed with advice from the SFM Advisory Group. The Licencees adherence to these values, objectives, indicators and targets will support sustainable forest management within their respective operating areas.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest conditions and local community values.

More information about the Okanagan certification process, Sustainable Forest Management planning, meeting summaries, annual reporting and maps can be obtained at the Okanagan Certification website: http://thompsonokanagansustainableforestry.ca/okanagan_top.htm

2.0 The Plan Area

The Defined Forest Area (DFA) for Tolko's Okanagan Regional Woodlands is located in the Okanagan Shuswap and Arrow Boundary Forest Districts. For Gorman Bros., BCTS-Okanagan Columbia Business Area and WFN, the Defined Forest Area is located within the Okanagan Shuswap Forest district. The boundary of the DFA is specified in the licencees' geographic information system (GIS) inventory. A map of the area, depicting the Licencees primary operating areas, is shown in Appendix 1. In order to generate a legible map for the SFM Plan, land ownership status is incomplete. It should be noted that private land, federal land, and other reserves are not part of the DFA. Licencees have access to more detailed mapping that can identify ownership should there be an interest in looking at a refined map area of the DFA.

The DFA includes Tolko's traditional operating areas in the Okanagan and Arrow TSA's including TFL 49, FL's A18632, A18667, A18672, A20191, and A74912, Timber Licence T0816 and FLTC A76247. Tolko manages FL A18632 on behalf of the licensee, Selkirk Timber Company. A portion of Bell Pole Company Ltd's FL A18666, which is also managed by Tolko, is included in the DFA. For consideration in the 2011 SFM Plan, Tolko has purchased additional volume from Interfor within the Boundary TSA. This volume will be harvested under FLA18689 and FLTC A81250 and is located within the area generally referred to as the West Kettle, bound to the west and south by HWY 33, to the North by HWY 6, and to the East by Arrow Lake. Tolko will be responsible for all development, harvesting, road building, and silviculture activities for the blocks developed under this purchase agreement, and will be managing them according to Tolko's CSA requirements. Reporting will be completed for all indicators/targets that are specific to the individual cutblocks. As this is a one-time arrangement, the DFA boundary and map included in this plan have not been modified. The area within the proposed cutblocks is considered to be part of the DFA for reporting purposes only, and landscape level reporting will not be completed.

The DFA within Gorman Bros. traditional operating area in the Okanagan TSA includes FL A18671. The DFA for WFN includes their Community Forest Agreement K1P and their Woodlot Licence W0346. These replaceable licenses give the licencees the authority to harvest trees and construct roads along with the responsibility for forest planning, reforestation and road maintenance. The DFA also includes approximately 25 BCTS operating areas scattered across the DFA, ranging in size from a few hundred hectares to several thousand hectares.

In addition to the listed licencees, there may be other licencees that operate within the DFA through such mechanisms as Non-Replaceable Forest Licencees or Section 18 transfers. Activity on these licencees may occur inside the Licencees primary operating areas or outside the primary areas. Annual reporting will occur for these licencees where they are under the control of the Licencees or where the Ministry of Forests, Lands and Natural Resource Operations has included the requirement for reporting in the licence document. Reporting data for blocks outside the primary operating area will be cutblock specific. Thus inventory reporting information for the DFA will be restricted to the primary operating areas only, however for reporting of block specific targets (such as area in permanent access structures) reporting will be

for the entire DFA (activities within primary operating areas and block specific activities outside the primary area).

Table 1, on the following page, illustrates the distribution of land classes within the DFA. Approximately 30 percent of the DFA (including parks, inoperable areas, and non-productive areas) is not available for harvesting. However, these areas are included in the DFA as they play a role in biodiversity and landscape level ecosystem functions.

Table 1: DFA Allocation for Tolko, Gorman Bros., BCTS and WFN (area in hectares)

Land Classification	Westbank	Tolko	Gorman Bros.	BCTS	Total Area	Percent of Total Area
Parks/protected areas & Old Growth Management Areas (approved study areas / areas of interest)	6,173	58,548	18,108	22,133	104,962	8
Streams, wetlands, lakes	473	11,435	1,245	5,115	18,268	1
Non-contributing forest (deciduous, problem forest type, ESAs, inoperable, NP, NPBR)	6,996	78,935	35,466	22,651	144,060	11
Non Forest Land (alpine, rock, open range)	2,187	46,157	16,285	18,340	82,969	7
Timber Harvesting Land Base	30,710	595,178	94,862	195,281	916,612	72
Total Defined Forest Area	46,539	790,253	165,966	263,520	1,266,871	100

The Crown land portion of the DFA proposed for harvesting and related development must be referred to the public, and approved by the appropriate government agencies. All activities must be consistent with government regulations, as well as regional and sub-regional planning directions, such as the Okanagan Shuswap Land and Resource Management Plan (OSLRMP) and Kootenay Boundary Land Use Plan (KBLUP). The licencees incorporate any applicable regulation, direction and information into their Forest Stewardship Plans, which are available to the public for comment. In the case of development occurring under an approved FSP, individual cutblocks will only be referred to those stakeholders who have expressed an interest at the FSP stage, or where the licensee is aware of there being public interest in the proposed development.

The DFA has forests with a mix of age classes and species types (Figures 1 - 6). The distribution of age classes is weighed towards older forests with approximately 1/3 greater than 140 years of age. Coniferous tree species comprise 97 percent of the forest types.

Figure 1: DFA Species Type for Westbank (ha)

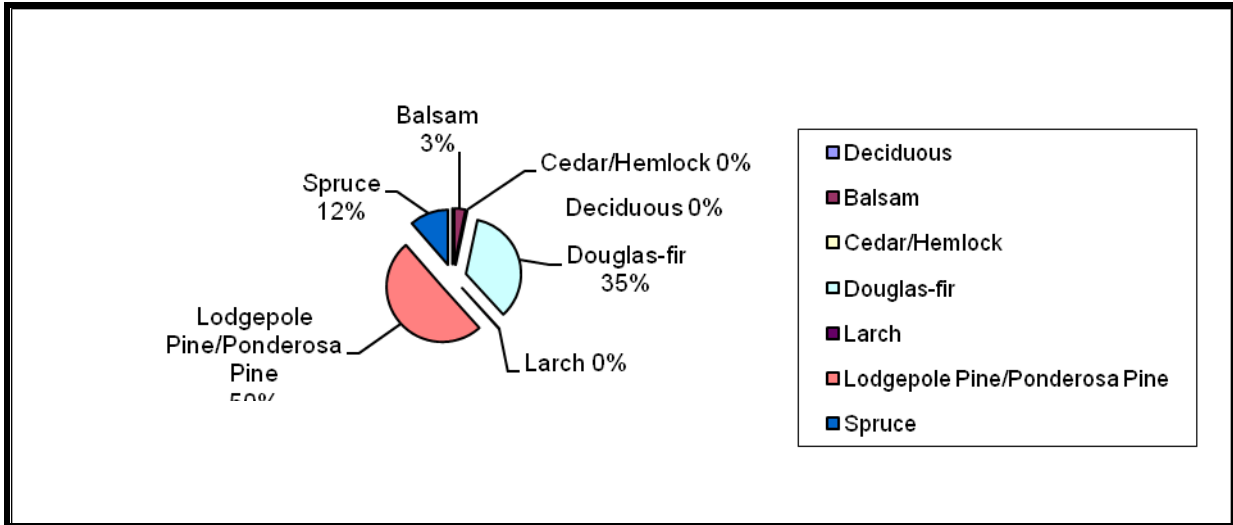


Figure 2: DFA Species Type for Tolko (ha)

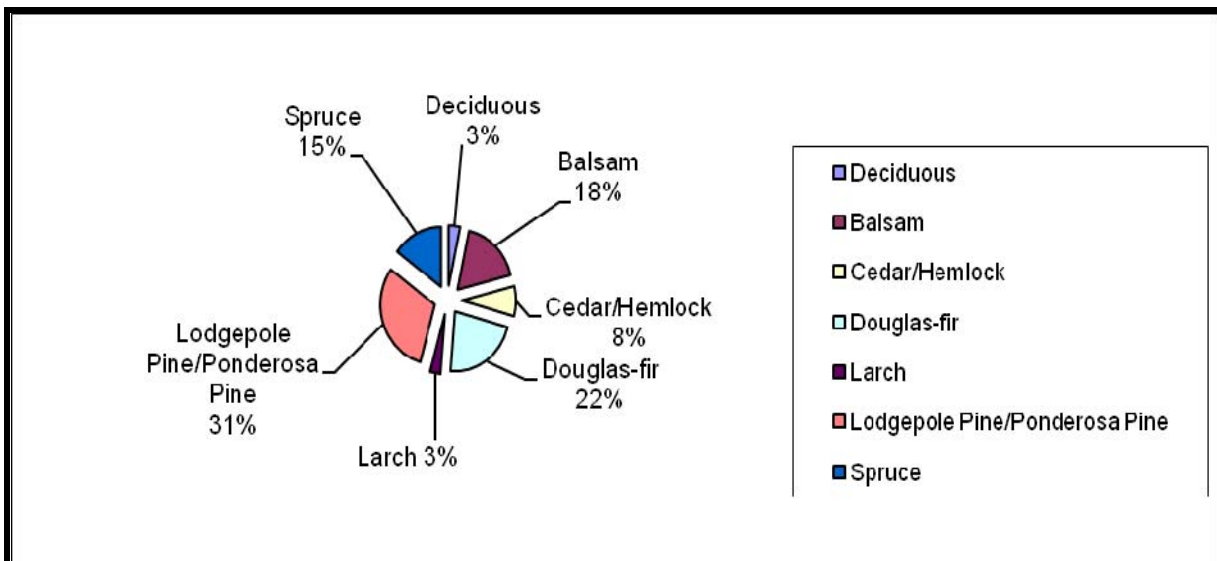


Figure 3: DFA Species Type for BCTS (ha)

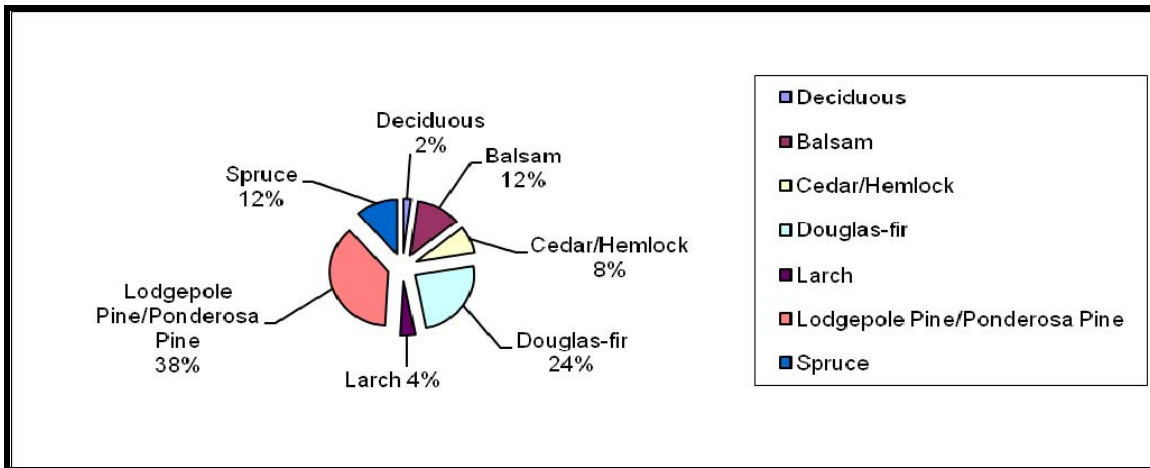


Figure 4: DFA Species Type for Gorman Bros. (ha)

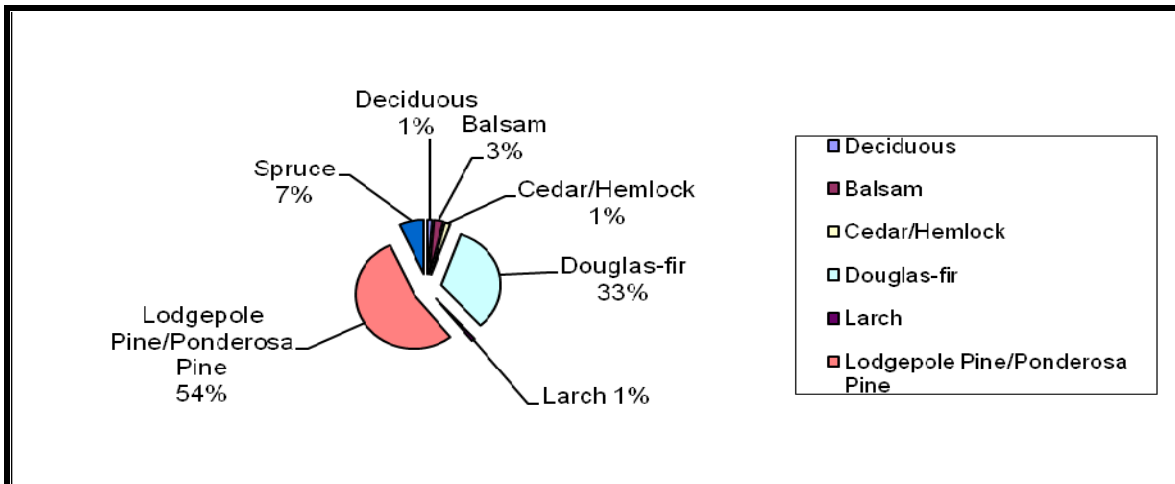


Figure 5: DFA Species Type Tolko, Gorman Bros., BCTS and WFN combined (ha)

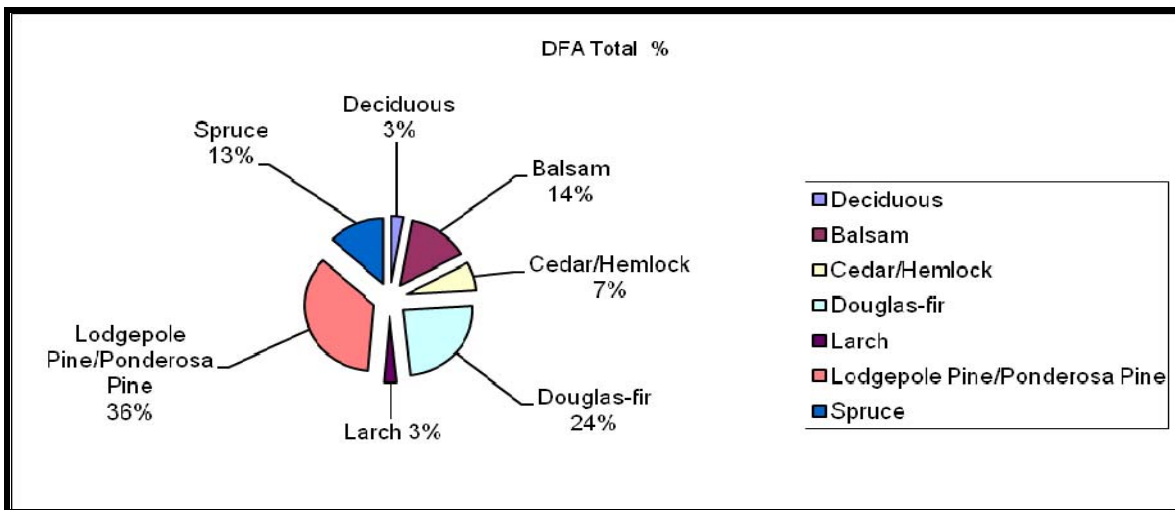
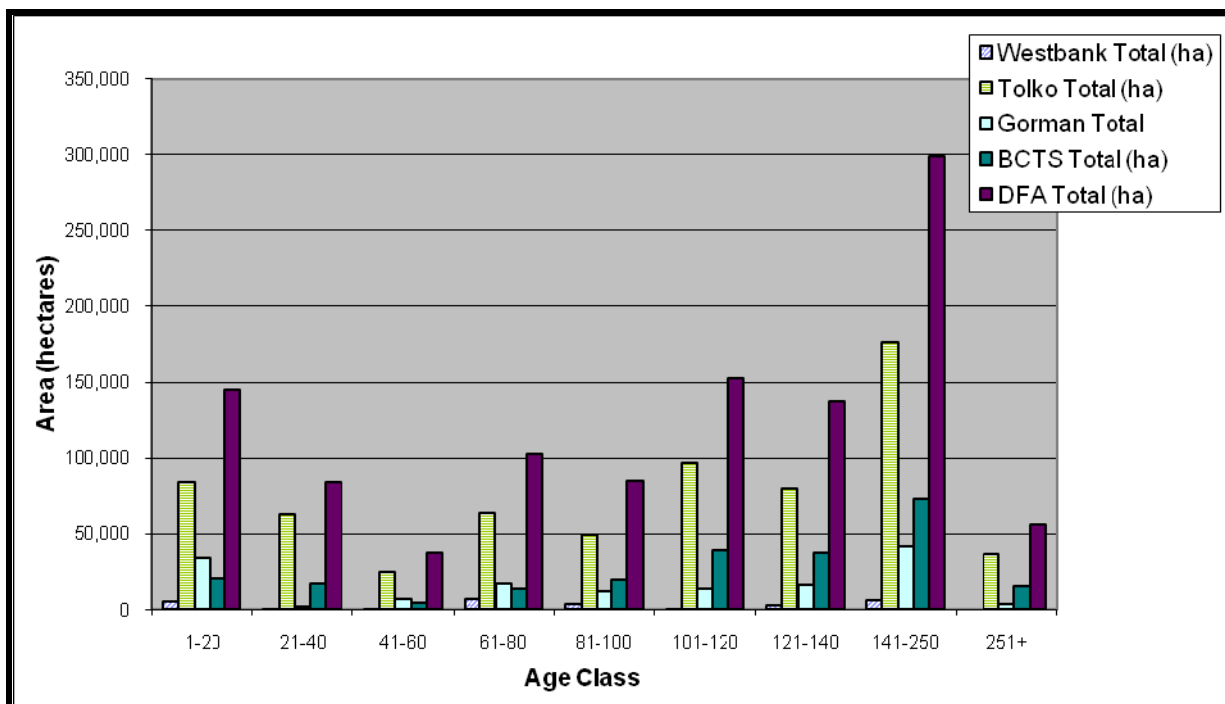


Figure 6: DFA Forest Age Class Distribution



3.0 The Planning Process

3.1 The CSA Certification Process

The CSA Sustainable Forest Management (SFM) Standard initially developed in 1996 and subsequently revised and improved in 2002 and again in 2009 is Canada's national certification standard. The standard is a voluntary tool that provides independent third party assurance that an organization is practicing sustainable forest management. Consistent with most certifications, the CSA standard requires compliance with existing forest policies, laws and regulations.¹ Participants under the CSA certification system must address the following two components:

1. Participants must develop and achieve performance measures for on-the-ground forest management, monitored through an annual public review with input from the public and First Nations (Sec 3.1.1 following); and
2. Participants who choose to be registered to the CSA standard must internally incorporate CSA-defined systems components that emphasize an appropriate environmental management system (Sec 3.1.2 following).

Applicants seeking registration to the CSA standard require an accredited, independent third-party auditor to verify that these components have been adequately addressed. Following registration, annual surveillance audits will be conducted to confirm that the standard is being maintained. A detailed description of these two components is as follows.

3.1.1 Public involvement: performance requirements and measures

The CSA standards include performance requirements for assessing sustainable forest management practices that influence on-the-ground forestry operations. The performance requirements are founded upon six sustainable forest management criteria:

1. Conservation of biological diversity;
2. Maintenance and enhancement of forest ecosystem condition and productivity;
3. Conservation of soil and water resources;
4. Forest ecosystem contributions to global ecological cycles;
5. Multiple benefits to society; and
6. Accepting society's responsibility for sustainable development.

Each criterion has a number of "elements" that further define the intent. The criteria and associated elements are all defined under the CSA standards and must be addressed during development of the SFM Plan. The criteria are endorsed by the Canadian Council of Forest Ministers and are aligned with international criteria. New to the CSA Standard (Z809-08 version) is the need to have specific discussion on selected forest management topics during the public participation process. Also new are the requirements for the SFM Plan to contain core indicators for nearly all of the elements.

For each set of criteria and elements, forest managers, and the advisory group must identify local values and objectives. Indicators and targets are assigned to the values and objectives to measure performance.

¹ This includes compliance with the strategic direction provided in the Okanagan-Shuswap Land and Resource Management Plan and Kootenay Boundary Land Use Plan.

Discussion Items identified in the CSA Z809 Standard for each of the six SFM criteria have been reviewed and discussed as needed by the public advisory group in conjunction with the development of this SFM Plan. Detailed information on the topics can be found in the meeting summaries and reference material associated with the development of this Plan.

Values identify the key aspects of the elements. For example, one of the values associated with “species diversity” might be “sustainable populations of native flora and fauna”

Objectives describe the desired future condition, given an identified value. For example, the objective to meet the value of sustainable populations of native flora and fauna might be “to maintain a variety of habitats for naturally occurring species.”

Indicators are measures to assess progress toward an objective. Indicators are intended to provide a practical, cost-effective, scientifically sound basis for monitoring and assessing implementation of the SFM Plan. There must be at least one indicator for each element and associated value. Core indicators have been included in the CSA standard for nearly all elements. Additionally, local indicators can be added to the SFM Plan.

Targets are specific short-term (one or two year) commitments to achieve identified objectives. Targets provide a clear, specific statement of expected results, usually stated as some level of achievement of the associated indicator. For example, if the indicator is “reduction in area of the timber harvesting landbase”, a target might be “to have less than x percent of harvested areas in roads and landings.”

Values, objectives, indicators, and targets apply to socioeconomic and ecological criteria and may address process as well as on-the-ground forest management activities.

As part of the process of developing values, objectives, indicators and targets, the SFM Advisory Group also assisted in the development of forecasts of predicted results for indicators and targets.

Forecasts are the long-term projection of expected future indicator levels. These have been incorporated into the SFM Plan targets as predicted results or outcomes for each target.

Forecasting is further described in Section 5.

Audits and Public Review

Each year the participating licencees compile a report that summarizes results for each of the performance measures (see Appendix 3: SFM Plan reporting format). This annual report is provided to the SFM Advisory Group for review and comment. Annual monitoring of the achievement of the Plan and comparison of the actual results to forecasts will enable the effectiveness of the SFM Plan to be continually improved, in keeping with CSA standards. The achievement of performance measures (indicators and targets) will be assessed annually through surveillance audits carried out by a registered third party auditor. The audits will determine whether the registrant has successfully implemented the SFM Plan and continues to meet the CSA Standard. Audit summaries are available to the public.

A summary of the annual, third-party, audits conducted each licencee are included in the appendices of the annual SFMP Monitoring Report. These summary reports include a synopsis of the *management reviews*, which are required by each company under the SFM standard.

The CSA SFM system includes a number of processes or systems-related requirements called “systems components” as follows:

- **Commitment:** A demonstrated commitment to developing and implementing the SFM Plan.
- **Public participation:** The CSA standards require informed, inclusive, and fair consultation with the Advisory Group during the development and implementation of the SFM Plan.
- **CSA-aligned management system:** The management system is an integral part of the implementation of the SFM Plan and is designed to meet CSA standards. The management system has four basic elements: 1) Planning; 2) Implementing; 3) Checking and Monitoring; and 4) Review and Improvement. Each of the Licencees management systems have the following base components:
 1. Identify environmental risks.
 2. Identify standard operating procedures or develop performance measures to address significant risks.
 3. Develop emergency procedures in the event of an incident causing environmental impacts.
 4. Review all laws and regulations.
 5. Establish procedures for training. (Providing updated information and training ensures that forestry staff and contractors stay current with evolving forest management information and are trained to address environmental issues during forestry activities.)
 6. If an incident does occur, conduct an investigation or incident review and develop an action plan to take corrective action, based on the preparation undertaken in steps 1 – 5.
- **Continual improvement:** within the context of the management system, monitoring and reviewing the system and its components continually improve the effectiveness of the SFM Plan. This includes a review of ongoing planning, and public process to ensure that the management system is being implemented as effectively as possible.

3.2 The Okanagan SFM Planning Process

The initial SFM Plan was developed by Licencees based on advice and recommendations provided by the SFM Advisory Group. The Plan was developed to be in compliance with all existing legislation and policy and consistent with the strategic direction and intent of the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan. The licencees participate in the maintenance and continual improvement of the plan. The participating licencees recognize the legal rights of other resource users on the common land base and have considered these rights in the formulation of this plan and related field operations.

3.2.1 Public Participation

The SFM Advisory Group was formed to assist the participating licencees in developing and maintaining the SFM Plan by identifying local values, objectives, indicators and targets and evaluating the effectiveness of the Plan.

Members of the SFM Advisory Group represent a cross-section of local interests including environmental organizations, forest workers, fish and wildlife, agriculture, and research specialists. An open and inclusive process was used to establish the public advisory group. Local First Nations, TFL 15 advisory table members and other interested community members were formally invited to participate. Periodic reviews of the membership have been made with

the objective of seeking participants from underrepresented sectors. The Ministry of Forests, Lands and Natural Resource Operations and the Ministry of Environment provide technical support to the SFM planning process including information and advice on land and resource and policy issues. The SFM Advisory Group developed and is guided by a terms of reference and procedures consistent with the CSA standard. Specified in the Terms of Reference and Procedures is that the process for developing the SFM Plan will be open and transparent. A copy of the current ToR is available on the website:

http://thompsonokanagansustainableforestry.ca/okanagan_top.htm

As part of the updating of the SFM Plan to meet the requirements of the revised 2008 CSA standard (Z809-08), considerable discussion occurred on specific topics related to the six Criteria.

Potential indicators and targets suggested by the SFM Advisory Group that have not been incorporated into the SFM Plan because of either a lack of data or a means to measure the indicator are included in Appendix 2 and will be considered as part of the continual improvement process during subsequent reviews of the plan.

The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values.

Each year the SFM Advisory Group will review an annual report prepared by the licencees to assess achievement of performance measures. This monitoring process will provide the public and First Nations with an opportunity to bring forward new information and to provide input concerning new or changing public values that can be incorporated into future updates of the SFM Plan.

3.2.2 Government and First Nations Participation

Government agencies participate in the SFM planning process in two roles: 1) as a forest licencee, and 2) to provide technical support to the planning process (see section 3.2.1). The Ministry of Environment also participated in the development of the initial Plan in a resource/support capacity. First Nations have chosen to limit their participation in the process, but have been and continue to be kept advised throughout Plan development.

Increased Government agency and First Nations participation in the maintenance of the SFM Plan would lead to a stronger and more inclusive plan. To reflect the addition of BCTS and its Okanagan operating areas, BCTS distributed invitations to eleven First Nations, two tribal councils, and eleven forest resource stakeholders.

3.3 Strategy Guiding the SFM Plan

3.3.1 Okanagan - Shuswap Land & Resource Management Plan & Kootenay Boundary Land Use Plan

The Okanagan - Shuswap Land & Resource Management Plan (LRMP) and the Kootenay Boundary Land Use Plan (KBLUP) provide broad strategic direction for the sustainable management of land and resources. These plans were developed with extensive public input and public participation.

The Okanagan-Shuswap LRMP received approval in principle by the LRMP Table in mid January of 2001 and is now a cabinet approved strategic land use plan. Prior to approval in principle of the plan, a multiple accounts analysis was completed which assessed potential social, economic and environmental impacts relative to a set of baseline indicators. The analysis assisted the Okanagan-Shuswap LRMP table members in achieving approval in principle for the Plan. Government has embarked on a process to declare parts of the OSLRMP as a higher-level plan using “land use objectives” and “orders under the Government Actions Regulation” (GAR) under FRPA. Licencees are legally obligated to incorporate results and strategies in their Forest Stewardship Plans that meet the objectives set by government under the Forest and Range Practices Act.

The Kootenay-Boundary Land Use Plan was developed in the early 1990s based on regional land use plans developed by the Commission on Resources and Environment (CORE) for the East Kootenay and West Kootenay-Boundary regions of the province. The provincial government announced the Kootenay Boundary Land Use Plan in 1995 and approved a more detailed implementation strategy in 1997. In January 2001, the government approved the Kootenay-Boundary Higher Level Plan, which makes key parts of the plan legally binding.

These plans are intended to reflect a balance of social, economic and environmental values. They incorporate the principles of sustainability and integrated resource management into a long term, strategic vision for Crown land and resource development for the plan area, and assist statutory decision-makers in making determinations about land and resource use.

The SFM Plan is a complementary plan that demonstrates field level performance of commitments made within the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan.

The websites for these two plans can be found at: <http://archive.ilmb.gov.bc.ca/slrp/lrmp/>

3.3.2 Sustainable Forest Management Plan (SFMP) Strategy for the DFA

The Okanagan SFMP has adopted and incorporated the strategic direction of both the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan. These plans, in conjunction with Timber Supply Reviews, both guide and forecast sustainability. SFMP strategy recognizes the Goals, Objectives and Strategies in these strategic plans, which support achievement of sustainable forest management. The SFMP strategy includes appropriate communication with and consideration for First Nations, Public and Integrated Resource Management interests. A SFMP strategy is to choose appropriate indicators to confirm forest management practices are aligned with the Goals and Objectives of both the Okanagan-Shuswap LRMP and the Kootenay-Boundary Land Use Plan. The SFMP utilizes indicators and targets that:

- reflect key goals, objectives and direction of the strategic plans
- address the Canadian Council of Forests Ministers Criteria and CSA defined Elements
- are within the purview of the forest industry to influence and manage

A set of strategies has been developed to achieve the SFMP objectives and targets. These strategies document the relevance of the Indicator to the SFMP and sustainability, and summarize actions required to meet the target. Applicable strategies are documented by indicator/target in Section 5 of the SFMP. More extensive information is provided in Section 6 for many of these strategies.

4.0 Values and Objectives

The following local values and objectives were identified by the SFM Advisory Group to address each of the criteria² and associated elements prescribed by the CSA standards.

A number of indicators and associated targets have been developed to meet these local values and objectives. SFM Plan indicators and targets are described in Section 6. A summary table showing all criteria and elements and associated local values, objectives, and indicators is provided in Appendix 4.

Criterion 1: Conservation of Biological Diversity

Conserve biological diversity by maintaining integrity, function, and diversity of living organisms and the complexes of which they are part.

Element 1.1: Ecosystem Diversity

Conserve ecosystem diversity at the stand and landscape levels by maintaining the variety of communities and ecosystems that naturally occur in the DFA.

<ul style="list-style-type: none"> • Healthy, productive, well-balanced ecosystem • Well functioning, ecologically diverse ecosystem • Abundance of connected and productive habitat (i.e. distribution across the landscape) 	<ul style="list-style-type: none"> • Maintenance of a full range of seral stage distribution • Maintain full range of habitat • Retention of vertical structure for stand level attributes 	1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5
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Element 1.2: Species Diversity

Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time including habitats for known occurrences of species at risk.

<ul style="list-style-type: none"> • Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation 	<ul style="list-style-type: none"> • Species native to the DFA are maintained at sustainable levels 	1.2.1, 1.2.2, 1.2.3
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² It should be noted that the in Criterion 6 , the phrase “society’s responsibility for sustainable development” was interpreted by the SFM Advisory Group to mean “society’s concerns and interests with respect to sustainable development”.

Element 1.3: Genetic Diversity

Conserve genetic diversity by maintaining the variation of genes within species and ensuring that reforestation programs are free of genetically modified organisms.

<ul style="list-style-type: none"> • Diversity of genetic material within species • Adaptability to change • Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation 	<ul style="list-style-type: none"> • Maintain genetic diversity of all species (and subspecies) native to the DFA 	<p>1.3.1, 1.3.2, 1.3.3</p>
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Element 1.4: Protected Areas and Sites of Special Biological Significance

Respect protected areas identified through government processes. Co-operate in broader landscape management related to protected areas and sites of special biological and cultural significance.

Identify sites of special geological, biological, or cultural significance within the DFA, and implement management strategies appropriate to their long-term maintenance.

<ul style="list-style-type: none"> • Natural functioning ecosystems • Rare physical environments 	<ul style="list-style-type: none"> • Maintenance of representative natural, and known rare, functioning ecosystems 	<p>1.4.1, 1.4.2</p>
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Criterion 2: Maintenance and Enhancement of Forest Ecosystem Condition and Productivity

Conserve forest ecosystem condition and productivity by maintaining the health, vitality, and rates of biological production.

Element 2.1: Forest Ecosystem Resilience

Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.

<ul style="list-style-type: none"> • Resilient forest ecosystems 	<ul style="list-style-type: none"> • Forest management does not compromise ecosystem resilience 	<p>2.1.1</p>
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Element 2.2: Forest Ecosystem Productivity

Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site.

<ul style="list-style-type: none"> Well-functioning, biologically productive forest ecosystems 	<ul style="list-style-type: none"> Forest ecosystems that support naturally occurring species. 	2.2.1, 2.2.2
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Criterion 3: Conservation of Soil and Water Resources

Conserve soil and water resources by maintaining their quantity and quality in forest ecosystems.

Element 3.1: Soil Quality and Quantity

Conserve soil resources by maintaining soil quality and quantity.

<ul style="list-style-type: none"> Soil health and productivity <ul style="list-style-type: none"> Biological Physical 	<ul style="list-style-type: none"> Minimize physical and biological degradation of soil 	3.1.1, 3.1.2
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3.2: Water Quality and Quantity

Conserve water resources by maintaining water quality and quantity.

<ul style="list-style-type: none"> Protection and security of the water resource 	<ul style="list-style-type: none"> Stream flow regimes that provide levels of water quality and quantity within a natural range of variability Retain natural systems that support water quality and quantity Protection of quality and quantity of water in licensed domestic watersheds 	3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5
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Criterion 4: Forest Ecosystem Contributions to Global Ecological Cycles

Maintain forest conditions and management activities that contribute to the health of global ecological cycles.

Element 4.1: Carbon Uptake and Storage

Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.

<ul style="list-style-type: none"> Balanced, well-functioning ecological processes that support healthy, productive forest ecosystems 	<ul style="list-style-type: none"> Forest management activities are conducted in ways that maintain ecological processes 	4.1.1, 2.1.1
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Element 4.2: Forest Lands-Conversion

Protect forestlands from deforestation or conversion to non-forests where ecologically appropriate.

<ul style="list-style-type: none"> Protection and security of forest land to ensure health of global ecological cycles 	<ul style="list-style-type: none"> Maintain healthy, productive forest land base 	2.2.1
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Criterion 5: Multiple Benefits to Society

Sustain flows of forest benefits for current and future generations by providing multiple goods and services.

Element 5.1: Timber and Non-Timber Benefits

Manage the forest sustainably to produce an acceptable and feasible mix of both timber and non-timber benefits. Evaluate timber and non-timber forest products and forest-based services.

<ul style="list-style-type: none"> Forests contribute to the quality of life 	<ul style="list-style-type: none"> Opportunity and access to the forest resource for a variety of commercial and non-commercial uses 	5.1.1
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Element 5.2: Communities and Sustainability

Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.

<ul style="list-style-type: none"> • Sustained multiple benefits from our forests • Local public involvement 	<ul style="list-style-type: none"> • Opportunity and access to the forest resource for a variety of commercial and non-commercial uses • Affected and local interested parties have input into decisions 	<p>5.2.1, 5.2.2, 5.2.3, 5.2.4</p>
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Criterion 6: Accepting society’s responsibility for sustainable development

Society’s responsibility for sustainable forest management requires that fair, equitable, and effective forest management decisions are made.

Element 6.1: Aboriginal and Treaty Rights

Recognize and respect Aboriginal title and rights and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights and treaty rights.

<ul style="list-style-type: none"> • Respect for Aboriginal title and rights and treaty rights 	<ul style="list-style-type: none"> • Duly established Aboriginal and treaty rights considered in forest management planning and opportunities provided for meaningful participation by First Nations in forest management and planning 	<p>6.1.1, 6.1.2, 6.1.3</p>
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Element 6.2: Respect for Aboriginal Forest Values, Knowledge, and Uses

Respect traditional Aboriginal forest values, knowledge and uses as identified through the Aboriginal input process.

<ul style="list-style-type: none"> • Respect for the special and unique needs of Aboriginal peoples 	<ul style="list-style-type: none"> • Participation by First Nations in forest management and planning to ensure that the special and unique needs of Aboriginal peoples are respected and accommodated in forest management decisions 	<p>6.2.1</p>
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Element 6.3 Forest Community well-being and resilience

Encourage, co-operate with, or help to provide opportunities for economic diversity within the community.

<ul style="list-style-type: none"> Economic benefits to society 	<ul style="list-style-type: none"> A prosperous forest industry with sustainable supply of timber and non-timber resources 	6.3.1, 6.3.2, 6.3.3
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Element 6.4: Fair and Effective Decision-Making

Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.

<ul style="list-style-type: none"> Awareness of what is going on (knowledge/information) Ability to influence Participate in decision making 	<ul style="list-style-type: none"> Public values are incorporated in decision-making processes and fairly considered in development and maintenance of the SFM Plan Implementation of the SFM Plan will influence forest management outcomes 	6.4.1, 6.4.2, 6.4.3
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Element 6.5: Information for Decision-Making

Provide relevant information to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.

<ul style="list-style-type: none"> Shared knowledge and informed decisions 	<ul style="list-style-type: none"> Adaptive forest management that is responsive to research, experience and public input 	6.5.1, 6.5.2
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5.0 Indicators and Indicator Matrices

In a SFM Plan it is the indicators and targets that provide the performance measures that are to be met through on-the-ground forest management activities. This section provides a detailed description of each of the indicators and targets in the SFM Plan. Core indicators prescribed within the latest CSA standard (Z809-08) have been integrated into the Plan using the numbering system found within the standard. Many of the previous plan indicators were similar to the set of core indicators, thus the targets used to measure these core indicators are familiar to the SFM Plan. Full compliance is required for most targets (i.e., there is no variance). Where full compliance may not be achievable, an acceptable level of variance is indicated for the target. Tolko, Gorman Bros., BCTS and WFN monitor the achievement of targets annually. Management strategies, forecasting and current status provides further direction to the performance measures (indicators and targets) and will serve as a guide in annual monitoring activities. The format the licencees use to complete annual reporting is shown in Appendix 3.

Non-Replaceable Forest Licenses (NRFLs)

Licencees holding NRFLs have a limited ability to influence achievement of Targets for some SFM Plan Indicators and report against Targets where they do influence. These licencees will report performance against targets 2 to 7, 9, 11 to 22, 24, 25, 27, 29, 31 and 36.

Additional Guidance

The licencees are guided by the regulations, laws and policies established by the federal, provincial, and municipal governments. As well, within this Defined Forest Area, the Okanagan-Shuswap Land and Resource Management Plan and Kootenay-Boundary Land Use Plan guide forest management. The licencees strive to meet the intent of these approved land use plans, derived from extensive public input. Licencees are obligated to incorporate results and strategies in their Forest Stewardship Plans that meet the objectives set by government under the Forest and Range Practices Act.

Public participation and input into forest operations is a key component of the participating licencee's social license to operate on Crown land. The licencees have policies to help control and regulate their performance and guide its direction relative to environmental and forest management.

The direction in legislation and corporate policies (noted above) guide the licencee's strategies for managing its forest operations to provide high quality fiber over the long term. At the same time, legislation and licencee policies help to manage and balance the landscape for biological diversity, global cycles, soil, water and social responsibility. The Okanagan Sustainable Forest Management Plan public participation process has helped to further refine information and clarify concerns of the local public. Incorporating these concerns and ideas into the licencee's operations through the established performance measures and ongoing monitoring will ensure long-term sustainability of the forest resource. Any indicators established in this Sustainable Forest Management Plan that are conducive to long term projections are as noted below. Section 6.4 describes the plans, policies and management strategies that support the achievement of the targets in the SFM Plan.

Forecasting

Predicting the results of forest management indicators and targets for the Defined Forest Area is essential for determining the probable effectiveness of management alternatives. Forecasts are the long-term projection of expected future indicator levels. Forecasts for the indicators agreed upon by the public advisory group have already been incorporated into the SFM Plan targets as predicted results or outcomes for each target.

Forecasting of many of the SFM Plan Indicators and Targets has also occurred either directly or indirectly at the provincial or regional level. The Okanagan-Shuswap LRMP and Kootenay-Boundary LUP – which apply to the Defined Forest Area – both developed targets for the general and more specific sub-zones within their respective plan areas. A good example is the connection between the desired outcomes of the Okanagan Shuswap LRMP and the SFM Plan forecast of indicators. The SFM Plan in most cases includes a predicted result or outcome for the indicator as part of the target.

Provincial Forecasting Related to the SFM Plan

A Provincial Level Timber Supply Analysis of regulatory requirements of the Forest Practices Code occurred in August, 2001. The analysis reviewed timber supply impacts of Code requirements related to: riparian management areas, biodiversity at the stand and landscape level, watershed assessment sensitivity, identified wildlife species at risk, soil conservation and visual quality management.

The harvest level impact related to biodiversity and riparian management were based on analysis using the BC Forest Service Simulation Model (FSSIM) and impact assessments related to remaining Code requirements were based on professional estimates. The analysis was then completed at both the provincial and regional levels to determine the short-term effects of the legislative requirements.

Regional Forecasting Related to the SFM Plan

Prior to the approval of the Okanagan Shuswap LRMP in January 2001, a multiple accounts analysis was completed which assessed potential social, economic and environmental impacts relative to set of baseline indicators. The analysis assisted the OSLRMP table members in achieving approval in principle for the Plan.

The Okanagan Timber Supply Area Rationale for AAC Determination, effective January 1, 2006, included sensitivity analysis around integrated resource management objectives. In 2002 the Okanagan Innovative Forestry Society (OIFS) prepared a timber supply analysis to support an application for a harvest uplift request from the regional executive director. This analysis incorporated a large amount of new data collected subsequent to TSR 2 by the OIFS under its Innovative Forest Practices Agreements. Due to the urgency the mountain pine beetle epidemic placed on the TSR 3 review for the Okanagan TSA, it was decided to use the analysis prepared by the OIFS as the basis for the TSR 3 AAC decision with additional analysis work to reflect the ministry's current understanding of the mountain pine beetle epidemic in the Okanagan TSA. The analysis was conducted using a timber supply computer model, information about the timber harvesting landbase, timber volumes and management strategies to project a future state for a period of 250 years. Prior to the Chief Forester making his determination, the public was invited to review and comment on the Timber Supply Review (TSR). Further information on the opportunities for public input can be found in the TSR discussion paper and technical reports on Timber Supply Analysis and Socio-Economic Analysis. Further information pertaining to assumptions and analysis as well as the schedule for subsequent Timber Supply Reviews and AAC determinations can be found on the Ministry of Forests, Lands and Natural Resource Operations website: <http://www.for.gov.bc.ca/hts/tsa/tsa22/docs.htm>.

Any indicators established in this Sustainable Forest Management Plan that are conducive to long term projections are as noted below.

Indicators

Some indicators/targets are repeated for more than one element – even when indicators/targets are not repeated, this does not imply any limitation of their applicability to other elements. Individual licencees will determine their staff's reporting responsibilities for the indicators/targets.

Base Line for Indicators

The primary source of base line information for indicators is the initial monitoring report subsequent to adoption of the indicator. Where existing indicators and targets were used to satisfy a core indicator, the baseline will be that from the previous SFM Plan. In some instances, particularly in the case of newly developed indicators, a baseline might be difficult to establish and thus be absent in the SFM Plan. In those situations, baseline information will become available through subsequent monitoring reports.

Current Status

Current status of each indicator will be as reported and updated in annual SFM Plan performance reporting. To obtain current information please refer to the most recent monitoring report at the website: http://thompsonokanagansustainableforestry.ca/okanagan_top.htm

Legal Requirements

Adherence to federal and provincial laws assists the licencees in demonstrating sustainable forestry. Compliance with legislation, together with conformance to the SFM Plan Indicators and Targets, leads to the achievement of the SFM Plan’s vision statement.

Awareness of legal requirements is essential when considering suitable Objectives for an Element, and determining appropriate Indicators and Targets. In the following Indicator tables applicable Acts and Regulations are noted in the “Legal Requirements” section. Specific Sections/Subsections of these Acts and Regulations have not been identified to avoid having to manage the ongoing changes to forest legislation. Forest licencees ensure that specific legislation related to Objectives, Indicators and Targets is known and complied with by staying current with legal requirements. Subscribing to commercial services, reliance on in house staff or industry associations and participating in joint legislative review committees are just some of the methods used by licencees to remain current with legislation

Guide to Criterion, Elements, Indicators and Targets

Criteria	Elements		Indicators	Targets
1. Conservation of Biological Diversity	1.1	Ecosystem Diversity	1.1.1, 1.1.2 1.1.3, 1.1.4 1.1.5	1, 2, 3, 4, 5, 6, 43
	1.2	Species Diversity	1.2.1, 1.2.2 1.2.3	7, 8, 9, 10
	1.3	Genetic Diversity	1.3.1, 1.3.2 1.3.3	3, 7, 4
	1.4	Protected Areas and sites of Special Biological significance	1.4.1, 1.4.2	7, 3, 11
2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity	2.1	Forest ecosystem Resilience	2.1.1	4, 12,13
	2.2	Forest Ecosystem Productivity	2.2.1, 2.2.2	14, 15
3. Conservation of Soil and Water Resources	3.1	Soil Quality and Quantity	3.1.1, 3.1.2	14, 16, 17, 18, 19
	3.2	Water Quality and Quantity	3.2.1, 3.2.2 3.2.3, 3.2.4, 3.2.5	20, 21, 22, 23, 24
4. Forest Ecosystem Contribution to Global Ecological Cycles	4.1	Carbon Uptake and Storage	4.1.1, 2.1.1	5, 12, 14, 4, 13
	4.2	Forest Lands Conversion	2.2.1	14
5. Multiple Benefits to Society	5.1	Timber and Non Timber Benefits	5.1.1	15, 26, 11, 24, 27, 28, 29, 30
	5.2	Communities and Sustainability	5.2.1, 5.2.2 5.2.3, 5.2.4	15, 26, 31, 32, 33
6. Accepting Society's Responsibility for Sustainable Development	6.1	Aboriginal and Treaty Rights	6.1.1, 6.1.2 6.1.3	36, 37, 11, 37
	6.2	Respect for Aboriginal Forest Values, Knowledge, and Uses	6.2.1	11, 36, 37
	6.3	Forest Community Well-being and Resilience	6.3.1, 6.3.2 6.3.3	15, 24, 26, 27, 28, 30, 38, 39
	6.4	Fair and Effective Decision-Making	6.4.1, 6.4.2 6.4.3	34, 35, 40, 41, 42, 32, 37
	6.5	Information and Decision Making	6.5.1, 6.5.2	29, 41, 42

Indicator	1.1.1 Ecosystem Area by Type (Core Indicator)
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	<p>Ecosystem conservation represents a coarse-filter approach to biodiversity conservation. It assumes that by maintaining the structure and diversity of ecosystems, the habitat needs of various species will be provided. For many species, if the habitat is suitable, populations will be maintained.</p> <p>Managers can influence ecosystem area by type, and many foresters/ecologists prefer to characterize the forest in terms of ecosystem types (according to forest ecosystem classifications) rather than by age and type of structures as derived from classic forest inventories. The biogeoclimatic ecosystem classification (BEC) used throughout BC is an integrated hierarchical classification scheme that combines climate, vegetation and site classifications. Within the Defined Forest Area for the SFM Plan, BEC mapping has occurred down to the subzone level (a combination of ecological features, primarily climate and physiography). The broad biogeoclimatic (zonal) units are used in such applications as:</p> <ol style="list-style-type: none"> Seed zones Protected area planning Land management planning Forest pest risk Natural disturbance types Wildlife habitat management <p>This broad classification is used in combination with detailed site information to derive site series classification—a level that provides operational guidance. Common interpretations for each site series include:</p> <ul style="list-style-type: none"> • Most suitable tree species for regeneration • Stocking, stock type, and ‘free-to-grow’ standards for tree species • Vegetation competition after harvesting • Site limiting factors, harvest season and reforestation considerations • Site index by tree species <p>Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is in part dependent upon the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level. Retention of Old Growth Management Areas (OGMA’s) throughout the DFA will assist in providing a supply of late seral habitat.</p> <p>Within the DFA, OGMA placement considered the location of rare ecosystems. It is felt that somewhere around 90% of the mature forested rare ecosystems identified on base maps have been included within OGMA’s. Thus it is important when managing OGMA’s that these rare ecosystems are retained. As only a small amount of mature forested rare ecosystem area is located outside of OGMA’s, there is limited opportunity to replace rare ecosystems inside of OGMA with rare outside.</p>
Means of achieving objective and target	<p>BEC mapping has occurred throughout the TSA to the subzone level. Slight changes to the area and distribution of BEC subzones occurs when new data is collected in poorly sampled areas. Climate change may alter representation, particularly drier sites. The licensee’s ability to influence change to the area and distribution of BEC subzones is limited.</p> <p>Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. These OGMA’s have been identified in the area covered by the OKSLRMP. OGMA’s have also been identified in the area covered by the KBLUP. The licensees will be guided by the OSLRMP and KBLUP guidance and will look to find innovative solutions to manage for old forest attributes. There are provisions for Licensees to make changes to OGMA’s, and Changes to specific OGMA’s are managed through the Forest Stewardship Plans of each</p> <p>Licensees have been able to locate the rare ecosystem map coverage used to establish OGMA’s during the LRMP process.</p>

Baseline Data	<p>Target 1. Forest licences will have access to and utilize BEC data to guide their strategic and operational plans. Licencee operations will not contribute to any change in the presence and representativeness of Biogeoclimatic Zones (2008 baseline data).</p> <p>Target 2. Maintenance/management of OGMA's within the DFA saw a net increase of 30 hectares to 119,395 hectares (2008 baseline data).</p> <p>Target 3. The amount of forested mature rare ecosystems will be maintained by considering the location and composition of rare forested ecosystems within OGMA's in advance of modifying OGMA boundaries. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	<p>Healthy ecosystems with a diversity and abundance of native species and habitats. The greatest risk to changes in the presence and representativeness of Biogeoclimatic Zones is climate change.</p> <p>Age class and seral stage distribution of forests are forecast as part of a periodic Timber Supply Review to monitor impacts on the landscape. Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. Additionally, 7500 ha is available on the Timber Harvesting Landbase for Identified Wildlife Management Strategy and "interim measures document". OGMA area within the DFA is slightly more than 119,000 ha.</p> <p>The integrity of mapped rare mature forest ecosystems will be retained within OGMA's.</p> <p>LRMP Analysis³: The plan provides for connectivity in several ways. At the regional level, the importance of maintaining connectivity between the very dry habitats associated with the Okanagan valley to the central interior of the Province was recognized. At the landscape level, the provision of additional protected areas enhances the representation of undisturbed areas. This is augmented by the available OGMA budget, which may be distributed within/across LU's to contribute towards a connectivity objective. At the stand level, the plan provides maintaining functional connectivity by planning for harvested and leave areas that maintain mature/older stands in a connected manner for as long as possible.</p>
Target	<ol style="list-style-type: none"> 1. Maintain the presence and representative area of Biogeoclimatic Zones to the subzone level within the Plan area. 2. Licencee operations will maintain the retention of existing or replacement draft old growth management areas. 3. Licensee operations will maintain the retention of forested mature "rare" ecosystems within old growth management areas (variance for this new target to be set after a few years of monitoring).
Basis for the Target	<p>The province's ecological classification system is recognized as world class. Utilizing the BEC classification system and mapping was seen to be the best way to report on the indicator. While licencees have little influence on the presence and representative area of these BEC subzones, the classification system provides tremendous support to both strategic and operational decision making.</p> <p>Provincial Non-spatial Old Growth Order (May 2004)</p> <p>Retention of rare ecosystems within OGMA's will maintain these areas throughout the DFA.</p>
Legal Requirements	<p>Use of the BEC classification system is inherent in the Forest and Range Practices Act and the Forest Planning and Practices Regulation.</p> <p>Provincial Non-spatial Old Growth Order (May 2004)</p>
Monitoring & Measurement Periodic	<p>1. Part of periodic Timber Supply Review (TSR) – often used to define of Analysis Units for timber supply modeling. Licencees will report the area for all Biogeoclimatic subzones as updated for the most current TSR's. Reporting to occur periodically – in the year following completion of subsequent TSR's and determination of the allowable annual cut (or other known updates to BEC).</p>
Annual	<ol style="list-style-type: none"> 2. Licencees report the total area of draft OGMA's within their operating area and the area of net OGMA reduction as a result of their operations. 3. Licencees report the total rare ecosystem area within OGMA's and the reduction of net rare ecosystem area within OGMA's as a result of their operations.
Variance	<p>None, although a variance for target 3 is likely required and will be determined after a few years of monitoring.</p>

³ Okanagan Shuswap "Land & Resource Management; Multiple Accounts Analysis - Final Base Case with LRMP Analysis", 2000

Indicator	1.1.2 Forest Area by type or species composition
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	Forest area by type is a refinement of the previous indicator – ecosystem area. Tree species composition, stand age, and stand structure are important variables that affect the biological diversity of a forest ecosystem - providing structure and habitat for other organisms. Ensuring a diversity of tree species improves ecosystem resilience and productivity and positively influences forest health. Reporting on this indicator provides information on area covered by forests, forest succession and management practices that might alter species composition.
Means of achieving objective and target	Licencee plans will incorporate strategies that promote multi species regeneration and consider the potential implications of climate change.
Baseline Data	Eighty-six percent of the cutblocks declared free growing during the reporting year had three or more tree species. The average of the leading tree species was 64% (2004 baseline data).
Forecast	Diversity and abundance of naturally occurring tree species on the landscape. Native species are maintained at endemic and sustainable levels. Species composition information is utilized in the Provincial Timber Supply Review.
Target	4. 70 percent of the area of cutblocks harvested will have three or more tree species (includes conifer and deciduous comprising one percent or more of total trees) in the free growing survey.
Basis for the Target	The need to maintain the biological diversity of forest ecosystems in managed second-growth and third-growth forests. Addresses diversity and abundance of naturally occurring tree species on the landscape. OSLRMP guidance.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, an information system will be used to generate a list of cutblocks that were declared free growing and to track information on the free growing survey (inventory label). A summary will be generated of field survey information, showing tree species present at free growing during the reporting period. The average (in percent) of the leading tree species for those cutblocks having three or more species, will be identified in the report.
Variance	None

Indicator	1.1.3 Forest area by seral stage or age class
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	<p>A balanced age class distribution provides ongoing habitat opportunities for all forest dwellers, some which occupy forests only when specific habitat attributes are present. Often, these attributes are time sensitive. Balanced age classes also allow for a more even flow of timber values and benefits. A reduction of the current imbalance of mature to over mature stands also reduces forest health risks.</p> <p>Forecasted forest age class distribution over time provides an indication of sustainability.</p> <p>Balanced age classes will result in a larger proportion of hectares in younger faster growing stands with a net carbon intake.</p>
Means of achieving objective and target	<p>The Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. These OGMA's have been identified in the area covered by the OKSLRMP. OGMA's have also been identified in the area covered by the KBLUP. The licencees will be guided by the OSLRMP and KBLUP guidance and will look to find innovative solutions to manage for old forest attributes. There are provisions for Licencees to make changes to OGMA's, and Changes to specific OGMA's are managed through the Forest Stewardship Plans of each.</p> <p>Maintain current harvest priority:</p> <ul style="list-style-type: none"> Forest health management – harvesting attacked and susceptible stands (generally older stands) “Available” stands with the most years beyond culmination (maximum mean annual increment) <p>OGMA area within the DFA is slightly more than 119,000 ha.</p>
Baseline Data	<p>Target 2. Maintenance/management of OGMA's within the DFA saw a net increase of 30 hectares to 119,395 hectares (2008 baseline data).</p> <p>Target 5. Age classes 2, 3 and 5 each have less than 10% area representation (2003 baseline data).</p> <p>Age classes 1 to 5 average only 8.2% reflecting the disproportionate area in over mature age classes (2003 baseline data).</p>
Forecast	<p>Age class and seral stage distribution of forests are forecast as part of a periodic Timber Supply Review to monitor impacts on the landscape. Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. Additionally, 7500 ha is available on the Timber Harvesting Landbase for Identified Wildlife Management Strategy and “interim measures document”. OGMA area within the DFA is slightly more than 119,000 ha.</p> <p>Continuation of current harvest priorities will lead to balanced age classes on the available productive forest land. Protected Area, Old Growth Management Area (OGMA), and Wildlife Tree Patch Strategies, together with inaccessible areas, ensure retention of sufficient old growth to sustain biodiversity and ecosystem objectives.</p> <p>Progress to target will be steady:</p> <ul style="list-style-type: none"> ▪ In 50 years age classes 1 to 5 average 10.6% and three age classes meet target. <p>Target will be achieved within 100 years.</p>
Target	<p>2. Licencee operations will maintain the retention of existing or replacement draft old growth management areas.</p> <p>5. Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 100 years old [1 (1 to 20), 2 (21-40), 3 (41-60), 4 (61 to 80) and 5 (81 to 100)] occupies at least 10% of the timber harvesting land base. Three age classes meet this target within 50 years.</p>
Basis for the Target	<p>Provincial Non-spatial Old Growth Order (May 2004)</p> <p>Relatively even flow of value to industry and the community</p>
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	Current status and future forecast of age class distribution is provided as part of Timber Supply Review completed periodically.
Annual	<p>2. Licencees report the total area of draft OGMA's within their operating area and the area of net OGMA reduction as a result of their operations.</p> <p>5. Licencees report the current age class distribution on the DFA for both THLB and gross area.</p>
Variance	5. Age class targets attained 20 years later.

Indicator	1.1.4 Degree of within-stand structural retention or age class
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	<p>Complexity of stand structure is a key component of an operational strategy to sustain biodiversity in forested ecosystems (Bunnell et al 1999). Structural complexity helps to mitigate the potential deleterious effects of large scale stand and landscape simplification associated with intensive short-rotation forest management. It can be provided by the adoption of retention silvicultural systems, a practice broadly applied in interior BC (Lindenmayer and Franklin 2003, Bunnell et al. 1999).</p> <p>Wildlife tree patches (WTPs) are a retention tool recommended for use in stand and landscape planning to help sustain biodiversity and ecological processes. They are used to provide protection for known wildlife habitat features (including standing dead and dying trees), to provide attributes important to key ecological processes (including woody debris, tree species diversity, and understory vegetation diversity), to protect small, local habitat features (i.e. unclassified riparian or wetlands, rock outcrops or rare plants or ecosystems), or to provide stand level complexity (vertical and horizontal) to harvest areas under even-aged, short rotation management. At the landscape level WTPs can be used with OGMAs to provide landscape structure to help keep landscape complexity more consistent with natural disturbance regimes.</p> <p>Operationally retention of wildlife trees/stubs in cutblocks is subject to worker safety considerations as specified in the WorkSafe BC requirements for wildlife and danger trees. Note that wildlife tree patches may be located outside of cutblocks, along their edge, and still be consistent with provincial policy on wildlife tree retention. Where wildlife tree stubs are left, they should form only one part of the stand level tree retention found on a cutblock.</p>
Means of achieving objective and target	<p>Licencees will achieve targets through allocation of WTP's/WTRA's and dispersed retention (individual trees and stubs) during forest development planning. Licencee plans and practices support retention and protection of designated wildlife trees/stubs (e.g. use of no work zones,, felling at the silviculture stage where appropriate, etc).</p> <p>Harvest value and ecological value can be optimized by selecting the variety of tree types (e.g., species, size, live and dead, etc.) that have high ecological value and low economic value, and through the number of trees retained. Wildlife trees and tree patches should be favored over stub trees.</p>
Baseline Data	<p>100% of cutblocks harvested (182) each had associated wildlife tree retention (100%).</p> <p>99% of harvested cutblocks contained at least an average of 2-5 stubs or standing trees per hectare (181/182 cutblocks). 2003 is the year of baseline data for both data sets.</p>
Forecast	Healthy ecosystems with a diversity and abundance of native species and habitats. Majority of harvested areas (at least 4/5) will have habitat attributes that will help to sustain biodiversity and ecological processes.
Target	<p>6. 100 percent of harvested cutblocks requiring wildlife tree retention (patches and/or individual trees) will be completed in accordance with their Site Plan.</p> <p>80 percent of harvested cutblocks <i>contain a minimum average of 2-5 stub trees and/or wildlife trees per hectare</i> with consideration given to spatial distribution.</p>
Basis for the Target	FSP commitments to manage government objectives for stand level biodiversity. OSLRMP guidance.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation, Workers Compensation Act.
Monitoring & Measurement Periodic	
Annual	<p>To enable reporting, an information system will be used to generate a list of cutblocks where harvesting was completed, those blocks that had WTP requirements, areas where plan commitments related to WTP's not met as well as a list of cutblocks that contained mature reserve summary data and/or reserve trees and/or reserve stubs.</p> <p>Remaining harvested cutblocks not identified in the information system as having reserve trees or patches associated with the harvest area, will be cross referenced with GIS databases, Forest Stewardship Plan or other plans.</p>
Variance	None.

Indicator	1.1.5 Harvest system diversity (Non-core indicator)
Element(s)	1.1 Ecosystem Diversity
Strategy(s) Description	<p>Complexity of stand structure is a key component of an operational strategy to sustain biodiversity in forested ecosystems (Bunnell et al 1999). Structural complexity helps to mitigate the potential deleterious effects of large scale stand and landscape simplification associated with intensive short-rotation forest management. It can be provided by the adoption of retention silvicultural systems, a practice broadly applied in interior BC (Lindenmayer and Franklin 2003, Bunnell et al. 1999).</p> <p>Throughout the DFA forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the ecosystems into natural disturbance types (NDT), which in turn is used to provide guidance for maintaining biodiversity. Designing harvest strategies and systems that fall within the range of variation found within disturbance types provides ecosystem diversity.</p>
Means of achieving objective and target	Licencees prescribe a variety of silviculture systems within BEC zones based on stand and site characteristics found within those zones.
Baseline Data	The breakdown of silviculture systems for area harvested was as follows: 1221 hectares even aged; 129.8 hectares of even aged with reserves; 187.6 uneven aged (2001 baseline data).
Forecast	Healthy ecosystems with a diversity and abundance of native species and habitats.
Target	43. Licencees will report annually on the area harvested by silviculture-system (even-aged, even-aged with reserves, uneven aged) by Biogeoclimatic Zone
Basis for the Target	FSP commitments to manage for government objectives for stand level biodiversity. OSLRMP guidance.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation, Workers Compensation Act.
Monitoring & Measurement Periodic	
Annual	Report net area to be reforested for harvested cutblocks by silviculture system (even aged, even aged with reserves, uneven aged) and by Biogeoclimatic zone (i.e. IDF, MS, ESSF)
Variance	None, reporting only.

Indicator	1.2.1 Degree of habitat protection for selected focal species, including species at risk
Element(s)	1.2 Species Diversity
Strategy(s) Description	<p>While ecosystem conservation is the coarse-filter approach to biodiversity management, species diversity is the fine-filter approach. For most species, forest managers can influence habitat only, not species populations. To account for the degree of habitat protection for selected focal species, including species at risk, this indicator looks at short-term habitat needs, particularly for critical and core habitats.</p> <p>Focal species for this indicator includes those listed by government as Identified Wildlife or as defined by the OSLRMP and KBLUP and resident to the DFA. The governments Identified Wildlife Management Strategy includes accounts and measures that can be considered in preparing Forest Stewardship Plans. Species identified in land use plans beyond those listed under Identified Wildlife are managed with consideration for the Interim Measures document produced as part of the OSLRMP.</p>
Means of achieving objective and target	Existing Wildlife Habitat Areas have been placed in important habitat to assist in the management of selected at risk species. Forest Stewardship Plans will be written to satisfy government objectives for wildlife by committing to strategies to manage critical and/or core habitat for Identified Wildlife and for rare species listed in higher level plans. Licencees will see that those commitments are followed by including applicable results and strategies in operational plans.
Baseline Data	Habitat important to focal species (Identified Wildlife and rare species identified in the OSLRMP and KBLUP and resident to the DFA) will be conserved or managed for their survival. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	<p>Full compliance with all applicable laws governing forest planning and practices. Adoption and use of best available information and guidelines will provide an effective means for protecting biodiversity and species at risk.</p> <p>Within the current rotation, licencees face a number of significant challenges with respect to the protection of biodiversity and species at risk. The mountain pine beetle outbreak, for example, will certainly result in the loss of mature forested habitat for biodiversity in general, as well as habitat for species at risk.</p> <p>Licencees forest planning and practices promote a diversity and abundance of naturally occurring wildlife and their habitats.</p>
Target	7. 100% conformance to site plans to manage for and/or protect important habitat for IWMS species and species identified as rare in the OSLRMP and KBLUP.
Basis for the Target	Legal obligations, use of best available information and application of resource stewardship principles. Strategies to assist in the protection of biodiversity and species at risk have been included as regulatory requirements. Under FRPA, the licencees are required to indicate results and strategies to manage objectives set by government for wildlife (including species at risk) and for biodiversity at the stand and landscape levels.
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation; Government Actions Regulation; Wildlife Act.
Monitoring & Measurement	
Periodic	
Annual	Licencees will monitor and report the number of cutblocks harvested where operational plans contained commitments to manage for Identified Wildlife and rare species identified in the OSLRMP or KBLUP. Licencees will also report their success rate at conforming to those commitments.
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).

Indicator	1.2.2 Degree of suitable habitat in the long term for selected focal species, including species at risk⁴
Element(s)	1.2 Species Diversity
Strategy(s) Description	While ecosystem conservation is the coarse-filter approach to biodiversity management, species diversity is the fine-filter approach. For most species, forest managers can influence habitat only, not species populations. To account for the degree of habitat protection for selected focal species, including species at risk, this indicator looks at more long term habitat needs, particularly for critical and core habitats.
Means of achieving objective and target	<p>Licencees will achieve the strategy by fully supporting and implementing:</p> <p>Government’s policy and legally established framework for the protection of biodiversity values and species at risk under the Forest and Range Practices Act and Regulations, the Wildlife Act and Amendments, and the Park Act. This government framework includes the establishment of parks and protected areas, the protection of biodiversity, riparian and aquatic habitats, old-growth forests, ungulate winter range, specific wildlife features and the habitat for listed species at risk. It also includes specific habitat commitments for Mountain Caribou with the goal of restoring the provincial population to 2500 animals within 20 years (2007).</p> <p>Focal species identified and managed for long term habitat requirements include Tiger Salamander, Great Basin Spadefoot, Great Basin Gopher Snake, Flammulated Owl, Interior Western Screech Owl, Lewis’s Woodpecker, Fringed Myotis and Spotted Bat. These species and long term habitat requirements were first identified in government’s FPPR Section 7 notices. Government’s objective for these species is, without unduly reducing the supply of timber from British Columbia’s forests, to conserve sufficient wildlife habitat in terms of the amount of area, distribution of areas and attributes of these areas for their survival. For two of the species (Screech Owl and Lewis’s Woodpecker), enough area has already been committed to Wildlife Habitat Areas, thus they will not be included in reporting.</p> <p>Additionally, the Mountain Caribou Recovery Implementation Plan identified long term habitat protection for the province by identifying 2.2 million hectares of critical habitat that has protection from harvesting and road construction. Orders to restrict operations within the Okanagan Shuswap Forest District were specified in January, 2008 for Wildlife Habitat Areas (WHA’s 8-226 to 8-230 totaling 5600 hectares). In December, 2009 orders for Ungulate Winter Range in the Revelstoke Shuswap and South Monashee Planning Units (UWR U-8-004 totaling 178,706 hectares) were also specified.</p>
Baseline Data	<p>Target 8 An adequate amount of habitat will be retained in a condition suitable for the survival of the focal species: Tiger Salamander, Great Basin Spadefoot, Great Basin Gopher Snake, Flammulated Owl, Interior Western Screech Owl, Lewis’s Woodpecker, Fringed Myotis and Spotted Bat. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data. Existing Wildlife Habitat Areas already provide enough suitable habitat to accommodate some of the focal species (Screech Owl and Lewis’s Woodpecker).</p> <p>Target 9 Mountain Caribou habitat will be protected and managed so it is consistent with Government Action Regulation orders and/or higher-level plan orders. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	<p>Long term supply of critical habitat for all focal species (Tiger Salamander, Great Basin Spadefoot, Great Basin Gopher Snake, Flammulated Owl, Interior Western Screech Owl, Lewis’s Woodpecker, Fringed Myotis and Spotted Bat and Mountain Caribou) resulting in stable populations.</p> <p>Full compliance with all applicable laws governing forest planning and practices. Adoption and use of best available information and guidelines will provide an effective means for protecting biodiversity and species at risk.</p> <p>Licencees may be challenged to meet the desired amount of critical habitat for the selected focal species where mature forested habitat is desired, particularly in pine forests that have been severely impacted by the Mountain Pine Beetle.</p> <p>Through proposed protected areas and management guidelines for modified harvest zones, critical habitat for Mountain Caribou will receive a higher level of preservation.</p>

⁴ List as provided by the Conservation Data Centre (for instructions on accessing the current list go to the TSA SFM website: <http://thompsonokanagansustainableforestry.ca/documents.htm>)

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Target	<p>8. Conserve habitat for Tiger Salamander, Great Basin Spadefoot, Great Basin Gopher Snake, Flammulated Owl, Fringed Myotis and Spotted Bat by retaining the amount of habitat (provided for in Government’s Section 7 notice for the Okanagan Shuswap Forest District) in a condition suitable for the survival of the species:</p> <p>Tiger Salamander – 541 ha Great Basin Spadefoot – 200 ha Great Basin Gopher Snake – 6250 ha Flammulated Owl – 540 ha Fringed Myotis – 12 ha Spotted Bat – 120 ha</p> <p>9. Manage Mountain Caribou habitat so it is consistent with Government Action Regulation orders and/or higher level plan orders.</p>
Basis for the Target	<p>Habitat supply modeling done at the provincial/regional level for each of the focal species. More detail provided within the specific GAR orders and determinations. Provincial and regional level habitat supply modeling and associated impacts to timber supply for Mountain Caribou</p>
Legal Requirements	<p>Forest and Range Practices Act; Forest Planning and Practices Regulation; Government Actions Regulation; Wildlife Act.</p>
Monitoring & Measurement Periodic	
Annual	<p>8. Licencees will report on the number of ha of suitable habitat they have conserved or managed for each of the focal species. At the forest district level, hectares of Wildlife Habitat Areas will be reported by focal species. Specific species reporting to stop once area targets have been met at the district level.</p> <p>9. Licencees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or higher level plan orders against all of the area harvested within the designated Mountain Caribou recovery strategy during the reporting year.</p>
Variance	<p>None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).</p>

Indicator	1.2.3 Proportion of regeneration comprised of native species.
Element(s)	1.2 Species Diversity
Strategy(s) Description	<p>One of the objectives of the Okanagan Shuswap LRMP is to promote a range of ecologically appropriate species mixes. This objective aligns very well with the SFM Plan objective to maintain a variety of habitats for naturally occurring species. Silviculture practices that promote regeneration of native species, either through planting or other natural programs assists in meeting these objectives.</p> <p>Considerable effort has been made within the province to map biogeoclimatic zones, subzones and variants. Management interpretations including the preferred and acceptable commercial tree species have been developed for all zones. The mapped zones and interpretations are periodically reviewed and updated with new information such as that being developed by the provincial Future Forest Strategy (incorporating climate change forecasts into changing future ecological conditions).</p>
Means of achieving objective and target	Licencee plans will contain reforestation prescriptions that ensure that naturally occurring species are planted or regenerated naturally. This information is contained within the stocking standards of their Forest Stewardship Plans.
Baseline Data	Where planting is prescribed, native species will be planted on all areas following harvest. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	<p>Diversity and abundance of naturally occurring tree species on the landscape. Native species are maintained at endemic and sustainable levels.</p> <ul style="list-style-type: none"> ▪ Species composition information is utilized in the Provincial Timber Supply Review.
Target	10. 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standards (requires reforestation with commercially valuable and ecologically suitable tree species).
Basis for the Target	Demonstrate that reforestation performance meets legal requirements and the objectives of the Okanagan SFM Plan.
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation.
Monitoring & Measurement Periodic	
Annual	Licencees will report the number of hectares where trees were planted with species appropriate to the site as outlined in the stocking standards of their Forest Stewardship Plan. Additionally, licencees will report the total number of hectares where planting occurred.
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).

Indicator	1.3.1 Management strategies for rare ecosystems (non-core indicator)
Element(s)	1.3 Genetic Diversity
Strategy(s) Description	<p>Rare ecosystems are frequently identified as focal points for conservation concern. Provincially, ecosystems are listed based largely on frequency of occurrence or rarity. There are at least three broad reasons for understanding rare ecosystems at the local level:</p> <ul style="list-style-type: none"> • to help assess the status of an ecosystem throughout a planning area; • to focus attention and tracking on ecosystems that merit conservation concern; and • to help rank allocation of resources to conservation efforts, such as parks, Wildlife Habitat Areas, Old Growth Management Areas (OGMA's) or Wildlife Tree Patches (WTPs), (Bunnell et al 2004). <p>The OSLRMP plan area provides habitat through protected areas and OGMA's for several rare (red and blue-listed) species and plant communities. Many of these are associated with the lower elevations of main valleys, particularly in the South Okanagan and the lower Similkameen valleys. Habitat loss or alteration of habitat has contributed to the threat to some of these species, however, many are naturally rare (they have sparse distributions or numbers, or are near the geographic limits of their distribution).</p> <p>Within the DFA, OGMA placement considered the location of rare ecosystems. It is felt that somewhere around 90% of the mature forested rare ecosystems identified on base maps have been included within OGMA's. Thus it is important when managing OGMA's that these rare ecosystems are retained. As only a small amount of mature forested rare ecosystem area is located outside of OGMA's, there is limited opportunity to replace rare ecosystems inside of OGMA with rare outside.</p>
Means of achieving objective and target	<p>Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. These OGMA's have been identified in the area covered by the OKSLRMP. OGMA's have also been identified in the area covered by the KBLUP. The licencees will be guided by the OSLRMP and KBLUP guidance and will look to find innovative solutions to manage for old forest attributes. There are provisions for Licencees to make changes to OGMA's, and Changes to specific OGMA's are managed through the Forest Stewardship Plans of each</p> <p>Licencees have been able to locate the rare ecosystem map coverage used to establish OGMA's during the LRMP process.</p>
Baseline Data	The amount of forested mature rare ecosystems will be maintained by considering the location and composition of rare forested ecosystems within OGMA's in advance of modifying OGMA boundaries. 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	The integrity of mapped mature forested rare ecosystems will be retained within OGMA's.
Target	3. Licensee operations will maintain the retention of forested mature "rare" ecosystems within old growth management areas (variance for this new target to be set after a few years of monitoring).
Basis for the Target	Retention of rare ecosystems within OGMA's will manage these unique areas throughout the DFA.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation, Provincial Non-spatial Old Growth Order (May 2004)
Monitoring & Measurement Periodic	
Annual	Licencees report the total rare ecosystem area within OGMA's and the reduction of net rare ecosystem area within OGMA's as a result of their operations.
Variance	None, although a variance is likely required and will be determined after a few years of monitoring.

Indicator	1.3.2 Management and/or protection of important habitat for select species. (non-core indicator)
Element(s)	1.3 Genetic Diversity
Strategy(s) Description	While ecosystem conservation is the coarse-filter approach to biodiversity management, species diversity is the fine-filter approach. For most species, forest managers can influence habitat only, not species populations. To account for the degree of habitat protection for selected focal species, including species at risk, this indicator looks at short-term habitat needs, particularly for critical and core habitats. Managing key habitat important to at risk (focal) species helps to ensure that genetic diversity is also maintained. Focal species for this indicator includes those listed by government as Identified Wildlife or as defined by the OSLRMP and KBLUP and resident to the DFA. The governments Identified Wildlife Management Strategy includes accounts and measures that can be considered in preparing Forest Stewardship Plans. Species identified in land use plans beyond those listed under Identified Wildlife are managed with consideration for the Interim Measures document produced as part of the OSLRMP.
Means of achieving objective and target	Existing Wildlife Habitat Areas have been placed in important habitat to assist in the management of selected at risk species. Forest Stewardship Plans will be written to satisfy government objectives for wildlife by committing to strategies to manage critical and/or core habitat for Identified Wildlife and for rare species listed in higher level plans. Licencees must adhere to those commitments by including applicable results and strategies in operational plans.
Baseline Data	Habitat critical to focal species (Identified Wildlife and rare species identified in the OSLRMP and KBLUP and resident to the DFA) will be conserved or managed for their survival. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	Full compliance with all applicable laws governing forest planning and practices. Adoption and use of best available information and guidelines will provide an effective means for protecting biodiversity and species at risk. Within the current rotation, licencees face a number of significant challenges with respect to the protection of biodiversity and species at risk. The mountain pine beetle outbreak, for example, will certainly result in the loss of mature forested habitat for biodiversity in general, as well as habitat for species at risk. Licencees forest planning and practices promote a diversity of healthy ecosystems while maintaining “rare” attributes as well as a diversity and abundance of naturally occurring wildlife and their habitats.
Target	7. 100% conformance to site plans to manage for and/or protect important habitat for IWMS species and species identified as rare in the OSLRMP and KBLUP.
Basis for the Target	Legal obligations, use of best available information and application of resource stewardship principles. Strategies to assist in the protection of biodiversity and species at risk have been included as regulatory requirements. Under FRPA, the licencees are required to indicate results and strategies to manage objectives set by government for wildlife (including species at risk) and for biodiversity at the stand and landscape levels.
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation; Government Actions Regulation; Wildlife Act.
Monitoring & Measurement Periodic	
Annual	Licencees will monitor and report the number of cutblocks harvested where operational plans contained commitments to manage for Identified Wildlife and rare species identified in the OSLRMP or KBLUP. Licencees will also report their success rate at conforming to those commitments.
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).

Indicator	1.3.3 Percent of harvested cutblocks having three or more tree species identified in the free growing inventory (non-core indicator)
Element(s)	1.3 Genetic Diversity
Strategy(s) Description	Tree species composition, stand age, and stand structure are important variables that affect the biological diversity of a forest ecosystem - providing structure and habitat for other organisms. Ensuring a diversity of tree species improves ecosystem resilience and productivity and positively influences forest health.
Means of achieving objective and target	Licencee plans will incorporate strategies that promote multi species regeneration and consider the potential implications of climate change.
Baseline Data	Eighty-six percent of the cutblocks declared free growing during the reporting year had three or more tree species. The average of the leading tree species was 64% (2004 baseline data).
Forecast	Healthy ecosystems with a diversity of native broadleaf and coniferous species maintained at endemic and sustainable levels. Species composition information is utilized in the Provincial Timber Supply Review.
Target	4. 70 percent of the area of cutblocks harvested will have three or more tree species (includes conifer and deciduous comprising one percent or more of total trees) in the free growing survey.
Basis for the Target	The need to maintain the biological diversity of forest ecosystems in managed second-growth and third-growth forests. Addresses diversity and abundance of naturally occurring tree species on the landscape. Okanagan LRMP guidance.
Legal Requirements	Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, the following steps will occur: <ol style="list-style-type: none"> 1. An information system will be used to generate a list of cutblocks that were declared free growing during the reporting period. 2. An information system will be used to track information on free growing survey (inventory label) and a summary will be generated of field survey information, showing tree species present at free growing. The average (in percent) of the leading tree species for those cutblocks having three or more species, will be identified in the report.
Variance	None

Indicator	1.4.1 Proportion of identified sites with implemented management strategies
Element(s)	1.4 Protected Areas and Sites of Special Biological and Cultural Significance.
Strategy(s) Description	<p>While ecosystem conservation is the coarse-filter approach to biodiversity management, species diversity is the fine-filter approach. For most species, forest managers can influence habitat only, not species populations. To account for the degree of habitat protection for selected focal species, including species at risk, this indicator looks at short-term habitat needs, particularly for critical and core habitats. Managing key habitat important to at risk (focal) species helps to ensure that genetic diversity is also maintained.</p> <p>Focal species for this indicator includes those listed by government as Identified Wildlife or as defined by the OSLRMP and KBLUP and resident to the DFA. The governments Identified Wildlife Management Strategy includes accounts and measures that can be considered in preparing Forest Stewardship Plans. Species identified in land use plans beyond those listed under Identified Wildlife are managed with consideration for the Interim Measures document produced as part of the OSLRMP.</p> <p>The OSLRMP plan area provides habitat through protected areas and OGMA's for several rare (red and blue-listed) species and plant communities. Many of these are associated with the lower elevations of main valleys, particularly in the South Okanagan and the lower Similkameen valleys. Habitat loss or alteration of habitat has contributed to the threat to some of these species, however, many are naturally rare (they have sparse distributions or numbers, or are near the geographic limits of their distribution).</p> <p>Within the DFA, OGMA placement considered the location of rare ecosystems. It is felt that somewhere around 90% of the mature forested rare ecosystems identified on base maps have been included within OGMA's. Thus it is important when managing OGMA's that these rare ecosystems are retained. As only a small amount of mature forested rare ecosystem area is located outside of OGMA's, there is limited opportunity to replace rare ecosystems inside of OGMA with rare outside.</p>
Means of achieving objective and target	<p>Existing Wildlife Habitat Areas have been placed in important habitat to assist in the management of selected at risk species. Forest Stewardship Plans will be written to satisfy government objectives for wildlife by committing to strategies to manage critical and/or core habitat for Identified Wildlife and for rare species listed in higher level plans. Licencees must adhere to those commitments by including applicable results and strategies in operational plans.</p> <p>Okanagan-Shuswap LRMP allocated approximately 62,000 ha on the Timber Harvesting Landbase and 124,000 ha on the Non-Timber Harvesting Landbase for Old Growth Management Areas to align with the Provincial biodiversity strategy. These OGMA's have been identified in the area covered by the OKSLRMP. OGMA's have also been identified in the area covered by the KBLUP. The licencees will be guided by the OSLRMP and KBLUP guidance and will look to find innovative solutions to manage for old forest attributes. There are provisions for Licencees to make changes to OGMA's, and Changes to specific OGMA's are managed through the Forest Stewardship Plans of each</p> <p>Licencees have been able to locate the rare ecosystem map coverage used to establish OGMA's during the LRMP process.</p>
Baseline Data	<p>Target 7. Habitat critical to focal species (Identified Wildlife and rare species identified in the OSLRMP and KBLUP and resident to the DFA) will be conserved or managed for their survival. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p> <p>Target 3. The amount of forested mature rare ecosystems will be maintained by considering the location and composition of rare forested ecosystems within OGMA's in advance of modifying OGMA boundaries. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	<p>Full compliance with all applicable laws governing forest planning and practices. Adoption and use of best available information and guidelines will provide an effective means for protecting biodiversity and species at risk.</p> <p>Within the current rotation, licencees face a number of significant challenges with respect to the protection of biodiversity and species at risk. The mountain pine beetle outbreak, for example, will certainly result in the loss of mature forested habitat for biodiversity in general, as well as habitat for species at risk.</p> <p>Licencees forest planning and practices promote a diversity of healthy ecosystems while maintaining "rare" attributes as well as a diversity and abundance of naturally occurring wildlife and their habitats.</p> <p>The integrity of mapped mature forested rare ecosystems will be retained within OGMA's.</p>
Target	<p>7. 100% conformance to site plans to manage for and/or protect important habitat for IWMS species and species identified as rare in the OSLRMP and KBLUP.</p> <p>3. Licensee operations will maintain the retention of forested mature "rare" ecosystems within old growth management areas (variance for this new target to be set after a few years of monitoring).</p>

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Basis for the Target	Legal obligations, use of best available information and application of resource stewardship principles. Strategies to assist in the protection of biodiversity and species at risk have been included as regulatory requirements. Under FRPA, the licencees are required to indicate results and strategies to manage objectives set by government for wildlife (including species at risk) and for biodiversity at the stand and landscape levels. Retention of rare ecosystems within OGMA's will manage these unique areas throughout the DFA.
Legal Requirements	Forest and Range Practices Act; Forest Planning and Practices Regulation; Government Actions Regulation; Wildlife Act, Provincial Non-spatial Old Growth Order (May 2004)
Monitoring & Measurement Periodic	
Annual	<p>7. Licencees will monitor and report the number of cutblocks harvested where operational plans contained commitments to manage for Identified Wildlife and rare species identified in the OSLRMP or KBLUP. Licencees will also report their success rate at conforming to those commitments.</p> <p>3. Licencees report the total rare ecosystem area within OGMA's and the reduction of net rare ecosystem area within OGMA's as a result of their operations.</p>
Variance	<p>7. None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).</p> <p>3. None, although a variance is likely required and will be determined after a few years of monitoring.</p>

Indicator	1.4.2 Protection of identified sacred and culturally important sites
Element(s)	1.4 Protected Areas and Sites of Special Biological Significance
Strategy(s) Description	This indicator recognizes the importance of managing and protecting culturally important, sacred and spiritual sites, during forestry operations. First Nations may provide useful information concerning the specific location of these sites and the specific forest characteristics requiring protection or management. The intent of the indicator is to manage and/or protect those truly important sites, thus there is a degree of reasonableness in identifying the sites.
Means of achieving objective and target	Efforts have been made to understand which First Nation traditional territories fall within the TSA and Licence Defined Forest Areas. Information sharing agreements are made with willing First Nation communities to promote the use and protection of sensitive information. Open communications with local First Nations during Plan reviews. Written requests for communication are responded to. Licencees are aware of culturally important, sacred and spiritual sites leading to appropriate management or and protection.
Baseline Data	Where forest operations occur, culturally important, sacred and spiritual sites are managed or protected. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest plans contain information on how these sites will be managed or protected. Forest operations that properly execute the forest plans.
Target	11. 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities or 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities
Basis for the Target	Developed by Licencees with First Nations
Legal Requirements	Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation, Constitution Act (and subsequent Supreme Court decisions).
Monitoring & Measurement Periodic	
Annual	Licencees will report the number of roads constructed or cutblocks planned or harvested where culturally important, sacred or spiritual sites had been identified and shared as well as the number that were either relocated or managed/protected in accordance with forest plans. Additionally, report any situation where an unknown feature (not previously identified and shared) was found and then managed or protected.
Variance	None

Indicator	2.1.1 Reforestation Success
Element(s)	2.1 Forest Ecosystem Resilience, 4.1 Carbon Uptake and Storage, 4.2 Forest Land Conversion
Strategy(s) Description	Ensuring a diversity of tree species is maintained improves ecosystem resilience and productivity and positively influences forest health. Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing younger trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments. Forests in British Columbia are classified according to the Biogeoclimatic Ecosystem Classification System, which identifies the tree species that are most suited ecologically for regeneration in any particular site. This not only helps to maintain the natural forest composition in an area, but it also lends itself to long term forest health and productive forests that uptake carbon.
Means of achieving objective and target	Licencees will specify reforestation with tree species that are ecologically suited to the site in a timely manner. Silviculture regime and forward plans schedule activities that promote multi species regeneration and consider the potential implications of climate change.
Baseline Data	Target 4. Eighty-six percent of the cutblocks declared free growing during the reporting year had three or more tree species. The average of the leading tree species was 64% (2004 baseline data). Target 12. Ninety-five percent of cutblocks planned for planting were completed within second complete growing season and one hundred percent of naturally regenerated cutblocks met natural regeneration delay. (2001 baseline data). Target 13. 1,118 ha in total have achieved Free-Growing status. 1,118 ha were due in the reporting period. (2002 baseline data).
Forecast	A diversity and abundance of naturally occurring tree species on the landscape. Native species are maintained at endemic and sustainable levels. Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing young trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments. Achievement of the earliest free growing date will help ensure that the productive capacity of the forest landbase to grow trees is maintained. <i>The Ministry of Forests, Lands and Natural Resource Operations conducts research and provides guidance on key dates such as free growing, based on specific biogeoclimatic information for each site</i>
Target	4. 70 percent of the area of cutblocks harvested will have three or more tree species (includes conifer and deciduous comprising one percent or more of total trees) in the free growing survey. 12. 70 percent of cutblock area planned for planting is completed within two growing seasons. 100 percent of natural regeneration cutblock area meeting natural regeneration delay. 13. All cutblocks will reach free growing requirements on or before the latest date.
Basis for the Target	Addresses diversity and abundance of naturally occurring tree species on the landscape. Prompt reforestation target exceeds legal requirements. Early establishment of a viable crop of trees reduces the need for subsequent interventions (re-planting, brushing) and positively contributes to carbon uptake. Achievement of the free growing date will help ensure that the productive capacity of the forest landbase to grow trees is maintained with species ecologically suited to the site.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	

<p>Annual</p>	<p>Target 4. To enable reporting, an information system will be used to generate a list of cutblocks that were declared free growing during the reporting period. The system will track information on the free growing survey (inventory label) and a summary will be generated of field survey information, showing tree species present at free growing.</p> <p>The average (in percent) of the leading tree species for those cutblocks having three or more species, will be identified in the report.</p> <p>Target 12. To enable reporting an information system will be used to generate a summary of area where harvesting was completed and the time delay to have the planned cutblock area planted.</p> <p>An information system will also be used to generate a summary of area to state the percentage of naturally regenerated cutblocks, which have met regeneration delay.</p> <p>Target 13. Report on the cutblock area (hectares) that achieved free growing status and the average time (years) that the cutblock outperformed late free growing date (weighted average). In addition, report as general information, the volume of chemicals (items covered by the Pesticide Control Act and broadcast fertilizer applications) that are applied annually.</p>
<p>Variance</p>	<p>None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).</p>

Indicator	2.2.1 Additions and deletions to the forest area
Element(s)	2.2 Forest Ecosystem Productivity 4.2 Forest Land Conversion
Strategy(s) Description	Given the Crown tenure situation in BC forest companies generally have little influence on any additions or deletions to the forest area, which generally are a result of government land use objectives. Where companies can have an influence is through their practices, particularly as it pertains to access structures such as roads and landings. These access structures compact soil, making regeneration difficult, and disrupt the natural connectivity within forest stands.
Means of achieving objective and target	Loss of the landbase to access structures can be minimized with <ul style="list-style-type: none"> • careful access planning to minimize the length of permanent road required for harvesting and the number of landings • and use of proper road construction, maintenance and deactivation procedures
Baseline Data	The percentage area of harvested roads and landings within the total harvested area averaged 4.1% (2001 baseline data).
Forecast	Productive forest soils with minimized losses to forest development. Permanent access structures (percent non-productive unnatural) are utilized in Provincial Timber Supply Review.
Target	14. Less than 6 percent, on average, of harvested areas will be in permanent roads and landings.
Basis for the Target	Exceeds legal limits. Reflects current performance level. Continued success with results at less than original 7% target resulted in a reduced maximum target at 6%. The percent target refers specifically to loss to the timber harvesting landbase due to access structures within harvested areas. It does not include land area lost to roads connecting harvested areas.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	Permanent access structures percent (NPUNN) are utilized in Provincial Timber Supply Review forecasts.
Annual	To enable reporting an information system will be used to generate a list of cutblocks where harvesting was completed during the reporting period and to provide a summary of gross cutblock area and planned area of permanent roads and landings within these cutblocks.
Variance	None

Indicator	2.2.2 Proportion of the calculated long-term sustainable harvest level that is actually harvested
Element(s)	2.2 Forest Ecosystem Productivity 4.2 Forest Land Conversion
Strategy(s) Description	<p>For many, sustainability involves limiting actual timber harvest to levels within the long-term capability of the forest to grow wood. To track this, managers need data on both harvest levels and long-term production capability to make proportional calculations. In practice, only the actual harvest level can be physically measured. The amount of wood that can be produced in perpetuity from a forest is a theoretical calculation that depends not only on the inherent wood-growing capacity of the forest ecosystem but also on the kinds and intensities of management inputs (e.g., silvicultural treatments). Because the latter inputs are under human control, a forest can have a wide range of potential long-term sustainable wood harvest levels. One strategy to ensure the wood growing capacity of forests is fully recognized is to retain it in a productive state. Other core indicators that directly measure this are 2.2.1 (additions and deletions to the forest area by cause) and 2.1.1 (reforestation success).</p> <p>The Chief Forester determines the sustainable harvest level for the Okanagan and Arrow TSA's, and TFL 49, after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: http://www.for.gov.bc.ca/hts/pubs/tsr/tsrbkg.htm</p> <p>The Regional Executive Director using a similar process as that followed by the Chief Forester determines the sustainable harvest level for Community Forest K1P and Woodlot W0346.</p>
Means of achieving objective and target	Licencees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility. Essentially, licencees have flexibility on harvest levels from year to year but must balance every five years or less if desired by the licencee.
Baseline Data	<p>Long term harvest level (2002, 2004 baseline data):</p> <ul style="list-style-type: none"> • the Okanagan TSA (3,000,000 m³) can be maintained for 40 years • TFL 49 (385,900 m³) can be maintained for 70 years <p>In 2008, all licencees were within the cut control variance set out by regulation. The total cut control volume harvested in 2008 was 3,605,482 m³ compared to an allocation of 3,119,985 m³. The total cut control volume harvested in 2007 was 2,602,990 m³ compared to an allocation of 3,624,594 m³.</p>
Forecast	<p>Short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. Timber Supply Review has detailed forecasts which then rely on the Chief Forester to provide a determination of harvest levels utilizing forecast information, Crown objectives and input from the public.</p> <p>A timber supply review for the TSA was last completed in 2005 with a resulting Chief Forester's determination effective January 2006.</p> <p>In 2002 the Okanagan Innovative Forestry Society (OIFS) prepared a timber supply analysis to support an application for a harvest uplift request from the regional executive director. Due to the urgency the mountain pine beetle epidemic placed on the TSR 3 review for the Okanagan TSA, the analysis prepared by the OIFS was used as the basis for the TSR 3 AAC decision, with additional analysis work to reflect the ministry's current understanding of the mountain pine beetle epidemic in the Okanagan TSA</p> <p>The OIFS timber supply analysis indicates an initial harvest level of 3,000,000 cubic metres per year can be maintained for four decades. After that, harvest levels decline by approximately 8% per decade for two decades before reaching a mid-term harvest level of 2,555,000 cubic metres per year, which can be maintained from decades 6 to 10. Harvest levels can then increase 15% in decade 11 to a sustained long-term level of 2,930,000 cubic metres.</p> <p>In the 2005 determination the Chief Forester concluded that a "base" AAC of 2,925,000 cubic metres could be supported in the TSA. This new "base" AAC is 270,000 cubic metres above the previous AAC.</p> <p>In addition to the "base" AAC, the Chief Forester recognized an additional uplift was needed to address the mountain pine beetle epidemic in the Okanagan TSA. The total coniferous AAC determined for the Okanagan TSA is 3,355,000 cubic metres. This includes a 5-year beetle uplift of 700,000 cubic metres above the current AAC.</p> <p>The next Timber Supply Review is in progress and a new AAC determination is expected by the end of 2010. More information on the timber supply review can be found at: http://www.for.gov.bc.ca/hts/tfls.htm</p>
Target	15. Harvest the annual cut over the cut control period.
Basis for the Target	Legal requirements. Harvesting the allowable cut over the cut control period maintains short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown.

Section 5.0 – Indicators and Indicator Matrices

Legal Requirements	Forest Act, Cut Control Regulation
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the TSA and TFL's can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .
Annual	Licencees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MOFLNRO) tracks volume delivered.
Variance	According to the Cut Control Regulation and Policy

Indicator	2.2.3 Ecosystems with naturally occurring species (non-core indicator)
Element(s)	2.2 Forest Ecosystem Productivity
Strategy(s) Description	<p>One of the objectives of the Okanagan Shuswap LRMP is to promote a range of ecologically appropriate species mixes. This objective aligns very well with the SFM Plan objective to maintain a variety of habitats for naturally occurring species. Silviculture practices that promote regeneration of native species, either through planting or other natural programs assists in meeting these objectives.</p> <p>Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing younger trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments.</p>
Means of achieving objective and target	Licencee plans will contain reforestation prescriptions that ensure that naturally occurring species are planted. This information is contained within the stocking standards of their Forest Stewardship Plans. Prescriptions will specify reforestation with tree species that are ecologically suited to the site in a timely manner.
Baseline Data	<p>Target 10. Where planting is prescribed, native species will be planted on all areas following harvest. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p> <p>Target 12. Ninety-five percent of cutblocks planned for planting were completed within second complete growing season and one hundred percent of naturally regenerated cutblocks met natural regeneration delay. (2001 baseline data).</p>
Forecast	<p>A diversity and abundance of naturally occurring tree species on the landscape. Native species are maintained at endemic and sustainable levels.</p> <p>Prompt reforestation ensures that the productive capacity of forest landbase to grow trees is maintained. Promptness also aids in providing young trees a head start against competing vegetation, helping to reduce the need for manual or chemical brushing treatments.</p>
Target	<p>10. 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standards (requires reforestation with commercially valuable and ecologically suitable tree species).</p> <p>12. 70 percent of cutblock area planned for planting is completed within two growing seasons. 100 percent of natural regeneration cutblock area meeting natural regeneration delay.</p>
Basis for the Target	Addresses diversity and abundance of naturally occurring tree species on the landscape. Prompt reforestation target exceeds legal requirements. Early establishment of a viable crop of trees reduces the need for subsequent interventions (re-planting, brushing) and positively contributes to carbon uptake.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	<p>Target 10. Licencees will report the number of hectares where trees were planted with species appropriate to the site as outlined in the stocking standards of their Forest Stewardship Plan. Additionally, licencees will report the total number of hectares where planting occurred.</p> <p>Target 12. To enable reporting an information system will be used to generate a summary of area where harvesting was completed and the time delay to have the planned cutblock area planted.</p> <p>An information system will also be used to generate a summary of area to state the percentage of naturally regenerated cutblocks, which have met regeneration delay.</p>
Variance	None, other than what is provided for within the legal framework (statutory decision makers may approve variances from standard requirements provided adequate rationale is provided and long-term objectives continue to be met).

Indicator	3.1.1 Level of soil disturbance
Element(s)	3.1 Soil Quality and Quantity
Strategy(s) Description	Reducing the area in permanent roads and landings is an effective way that licencees can influence the productive capacity of the forest land base. Soil disturbance can have positive (mineral soil exposure for seed germination) or negative (soil compaction) impacts. Managing the detrimental soil disturbance levels will help to retain the productive capacity of ecosystems. Soil compaction, displacement and erosion are components of potentially detrimental soil disturbance. Prevention of man caused landslides will help to avoid sediment delivery to streams, possible damage to fish and invertebrate habitat, loss of forest site productivity, unsightly scars and damage to roads, culverts and bridges. These targets seek to manage soil disturbance levels caused by permanent roads as well as disturbance levels caused by harvest operations. They also serve to report on landslides, when caused by operations.
Means of achieving objective and target	Loss of the landbase to access structures can be minimized with careful access planning to minimize the length of permanent road required for harvesting and the number of landings and by using proper road construction, maintenance and deactivation techniques. Maximum planned levels of soil disturbance are assigned to all cutblocks based on related field data. Expeditious re-establishment of new stands can assist in preventing erosion and other forms of soil displacement. Licencee plans specify acceptable levels of disturbance. Licencees exercise due diligence in assessing sensitive terrain prior to road construction or harvesting, using specialists as required to provide recommendations, completing inspections of drainage ditches and culverts regularly, and taking preventative measures to minimize the potential for debris flow initiation and soil erosion.
Baseline Data	Target 14. The percentage area of harvested roads and landings within the total harvested area averaged 4.1% (2001 baseline data). Target 16. Zero percent of openings harvested exceeded specific soil disturbance levels (2001 baseline data). Target 17. No slides were induced in 2001. 1,657 hectares were harvested (2001 baseline data).
Forecast	Productive forest soils with minimized losses to forest development. Permanent access structures (percent non-productive unnatural) are utilized in Provincial Timber Supply Review. Minimizing soil disturbance will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality. Decreased forest soil exposure from slides will reduce the potential for sedimentation thereby contributing to the maintenance of water quality and provide landbase for facilitating timber production.
Target	14. Less than 6 percent, on average, of harvested areas will be in permanent roads and landings. 16. Zero percent of cutblocks harvested in which soil disturbance exceeds specified level of disturbance. 17. Zero slides induced from forest management activities.
Basis for the Target	The permanent access target exceeds legal requirements. Continued success with results at less than original 7% target resulted in a reduced maximum target at 6%. Minimizing the negative impacts of soil disturbance results in productive forest soils with minimized losses to forest development. It also reduces the potential for sedimentation thereby contributing to the maintenance of water quality
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	14. To enable reporting an information system will be used to generate a list of cutblocks where harvesting was completed during the reporting period and to provide a summary of gross cutblock area and planned area of permanent roads and landings within these cutblocks. 16. Utilize incident reports completed for the reporting year to determine the number of non-conformances related to soil disturbance commitments made in plans. <i>Also agreed to report percent of areas harvested where the maximum allowable soil disturbance level was 5%, indicating operations on more sensitive soils.</i> 17. Utilize incident reports completed for the reporting year to compile the number of slides >0.1 hectare from forest management activities. For perspective, cutblock area where harvesting was completed during the reporting period and kilometers inspected of permanent roads will be provided.
Variance	None

Indicator	3.1.2 Level of downed woody debris
Element(s)	3.1 Soil Quality and Quantity
Strategy(s) Description	<p>This indicator and target addresses the need to maintain structural features of forest ecosystems at the stand level. Strategies include direction for basic levels of coarse woody debris CWD, creation of stubs, and guidelines for enhanced levels of CWD in landscape units with high biodiversity emphasis options. The indicator is complimented by Indicator 1.1.4: Degree of within-stand structural retention or age class.</p> <p>Coarse woody debris (i.e., downed wood) plays an important role in forest ecosystems including provision of food and shelter for invertebrates and smaller wildlife, growing sites for trees, nutrients for soils, and structure in streams to maintain channel stability.</p> <p>Excessive removal of coarse woody debris (CWD) may affect habitat needs for some wildlife species (e.g., pine marten, fisher, grizzly bear, small mammals, snakes, some amphibians and numerous invertebrates).</p> <p>The main ecological principles guiding a CWD management strategy are:</p> <ul style="list-style-type: none"> • CWD immediately after harvest is rarely a concern in the DFA (except in some uniform second-growth sites, or with intensive site preparation). The predicted shortfall in managed stands is low CWD levels 50-80 years after harvest, particularly larger pieces. • Leaving more downed wood at harvest does not help CWD levels later in the rotation. Retained snags and live trees, and mortality of regenerating trees are required. • Distribution of CWD across managed stands is important, particularly maintaining some CWD through time in the harvested areas (outside of retention patches). • Variability in CWD levels and types among stands is high and important ecologically. • Landscape context matters: cutblocks with low CWD levels are of less concern where most stands in the Non-THLB have natural CWD levels, and occurrence of Non-THLB is significant. <p>Government has set an objective for soils – to conserve its productivity and hydrologic function, meaning that companies will have results and strategies in their Forest Stewardship Plan to meet those objectives. Additionally, there are forest practices requirements to retain wildlife trees and for coarse woody debris.</p>
Means of achieving objective and target	<p>Licencees will achieve objectives through a combination of stand-level actions including salvage guidelines, dispersed and group retention, modifying piling practices and adhering to minimum post-harvest limits of coarse woody debris.</p> <p>CWD is managed on a rotation bases. Salvage of current wildlife trees, wildlife tree patches or future mortality within reserves is by exception. Live, dead and dying trees are generally left on site for CWD recruitment.</p> <p>Licencee plans for cut blocks that require debris accumulating to meet reforestation objectives will state that a proportion of loose piles or windrows are to be retained. The preferred locations for the unburned piles are near cutblock edges, wildlife tree patches and riparian areas.</p>
Baseline Data	<p>Target 18. One hundred percent of harvested cutblocks met the intent of the Regional Coarse Woody Debris policy/strategy and LRMP direction identified in plans (2001 baseline data).</p> <p>Target 19. Eighty seven percent of cutblocks had loose piles or windrows retained (2001 baseline data).</p>
Forecast	<p>Healthy ecosystems with a diversity and abundance of native species and habitats.</p> <p>Retention of large organic debris on harvested sites and utilization as habitat for wildlife.</p>
Target	<p>18. One hundred percent of cut-blocks will be consistent with the CWD requirements identified in plans.</p> <p>19. One hundred percent of cut blocks that require debris accumulating to meet reforestation objectives have a proportion of loose piles or windrows retained.</p>
Basis for the Target	<p>Targets consider the Forest Practices Branch Coarse Woody Debris Best Management Guidelines for the Interior BC (Lloyd, 2005). Retention of standing and downed woody debris provides habitat for many living organisms and soil organic matter as it decomposes.</p>
Legal Requirements	<p>Forest and Range Practices Act, Forest Planning and Practices Regulation, Wildfire Act and Regulation</p>
Monitoring & Measurement Periodic	
Annual	<p>18. Report on adherence to CWD strategies identified in plans for cutblocks where harvesting was completed during reporting period. To enable reporting, an information system will be used to generate a list of cutblocks where harvesting was completed and a list of cutblocks that comply with the stated CWD targets.</p> <p>19. To enable reporting, an information system will be used to generate a list of blocks where burning of accumulations piled during site prep occurred, and those blocks which met the target of retaining a portion of loose piles or windrows.</p>
Variance	<p>None for target 18, 10% for target 19.</p>

Indicator	3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance
Element(s)	3.2 Water Quality and Quantity
Strategy(s) Description	<p>Water quality and quantity can be affected by stand-replacing disturbances (human and natural-caused). The effects are normally highest in the initial post-disturbance years and diminish over time as regenerating forest cover is established. The critical threshold at which the disturbance begins to effect water values varies according to topography, soil properties, vegetation types, and climate. Roads and stream crossings can have a large impact on water quality and prompt revegetation of road fill and cut slopes help reduce the risk of sedimentation.</p> <p>Equivalent clearcut area (ECA) describes a second-growth block in terms of its hydrological equivalent as a clearcut. As second growth develops, the hydrological impact on a site is reduced. The rate of reduction is expressed in proportion to the height of the second growth. For example, a 20 ha block with 6 m tree heights is 50 per cent recovered so the ECA of the block is 10 ha (20 ha x 50 per cent). On average, a stand must be at least 9 m tall before it can be considered 90 per cent hydrologically recovered. ECA figures, by themselves do not provide an even measure of risk across watersheds with varying soil types, terrain, elevation and precipitation. The ECA is used in calculating the peak flow index.</p> <p>Peak flow index describes the risk of a change in peak flows for an entire watershed. It is calculated as part of the watershed assessment procedure (WAP), one component of the peak flow hazard. All the cutblocks in a watershed are tabulated with their ECAs. A weighting factor then is applied, based on the elevation band of the cutblock. All the weighted ECAs are added to arrive at the peak flow index for the watershed.</p> <p>Peak flow hazard is an assessment of the peak flow index along with the amount of road in the watershed. Roads also have a weighting factor depending on their elevation within the watershed.</p>
Means of achieving objective and target	Licencees carry out necessary watershed assessments prior to implementing operations in community watersheds. Licencees will strive to maintain peak flow hazard at a moderate rating or lower. Where the hazard is greater than moderate, then licencees will incorporate the assessment recommendations in their operational plans.
Baseline Data	20. Healthy watersheds that function in a well-balanced natural state. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	Acceptable levels of water quality (clean water) and quantity (maintain stream-flow regimes within natural variation). Riparian systems will maintain existing uses and support human and ecological communities and aquatic life. Introduction of sedimentation into streams is minimized.
Target	<p>20. Maintain ECA's in community watersheds such that the peak flow hazard is at or below a moderate rating. If it is necessary to increase the peak flow hazard beyond moderate as the result of harvesting for forest health or because of catastrophic natural events, the harvesting must be consistent with the recommendations in the watershed assessment.</p> <p>Report current equivalent clear cut area (ECA) for all community watersheds where harvesting operations occurred during the reporting period.</p>
Basis for the Target	Follows existing best practices and Watershed Assessment process. Ensures focused assessment of watershed conditions prior to additional operations in community watersheds.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement	
Periodic	
Annual	<p>20. Licencees will report the peak flow hazard for all community watersheds where harvest operations occurred. Where the hazard exceeds moderate, licencees will further report if harvesting was consistent with recommendations contained in the watershed assessment.</p> <p>Report current equivalent clear cut area (ECA) for all community watersheds where harvesting operations occurred during the reporting period. <i>Use recent ECA determinations (new calculation not needed) when incursion for harvest is minor (such as a small amount of salvage harvest).</i></p>
Variance	None

Indicator	3.2.2 Water quality impacts at stream crossings in community watersheds (non core indicator)
Element(s)	3.2: Water Quality and Quantity
Strategy(s) Description	<p>The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. As a finite resource water needs to be protected and managed in order to sustain human populations and natural ecosystems.</p> <p>This indicator focuses on evaluating and managing forestry operation's effect on water quality. For the purpose of this indicator, the primary water quality characteristic of interest is turbidity, which is a measure of the cloudiness of water. When forestry related disturbances generate fine sediment that is then transported to a stream, turbidity pulses occur which degrade water quality. The Water Quality Effectiveness Evaluation methodology utilized by this indicator provides a means to quantify the effect of forestry related disturbances on water quality. The assessment of turbidity takes precedence over other water quality characteristics in this evaluation system.</p> <p>Of all forest harvesting activities, construction, maintenance and use of roads carries the highest risk for impacting water quality. This is particularly true for road sections directly tied to, or in close proximity of stream channels (i.e. stream crossings, ditch lines leading directly to stream channels).</p> <p>The Water Quality Effectiveness Evaluation methodology provides forestry managers and machine operators the ability to quantify and manage their impact on water quality. It provides an opportunity to quantify the relative impact of differing road construction and maintenance options. This methodology can be used during both planning and operational phases.</p> <p>By comparing the management practices employed at a site, with an indication of sediment generated at the same site, the road manager can prioritize activities related to road planning, construction and maintenance. Based on where and how sediment is being generated, the road operator will be able to prioritize the importance of various management activities based on their effectiveness.</p>
Means of achieving objective and target	<p>Forestry supervisors and machine operators involved with road construction will be trained on how to complete the Water Quality Effectiveness Evaluation. The training is expected to improve decisions and practices.</p> <p>Machine operators or supervisors will complete the evaluation for stream crossings once completed.</p>
Baseline Data	There were 16 permanent road stream crossings constructed in community watersheds. Of these, 3 crossings were rated as high. In each of these 3 crossings, all reasonable mitigation measures were taken (2007 baseline data).
Forecast	<p>Through the immediate feedback loop the assessment system provides to forestry managers and machine operators, road planning and construction techniques will be improved.</p> <p>Reduced water turbidity due to forestry practices</p>
Target	<p>21. 100% of newly constructed or reconstructed permanent road stream crossings in Community Watersheds have a water quality effectiveness evaluation incorporated into the planning, construction, and maintenance and monitoring phases.</p> <p>Licencees will bench mark and report on the number of crossings rated as High, Medium and Low.</p> <p>No "High" ratings</p>
Basis for the Target	<p>This indicator represents a new direct approach to managing water quality. It also involves "grass roots" operators in its implementation and ongoing use. The target reflects the innovative, relatively challenging start up phase for this indicator. Over time it is anticipated the target will be expanded to include additional crossings.</p> <p>Over time it is expected data from bench marking will lead to development of a new or amended target stipulating a number, proportion or distribution of High, Medium or Low ratings.</p>
Legal Requirements	Water Act, Fisheries Act, Forest And Range Practices Act, Forest Planning And Practices Regulation, Drinking Water Protection Act
Monitoring & Measurement Periodic	
Annual	<p>Licencees report both the number of new or reconstructed permanent road stream crossings in Community Watersheds, and the number of those stream crossings that have had a water quality effectiveness evaluation completed.</p> <p>The number of crossings rated as High, Medium and Low will be reported</p> <p>The number of crossings rated as High excluding those where all reasonable mitigation measures were taken</p>
Variance	<p>Variance 25% - training and implementation scheduling may result in some crossings not having an effectiveness evaluation completed.</p> <p>None</p> <p>"High" rating is acceptable if all reasonable mitigation measures have been taken.</p>

Indicator	3.2.3 Completion of inspections on permanent roads (non core indicator)
Element(s)	3.2 Water Quality and Quantity
Strategy(s) Description	Okanagan residents recognize water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.
Means of achieving objective and target	Business units will schedule and complete inspections with frequency based on road risk: high, medium and low risk roads.
Baseline Data	Risk inspections have been completed on 669 of 679 (99 %) permanent status roads (2001 baseline data).
Forecast	Active road maintenance and deactivation programs, particularly during the spring snowmelt, will assist in the prevention of soil movement and sedimentation; thereby, contributing to the maintenance of water quality and soil productivity.
Target	22. 100 percent of permanent roads inspections will be completed as planned.
Basis for the Target	Due diligence and legal requirements to maintain roads. Recognition that roads not inspected and maintained can present a very high risk to soil erosion and water quality.
Legal Requirements	Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	To enable reporting, units will keep a file for inspections required based on the roads risk (high, medium and low). For the reporting period, query permanent road information system for inspections planned and completed. <i>Reporting will also include percent of perm roads by High, Medium and Low risk category (if a Licencee had a VH category, they would be added to the H category for reporting).</i>
Variance	None

Indicator	3.2.4 Completion of inspections on temporary roads (non core indicator)
Element(s)	3.2 Water Quality and Quantity
Strategy(s) Description	Okanagan residents recognize water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.
Means of achieving objective and target	Inspections on temporary roads (where not rehabilitated at the completion of harvesting) are scheduled, conducted in the field, and recorded. Information systems will be used to ensure rehabilitation activities are completed as planned.
Baseline Data	Inspections were completed on 12.7 km of temporary status roads (100% of all temp roads) in the reporting period (2001 baseline data).
Forecast	Active road maintenance and deactivation programs, particularly during the spring snowmelt, will assist in the prevention of soil movement and sedimentation; thereby, contributing to the maintenance of water quality and soil productivity. Temporary roads are generally rehabilitated following harvesting and/or site preparation operations. Where prompt rehabilitation has not occurred, the road is deactivated to ensure water quality until such time as rehabilitation occurs.
Target	23. Inspect all temporary status roads at least once per year until rehabilitated.
Basis for the Target	Due diligence and legal requirements to maintain roads. Recognition that roads not inspected and maintained can present a very high risk to soil erosion and water quality.
Legal Requirements	Forest And Range Practices Act, Forest Planning And Practices Regulation
Monitoring & Measurement Periodic	
Annual	Inspections on temporary roads (where not rehabilitated at the completion of harvesting) are conducted in the field and will be recorded. Information systems will be used to ensure rehabilitation activities and inspections are completed as planned.
Variance	None

Indicator	3.2.5 Amount of time for road cut and fill slope revegetation application (non core indicator)
Element(s)	3.2 Water Quality and Quantity
Strategy(s) Description	Prompt revegetation of road cuts and fill slopes will minimize potential for soil movement and sedimentation. This will contribute to the maintenance of water quality and to the long-term productivity of the land. Additionally, prompt revegetation of recently disturbed sites will help reduce the establishment of invasive plants. The seed used for revegetation is graded by Agriculture Canada to protect against the presence of noxious weeds and other unwanted species.
Means of achieving objective and target	Timely revegetation of exposed soils on newly constructed road cut and fill slopes is completed per licensee plans. Licensees use appropriately graded grass seed mixes.
Baseline Data	Road cuts and fill slopes were seeded or planted on average within one months of disturbance, compared to a target of completion within the growing season (2001 baseline data). Eighty seven percent of R/Ws were revegetated with grass seed that is graded “acceptable” (2001 baseline data).
Forecast	Timely revegetation of exposed soils on newly constructed road cut and fill slopes will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality. Application of certified grass seed will reduce invasive plant establishment.
Target	24. Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application will be completed before or during favourable germinating conditions the following spring. 100 percent of rights-of-way revegetated for noxious weed and erosion control with Canada No.1 or equivalent grass seed.
Basis for the Target	Legal Requirements. Reduce soil erosion and sedimentation of streams, and reduce invasive plant establishment.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	
Annual	Licencees will retain a record of permanent road construction and subsequent application of grass seed for the reporting period. The records will be used to provide a summary of timing of right-of-way revegetation application. Units will provide a file for tracking the grass seed purchased. Compile total amount of Canada No. 1 or equivalent seed purchased (kilograms) and compare to total seed purchased (kilograms) for the reporting period.
Variance	Maximum of 7 months for grass seed application.

Indicator	3.2.6 Level of conformance to riparian area commitments within plans (non-core indicator)
Element(s)	3.2 Water Quality and Quantity
Strategy(s) Description	This indicator forms part of the overall strategy to manage forest ecosystems at the landscape and stand levels. Riparian areas, as prescribed in legislation, retain the integrity of the stream channel and the often unique vegetation adjacent to that channel. The riparian areas also serve to provide connectivity of forested cover along waterways, which are generally areas with high value for wildlife habitat and movement.
Means of achieving objective and target	Licencees will attempt to identify small and unclassified wetlands and will take measures to minimize impacts to these features. All commitments are included and highlighted in Licencee plans. Licencees will have an environmental management system that includes incident reporting.
Baseline Data	No riparian infractions or incidents occurred as a result of forest operations (2001 baseline data).
Forecast	Well functioning connected ecosystems that are managed for timber and non-timber forest values. Properly functioning riparian systems and conservation of fish habitat. Okanagan-Shuswap LRMP established an additional 10,000 ha for the TSA for enhanced riparian protection. This area will be forecast in the next Timber Supply Review.
Target	25. Licencees will report the number of environmental incidents related to riparian areas. 100% of action items to restore the area and/or prevent the reoccurrence of those incidents will be completed within the timeframes.
Basis for the Target	Recognition that riparian areas are “focus areas” for successfully meeting biodiversity and ecosystem objectives. Commitments may, and often do, exceed legal requirements.
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation,
Monitoring & Measurement Periodic	
Annual	Licencees will record any non-conformances to riparian areas that are contained within plans as an environmental incident. Incident reports will have appropriate action items to restore the area and/or prevent the incidents re-occurrence. Licencees will report number of related incidents, number of action items planned and the number of action items completed within their set timeframe.
Variance	None

Indicator	4.1.1 Net Carbon Uptake
Element(s)	4.1 Carbon Uptake and Storage
Strategy(s) Description	<p>Forests have great potential to sequester and store carbon from the atmosphere. Given this, managers should recognize the imperative of keeping forest lands in vigorous tree growth at all times. This often means understanding any age class imbalances and strategies for correction. It also includes ensuring prompt tree regeneration following disturbances such as timber harvests and converting the smallest possible amount of forest land to non-forest land during forest operations (e.g., minimizing roads and landings).</p> <p>Forest carbon has recently become a key SFM value, especially in light of Canada’s international commitment to lower its net carbon outputs to the atmosphere. Models for calculating a forest carbon budget (e.g., the Canadian Forest Service’s Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3)) are becoming available for use by practitioners particularly where they can be linked to forest inventory and timber supply models. Their use in forest planning can indicate whether a specific forest is expected to be a net carbon source or sink over the period normally used for wood-supply forecasts. In their 2009 summary of carbon management in BC’s forests⁵ Mike Greig and Gary Bull report a need for additional guidance for forest managers and practitioners. “The interest in managing British Columbia’s forests for climate control and CO2 offsetting projects has built to the point where forest managers are seeking guidance. Equally important is the public’s desire to understand the potential of provincial forests in mitigating climate change and to have this clearly communicated. Some work has taken place in assembling carbon yield curves, researching local carbon storage (Kranabetter and Macadam 2006), and undertaking carbon accounting projects. However, no published handbooks or policies exist to guide forest managers, practitioners, or the public.”</p> <p>The level of carbon budget analysis in British Columbia relies largely on the forest inventory (species and growth rates) and underlying assumptions the forest management regime and what makes up the timber harvesting land base. Because of some of the uncertainty surrounding the data inputs, it can be difficult to tease out changes in carbon sequestration modeling that are strictly as a result of changes to a particular management regime. This creates difficulties for forest managers who are trying to understand the carbon balance implications of various management regimes.</p> <p>Recent timber supply reviews in the province have included carbon sequestration in the analysis such as that for the Lillooet TSA (May 2009). This trend is expected to continue. In his rationale for the Allowable Annual Cut determination for the Lillooet TSA, the Chief Forester reported “as government and society address the important considerations related to carbon management and climate change mitigation, and reach decisions on how all of the potential uses of forest land should be balanced with carbon management, those decisions will be reflected in future AAC determinations.” Also in his rationale, the Chief Forester recognizes the need for government to take an active role in understanding carbon budgets: “No doubt governments will be called on to analyse and prioritise the many alternative potential uses of the forest, from which to derive and provide a range of socially acceptable management objectives. Analysis of the carbon implications of forest management alternatives will be important information for consideration in the making of such decisions on society’s behalf by our elected representatives.”</p> <p>Thus, the strategy within the SFM Plan will be to continue to report on the targets within this indicator (, forest age class distribution, prompt reforestation and forest land conversion) as a means of demonstrating commitment to positively influence carbon balance within the TSA.</p> <p>Licencees will continue to monitor developments in carbon sequestration modeling both at the provincial and regional level and will utilize this information within the SFM Plan. At the very latest, licencees will rely upon forest carbon analysis conducted in conjunction with the next Timber Supply Review. If government elects not to conduct this analysis, licencee will select the appropriate forest carbon stock model and calculate carbon stock within the TSA.</p>
Means of achieving objective and target	<p>Contribute positively to carbon uptake and storage by:</p> <ol style="list-style-type: none"> 1. Maintain current harvest priority: <ul style="list-style-type: none"> • Forest health management – harvesting attacked and susceptible stands (generally older stands) • Concentrate harvest on stands with the most years beyond culmination (maximum mean annual increment) 2. Promptly reforesting areas following harvest with tree species ecologically suited to the site. 3. Minimize loss of the landbase to access structures by: <ul style="list-style-type: none"> • careful access planning to minimize the length of permanent road required for harvesting and the number of landings • use of proper road construction, maintenance and deactivation procedures

⁵ Carbon Management in British Columbia’s Forests: Opportunities and Challenges. Forrex Series 24. 2009

Baseline Data	<p>Target 5. Age classes 2, 3 and 5 each have less than 10 % area representation. Age classes 1 to 5 average only 8.2% reflecting the disproportionate area in over mature age classes (2003 baseline data).</p> <p>Target 12. Ninety-five percent of cutblocks planned for planting were completed within second complete growing season and one hundred percent of naturally regenerated cutblocks met natural regeneration delay. (2001 baseline data).</p> <p>Target 14: The percentage area of harvested roads and landings within the total harvested area averaged 4.1% (2001 baseline data).</p>
Forecast	<p>Continuation of current harvest priorities will lead to balanced age classes on the available productive forest land. The resulting actively growing, healthy forests will best contribute to carbon uptake and storage. Progress to target will be steady:</p> <ul style="list-style-type: none"> ▪ In 50 years age classes 1 to 5 average 7.4% and three age classes meet target. ▪ Target will be achieved within 100 years <p>Productive forest soils with minimized losses to forest development will ensure the greatest land base available for carbon uptake and storage. Timely reforestation will ensure the landbase supports actively growing trees.</p>
Target	<p>5. Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 100 years old [1 (1 to 20), 2 (21-40), 3 (41-60), 4 (61 to 80) and 5 (81 to 100)] occupies at least 10% of the timber harvesting land base. Three age classes meet this target within 50 years.</p> <p>12. 70 percent of cutblock area planned for planting is completed within two growing seasons. 100 percent of natural regeneration cutblock area meeting natural regeneration delay.</p> <p>14. Less than 6 percent, on average, of harvested areas will be in permanent roads and landings.</p>
Basis for the Target	<p>A more even distribution of age classes will provide a relatively even flow of value to industry and the community, and a more stable carbon balance.</p> <p>Early establishment of a viable crop of trees reduces the need for subsequent interventions (re-planting, brushing) and positively contributes to carbon uptake.</p> <p>Managing the area lost to permanent roads has a direct impact on retaining the productive capacity of the landbase.</p>
Legal Requirements	Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	Current status and future forecast of age class distribution, regeneration delay and area in permanent access is provided as part of Timber Supply Review and completed periodically.
Annual	<p>5. Licensees report the current age class distribution on the DFA for both THLB and gross area.</p> <p>12. To enable reporting an information system will be used to generate a summary of area where harvesting was completed and the time delay to have the planned cutblock area planted.</p> <p>An information system will also be used to generate a summary of area to state the percentage of naturally regenerated cutblocks, which have met regeneration delay.</p> <p>14. To enable reporting an information system will be used to generate a list of cutblocks where harvesting was completed during the reporting period and to provide a summary of gross cutblock area and planned area of permanent roads and landings within these cutblocks.</p>
Variance	<p>5. Age class targets attained 20 years later..</p> <p>Variance for targets 12, 14 are as provided for within the legal framework.</p>

Indicator	5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA
Element(s)	5.1 Timber and Non-Timber Benefits
Strategy(s) Description	<p>Forests represent not only a return on investment for an organization (measured, for example, in profit/loss, or product output) but also a source of income and non-financial benefits for DFA-related workers, local communities and governments. While there is limited information on the ecological services and non-timber benefits produced in the DFA, it is important to consider the costs and benefits of a variety of goods and services.</p> <p><u>Timber benefits</u> can be measured by looking at sustainable harvest levels in relation to the allocated supply levels determined by the Chief Forester. The harvest level is set only after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: http://www.for.gov.bc.ca/hts/pubs/tsr/tsrbkg.htm Support for local communities through business relationships provides employment diversification and increased local revenue.</p> <p><u>Non-timber benefits</u> can be assessed using a variety of measures that benefit other forest users and stakeholders. Prompt revegetation of disturbed sites reduces the risk of invasive plants and helps manage soil erosion and sedimentation into streams. Forest recreational users benefit from public access, management of trails and visual quality retention. First Nations expect that culturally important, sacred and spiritual sites are managed or protected.</p>
Means of achieving objective and target	<p>Licencees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility.</p> <p>Continued discussions with existing and potential business customers.</p> <p>Licencees promptly revegetate exposed mineral soil with certified seed.</p> <p>Site plan commitments to manage access and trails, retain visual quality and manage/protect sites important to First Nations are adhered to.</p>
Baseline Data	<p>Target 15. Long term harvest level (2002, 2004 baseline data):</p> <ul style="list-style-type: none"> • the Okanagan TSA (3,000,000 m³) can be maintained for 40 years • TFL 49 (385,900 m³) can be maintained for 70 years <p>In 2007, all licencees were within the cut control variance set out by regulation. The total cut control volume harvested in 2007 was 2,602,990 m³ compared to an allocation of 3,624,594 m³.</p> <p>Target 26. The licencee had 10 different value added and business initiatives/partnerships (2001 baseline data).</p> <p>Target 11. Where forest operations occur, culturally important, sacred and spiritual sites that are specifically identified will be managed or protected. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p> <p>Target 24. Road cuts and fill slopes were seeded or planted on average within one months of disturbance, compared to a target of completion within the growing season (2001 baseline data).</p> <p>Eighty seven percent of R/Ws were revegetated with grass seed that is graded “acceptable” (2001 baseline data).</p> <p>Target 27. Access management strategies indicated in the FDP were implemented as planned (2001 baseline data).</p> <p>Target 28. One hundred percent of harvested cutblocks (9 blocks total) met the objectives for visual impact assessment (2001 baseline data).</p> <p>Target 29. Eight separate educational or research initiatives occurred ranging from summer student hiring to water quality research (2001 baseline data).</p> <p>Target 30. Designated and other identified trails are managed to the commitments in Site Plans. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	<p>Short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. (see indicator 2.2.2 for more detail on forecast).</p> <p>Business initiatives and partnerships are strengthened and provide benefits and opportunities to all parties.</p> <p>Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.</p> <p>Timely revegetation of exposed soils on newly constructed road cut and fill slopes will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality. Application of certified grass seed will reduce invasive plant establishment.</p> <p>Implemented access controls (government lead process to determine locations) will minimize disruption to the sensitive ecosystems and disruption to sensitive wildlife populations.</p> <p>Adaptive forest management, based on facts and data, that are supported by ongoing monitoring and research</p> <p>Visual quality within scenic areas reflects social preferences; important trails are managed as desired.</p>

<p>Target</p>	<p>15. Harvest the annual cut over the cut control period.</p> <p>26. Maintain active involvement with value-added and business initiatives/partnerships.</p> <p>11. 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities or 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities</p> <p>24. Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application will be completed before or during favourable germinating conditions the following spring.</p> <p>100 percent of rights-of-way revegetated for noxious weed and erosion control with Canada No.1 or equivalent grass seed.</p> <p>27. 100 percent of annual access management commitments contained within the FSP will be implemented during the reporting period.</p> <p>28. 100 percent conformance to site plans having preservation, retention or partial retention visual quality objectives.</p> <p>29. Maintain involvement and sponsorship in research and educational initiatives (e.g., summer students, post graduate research projects, volunteer sites for studies, association support – FERIC, Forest Products Association of Canada, OSLRMP Wildlife subcommittee, etc.).</p> <p>30. 100% conformance to Site Plan commitments that manage for trails.</p>
<p>Basis for the Target</p>	<p>Developed by licencees with input from the stakeholders, broader public or First Nations. Essential that holders of varying land use tenure on the same land base communicate regularly. Legal requirements.</p>
<p>Legal Requirements</p>	<p>Forest Act, Cut Control Regulation, Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation</p>
<p>Monitoring & Measurement Periodic</p>	<p>The schedule for subsequent Timber Supply Reviews for the TSA and TFL's can be found at: http://www.for.gov.bc.ca/hts/schedule.htm.</p>
<p>Annual</p>	<p>Target 15. Licencees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MOFLNRO) tracks volume delivered.</p> <p>Target 26. Report on value added and business initiatives/partnerships.</p> <p>Target 11. Licencees will report the number of roads constructed or cutblocks planned or harvested where culturally important, sacred or spiritual sites had been identified and shared as well as the number that were either relocated or managed/protected in accordance with forest plans.</p> <p>Additionally, report any situation where an unknown feature (not previously identified and shared) was found and then managed or protected.</p> <p>Target 24. Licencees will retain a record of permanent road construction and subsequent application of grass seed for the reporting period. The records will be used to provide a summary of timing of right-of-way revegetation application.</p> <p>Units will provide a file for tracking the grass seed purchased. Compile total amount of Canada No. 1 or equivalent seed purchased (kilograms) and compare to total seed purchased (kilograms) for the reporting period.</p> <p>Target 27. To enable reporting, licencees will utilize Forest Stewardship Plan access and timing restriction information. To determine the above has been achieved, refer to the information system for road completion status, access management commitment status, and other relevant information.</p> <p>Target 28. Report on the number of cutblocks harvested in the reporting period that had preservation, retention or partial retention visual quality objectives, and the number of cutblocks that achieved the visual intent as planned. Achievement of visual intent will be confirmed with photos from a key viewpoint demonstrating that operations provided results similar to plan.</p> <p>Target 29. To enable reporting, documentation on research programs and educational initiatives will be retained at the appropriate licencee's office.</p> <p>Target 30. Report on the number cutblocks harvested in the reporting period that had one or more commitments to manage for a trail (could be for hiking, biking, cattle, historic, etc) in the Site Plan. Also report whether those plan commitments were properly executed.</p>
<p>Variance</p>	<p>15. According to the Cut Control Regulation and Policy</p> <p>24. Maximum of 7 months for grass seed application</p> <p>There is no variance provided for the remaining targets (11, 26, 27, 28, 29, 30)</p>

Indicator	5.2.1 Level of investment in initiatives that contribute to community stability.
Element(s)	5.2 Communities and Sustainability
Strategy(s) Description	<p>Investments that contribute to community stability are largely predicated by looking at the harvest level for an organization. As the majority of forest workers are hired locally, communities benefit by forest planning and operations. Additional investments that occur in manufacturing facilities are also dependant upon a secure and stable harvest level.</p> <p>The amount of local spending related to delivered log costs and Licence obligations for that right to harvest is estimated by licencees within the TSA to be 75% even when including stumpage paid to government. With stumpage removed local spending is 85-90% of all delivered log costs. The average breakdown of expenditures by phase of log deliveries and local spending is as follows: Logging – 38% of expenditure (all local – within the TSA) Hauling – 20% of expenditure (all local – within the TSA) Road construction and maintenance – 7% of expenditure (all local – within the TSA) Reforestation – 8% of expenditure (mostly local – within the TSA) Indirect costs – 12% of expenditure (partially local – within the TSA) Stumpage 15% of expenditure (provincial money – some returned locally)</p> <p>Using a conservative figure of \$40.00/m3 expenditure for log deliveries and associated license obligations, spending within the TSA would be over 100 million dollars annually if the entire AAC allocation were harvested.</p> <p>Thus the forest sectors contribution to community stability can be measured by looking at sustainable harvest levels in relation to the allocated supply levels determined by the Chief Forester. The harvest level for the TSA, or TFL, is set only after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: http://www.for.gov.bc.ca/hts/pubs/tsr/tsrbkg.htm</p> <p>Support for local communities through business relationships provides employment diversification and increased local revenue.</p>
Means of achieving objective and target	<p>Licencees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility. Essentially, licencees have flexibility on harvest levels from year to year but must balance every five years or less if desired by the licencee.</p> <p>Licencees seek and maintain active, mutually beneficial business relationships with other forest products businesses in the DFA and vicinity.</p>
Baseline Data	<p>Target 15. Long term harvest level (2002, 2004 baseline data):</p> <ul style="list-style-type: none"> • the Okanagan TSA (3,000,000 m3) can be maintained for 40 years • TFL 49 (385,900 m3) can be maintained for 70 years <p>In 2007, all licencees were within the cut control variance set out by regulation. The total cut control volume harvested in 2007 was 2,602,990 m3 compared to an allocation of 3,624,594 m3.</p> <p>Target 26. The licencee had 10 different value added and business initiatives/partnerships (2001 baseline data).</p>
Forecast	<p>Short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. (see indicator 2.2.2 for more detail on forecast). Forest organizations that harvest in relation to their allocation of the allowable annual cut thereby providing for employment and taxation revenue in local communities.</p> <p>Business initiatives and partnerships are strengthened and provide benefits and opportunities to all parties.</p>
Target	<p>15. Harvest the annual cut over the cut control period.</p> <p>26. Maintain active involvement with value-added and business initiatives/partnerships.</p>
Basis for the Target	Mutually beneficial business relationships, legal requirements.
Legal Requirements	Forest Act, Cut Control Regulation
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the TSA and TFL's can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .
Annual	<p>15. Licencees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year.</p> <p>26. Report on value added and business initiatives/partnerships.</p>
Variance	Target 15 - According to the Cut Control Regulation and Policy, no variance for target 26.

Indicator	5.2.2 Level of investment in training and skills development.
Element(s)	5.2 Communities and Sustainability
Strategy(s) Description	Sustainable forest management provides training and awareness opportunities for forest workers as organizations seek continual improvement in their practices. Investments in training and skill development generally pay dividends to forest organizations by way of a safer and more environmentally conscious work environment. Assessing whether forest contractors have received both safety and environmental training is a direct way of measuring this investment. Additionally, training plans should be in place for employees of the forest organizations who work in the forest. Measuring whether the training occurred in accordance with these plans will confirm an organizations commitment to training and skills development. Effective January 1, 2009, SAFE certification (WorkSafe BC) became a pre-requisite to bid on BCTS contracts. The Ministry’s Forests For Tomorrow program also requires SAFE certification for its agreement holders.
Means of achieving objective and target	Licencees invest in skills development by ensuring forest contractors have adequate safety and environmental training and for woodland employees (staff) by ensuring training occurs in accordance with their plans.
Baseline Data	Educated workforce that performs their duties safely and responsibly. As these are new targets, the 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	Forest planning and operations are conducted with a genuine focus on worker safety and environmental stewardship. Forest contractors and employees have the adequate knowledge and tools to conduct their jobs, performing well even under upset conditions.
Target	31. 90% of DFA forest contractors will have both environmental and safety training. 90% of woodlands employees are trained in accordance with training plans.
Basis for the Target	Trained workforce critical to safe and proper execution of plans. 90% target allows for some discretion with respect to contractors or employees whose work is insulated from forest operations (for example administrative or clerical work).
Legal Requirements	Voluntary certification commitments, Workers Compensation Act.
Monitoring & Measurement Periodic	
Annual	<u>Forest contractor target:</u> Licencees will report the total number of forest contractors and identify the number that had received both environmental and safety training. For BCTS, report on the number of licencees and contracts awarded that required SAFE certification or an equivalent safety certification/registration. <u>Woodlands employees target:</u> Licencees will report the total number of forestland employees (staff) and identify the number that had received training in accordance with their training plan.
Variance	None

Indicator	5.2.3 Level of direct and indirect employment
Element(s)	5.2 Communities and Sustainability
Strategy(s) Description	<p>Forests represent not only a return on investment (measured, for example, in dollar value, person-days, donations, etc.) for the organization but also a source of income and non-financial benefits for DFA-related workers, local communities and governments.</p> <p>While employment levels have been declining in many manufacturing industries including the forest industry, there remains a very direct relationship between direct and indirect employment and annual harvest levels. In 2006 data acquired from the Natural Resources Canada website (http://canadaforests.nrcan.gc.ca/) the multiplier is approximately 4 direct and indirect jobs per 1000 m3 of harvest.</p> <p>Licencees that harvest at sustainable harvest levels in relation to the allocated supply levels determined by the Chief Forester continue to provide direct and indirect employment opportunities. The harvest level for the TSA's and TFL's is set only after considering social, economic and biological criteria. More information on this rigorous process to determine allowable annual cut (AAC) levels can be found at the website: http://www.for.gov.bc.ca/hts/pubs/tsr/tsrbkg.htm</p> <p>As of March 2010, there were 744 woodlands staff and contractors serving the DFA and 1199 manufacturing and sales staff and employees within the DFA. The staff and contractor figure includes the staff of BCTS but does not include any contractors or licencees who bid on contracts or timber sales.</p>
Means of achieving objective and target	Licencees contribute to direct and indirect employment within the region and to sustainable harvesting by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility.
Baseline Data	<p>Long term harvest level (2002, 2004 baseline data):</p> <ul style="list-style-type: none"> • the Okanagan TSA (3,000,000 m3) can be maintained for 40 years • TFL 49 (385,900 m3) can be maintained for 70 years <p>In 2007, all licencees were within the cut control variance set out by regulation. The total cut control volume harvested in 2007 was 2,602,990 m3 compared to an allocation of 3,624,594 m3.</p>
Forecast	<p>Short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. (see indicator 2.2.2 for more detail on forecast).</p> <p>Forest organizations that harvest in relation to their allocation of the allowable annual cut thereby providing for employment and taxation revenue in local communities. Retaining a Forestlands organization that is adequately staffed to safely practice sustainable forestry.</p>
Target	15. Harvest the annual cut over the cut control period.
Basis for the Target	Legal requirements.
Legal Requirements	Forest Act, Cut Control Regulation
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the TSA and TFL's can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .
Annual	Licencees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year.
Variance	According to the Cut Control Regulation and Policy

Indicator	5.2.4 Level of Aboriginal participation in the forest economy
Element(s)	5.2 Communities and Sustainability
Strategy(s) Description	<p>Forests represent not only a return on investment (measured, for example, in dollar value, person-days, donations, etc.) for the organization but also a source of income and non-financial benefits for First Nation communities.</p> <p>This indicator and related targets look specifically at First Nation participation in the forest economy, first to look at licencees' efforts to partner with First Nations on matters related to the forest industry and secondly to look at the percentage of the allocated harvest level in the TSA that has been offered to First Nations (indicating the potential opportunity). Reporting on the volume (%) accepted by them provides an indication of what has been realized. With the target largely outside the control of licencees, an initial 10% target was deemed appropriate.</p>
Means of achieving objective and target	Licencees engage in building mutually beneficial relationships with Aboriginal peoples and participate in government discussions on any redistribution of tenure within the TSA.
Baseline Data	<p>Target 32. There were 5 working partnerships with First Nations in the TSA at the time of initial reporting (2001 baseline data).</p> <p>Target 33. Direct participation by First Nations in the sustainable harvest of forest resources. As this is a new target, the 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	<p>Operational activities and plans that recognize and manage for known aboriginal rights and duly established title. Licencees support First Nations in building organizational capacity.</p> <ul style="list-style-type: none"> As responsible stewards of public forest land, licencees engage in building mutually beneficial relationships with Aboriginal peoples. <p>Economic opportunities and benefits to local First Nation communities resulting from a secure source of forest tenure.</p>
Target	<p>32. Support partnership opportunities (including training) with First Nations through mutually beneficial involvement in forest management.</p> <p>33. At the discretion of government, approximately 10% of the TSA's AAC will be offered to First Nation ventures. Licencees will also report the volume that has been accepted by First Nations.</p>
Basis for the Target	Partnerships, built on mutual principles, are not only beneficial to the partners, but also to the vitality of the DFA. Access to forest tenure provides First Nations with direct control on how forests are sustainably managed and marketed.
Legal Requirements	Forest Act
Monitoring & Measurement Periodic	
Annual	<p>Target 32. Documentation and reporting on First Nations partnerships and training sessions will be retained at the appropriate licencee's office.</p> <p>Target 33. Licencees report total AAC of any tenure offered under Section 12 of the Forest Act (forms of agreement) to First Nations and the volume that has been accepted by those First Nations.</p>
Variance	None

Indicator	5.2.5 Opportunities for public access and for public input
Element(s)	5.2 Communities and Sustainability
Strategy(s) Description	<p>An economically and socially diverse community is often more sustainable in the long term. Licensees support efforts to enhance the many forest values and forest experiences available to the public. These efforts often start with open communication between the public and its stakeholders. Full access to public forest lands is the historical expectation of the general public, thus public members need to be actively engaged when access restrictions are being considered.</p> <p>The public advisory group is a good example of input from public members who have a desire to see forests managed for a variety of values. The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation. Members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.</p>
Means of achieving objective and target	<p>Licensees are committed to work with members of the public on forest management issues and to improve the effectiveness of public processes. At a broad level, this includes involvement in public awareness and education forums related to sustainable forest management. At a more specific level this would involve the active participation of the public advisory group. Providing access to the measures and performance of sustainable forest management plans adds to the open understanding of concepts and practices.</p> <p>This indicator and target recognizes the importance of providing opportunities for members of the public, to provide input into forestry planning. Open lines of communication allow forest licensees to maintain an awareness of social values and concerns and to respond accordingly. Members of the public can also provide local knowledge that contributes to socially and environmentally responsible forest management. The indicator also recognizes the desire by most public members to have full access to the forest resource, and a chance for input where access restrictions are considered. Licensees are committed to work with members of the public on forest access strategies and to improve the effectiveness of public processes.</p>
Baseline Data	<p>Target 27. Access management strategies indicated in the FDP were implemented as planned (2001 baseline data).</p> <p>Target 34. Satisfied advisory group (2005 baseline data)</p> <ol style="list-style-type: none"> Survey response was an average of 4.0 out 5.0. There were 14 respondents to the survey. Results of the feedback form were compiled and are reported as part of the annual monitoring program in the Appendix of the Monitoring Report. <p>Target 35. The original Licensee participated in LRMP committee meetings, attended 4 open houses to view forest plans and attended 12 stakeholder meetings. A total of 43 information packages were sent out to interested parties (2001 baseline data).</p>
Forecast	<p>Active, engaged public with input into decisions on management of public forests.</p> <p>Publically supported access controls (government lead process to determine locations) will minimize disruption to the sensitive ecosystems and disruption to sensitive wildlife populations.</p>
Target	<p>27. 100 percent of annual access management commitments contained within the FSP will be implemented during the reporting period.</p> <p>34. Advisory group feedback will result in:</p> <ol style="list-style-type: none"> 80% of survey responses “3” or better All written comments are reviewed and considered, and all line responses with a rating averaging less than 3.0 become action items <p>35. Participate in the following public processes:</p> <ul style="list-style-type: none"> OSLRMP or other higher level plan committee meetings Forest Stewardship Plan meetings Stakeholder meetings.
Basis for the Target	An educated and informed public with a broad based understanding of forestry can provide local input into forest planning and operations. Public desire to access to forests.
Legal Requirements	Forest Stewardship Plan commitments, Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	

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Annual	<p>Target 27. To enable reporting, licencees will utilize Forest Stewardship Plan access and timing restriction information. To determine the above has been achieved, refer to the information system for road completion status, access management commitment status, and other relevant information.</p> <p>Target 34. Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done). Results of feedback form compiled and reported as part of annual monitoring program.</p> <p>Target 35. Documentation for OSLRMP and Forest Stewardship Plan meetings are kept at the appropriate licencee's office.</p>
Variance	None

Indicator	6.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights
Element(s)	6.1 Aboriginal and Treaty Rights
Strategy(s) Description	<p>Section 35 of the <i>Constitution Act</i> states “The existing aboriginal and treaty rights of Aboriginal Peoples of Canada are hereby recognized and affirmed”. Some examples of the rights that Section 35 has been found to protect include hunting, fishing, trapping, gathering, sacred and spiritual practices, and title. SFM requirements are not in any way intended to define, limit, interpret, or prejudice ongoing or future discussions and negotiations regarding these legal rights and do not stipulate how to deal with Aboriginal title and rights, and treaty rights.</p> <p>The first step toward respecting Aboriginal title and rights, and treaty rights is compliance with the law. Section 7.3.3 of the CSA Z809 Standard reinforces legal requirements for many reasons, including the reality that demonstrating respect for Aboriginal title and rights, and treaty rights can be challenging in Canada’s fluid legislative landscape and therefore it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Both the desire of licencees to comply with laws and open communication with local First Nations ensures that there is a good understanding of Aboriginal title and rights.</p>
Means of achieving objective and target	<p>Open communications with local First Nations during Plan reviews. Licencees maintain a record of Band interest areas and associated Band contacts. Information is shared in a variety of ways to meet the specific needs of the Band when harvesting, road building, herbicide application or broadcast fertilization activities are contemplated. In some instances this takes the form of an information sharing agreement, outlining the approach to communication and confidentiality. In other situations a Band may prefer a more informal one-on-one discussion to review Plans and share concerns.</p> <p>Written requests for communication are responded to.</p>
Baseline Data	<p>Target 36. Open communication and follow-up with local First Nations (2006 baseline data):</p> <ul style="list-style-type: none"> • A total of 38 meetings and meaningful communications were held with First Nations. • Licencees responded to all 10 First Nation written requests for communication.
Forecast	Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.
Target	<p>36. Open communication with affected aboriginal communities will be provided in advance of harvesting, road building, herbicide application or broadcast fertilization activities 100% of the time.</p> <p>Licencees respond to all written requests for communication from First Nations.</p>
Basis for the Target	<p>Legal obligations, communication process developed by Licencees with First Nations.</p> <p>Sharing information and communication with First Nations on Forest Stewardship Plans supports the provincial government’s legal obligation to consult with First Nations regarding Aboriginal rights and title.</p> <p>Licencees are committed to assisting the Crown in carrying out its duty to consult by sharing information and endeavoring to address concerns.</p>
Legal Requirements	Constitution Act, Forest and Range Practices Act
Monitoring & Measurement Periodic	
Annual	<p>Licencees will report the number of times that meaningful communications occurred in advance of harvesting, road building, herbicide application or broadcast fertilization activities and the number of times where that communication did not occur.</p> <p>Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).</p>
Variance	None

Indicator	6.1.2 Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans
Element(s)	6.1 Aboriginal and Treaty Rights
Strategy(s) Description	<p>The first step toward respecting Aboriginal title and rights, and treaty rights is compliance with the law. Section 7.3.3 of the CSA Z809 Standard reinforces legal requirements for many reasons, including the reality that demonstrating respect for Aboriginal title and rights, and treaty rights can be challenging in Canada’s fluid legislative landscape and therefore it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Open communication with local First Nations includes not only the organization understanding the First Nations rights and interests but for First Nations to understand the forest management plans of organizations. With this open dialogue, the two parties can then best work towards plans and operations that mutually agreeable. First Nations may provide useful information concerning the specific location of sites having a sacred or cultural significance and the specific forest characteristics requiring protection or management. The intent of the targets are to manage and/or protect those truly important sites, thus there is a degree of reasonableness in identifying the sites.</p>
Means of achieving objective and target	<p>Open communications with local First Nations during Plan reviews. Licencees maintain a record of Band interest areas and associated Band contacts. Information is shared in a variety of ways to meet the specific needs of the Band when harvesting, road building, herbicide application or broadcast fertilization activities are contemplated. In some instances this takes the form of an information sharing agreement, outlining the approach to communication and confidentiality. In other situations a Band may prefer a more informal one-on-one discussion to review Plans and share concerns. Licencees actively listen and respond to requests to manage or protect non-timber resources, and cultural and spiritual values.</p> <p>Written requests for communication are responded to.</p>
Baseline Data	<p>Target 36. Open communication and follow-up with local First Nations (2006 baseline data):</p> <ul style="list-style-type: none"> • A total of 38 meetings and meaningful communications were held with First Nations. • Licencees responded to all 10 First Nation written requests for communication.. <p>Target 37. There were 2 cutblocks where specific actions were requested. These two blocks have not been laid out yet, but it is the Licencee’s intent to buffer a trail as requested (2006 baseline data).</p>
Forecast	Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.
Target	<p>36. Open communication with affected aboriginal communities will be provided in advance of harvesting, road building, herbicide application or broadcast fertilization activities 100% of the time.</p> <p>Licencees respond to all written requests for communication from First Nations.</p> <p>37. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning where they have been identified and shared by willing aboriginal communities.</p>
Basis for the Target	<p>Legal obligations, communication process developed by Licencees with First Nations</p> <p>Sharing information and communication with First Nations on Forest Stewardship Plans supports the provincial government’s legal obligation to consult with First Nations regarding Aboriginal rights and title.</p> <p>Licencees are committed to assisting the Crown in carrying out its duty to consult by sharing information and endeavoring to address concerns.</p>
Legal Requirements	Constitution Act, Forest and Range Practices Act
Monitoring & Measurement	
Periodic	
Annual	<p>Target 36. Licencees will report the number of times that meaningful communications was provided in advance of harvesting, road building, herbicide application or broadcast fertilization activities and the number of times where that communication was not provided.</p> <p>Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).</p> <p>Target 37. Number of cutblocks where specific actions were requested and were taken, using traditional knowledge where available, to manage for and/or protect non-timber resources, and cultural and spiritual values.</p>
Variance	None

Indicator	6.1.3 Level of management and/or protection of areas where culturally important practices and activities (hunting, fishing, gathering) occur
Element(s)	6.1 Aboriginal and Treaty Rights
Strategy(s) Description	<p>The first step toward respecting Aboriginal title and rights, and treaty rights is compliance with the law. Section 7.3.3 of the CSA Z809 Standard reinforces legal requirements for many reasons, including the reality that demonstrating respect for Aboriginal title and rights, and treaty rights can be challenging in Canada's fluid legislative landscape and therefore it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Open communication with local First Nations includes not only the organization understanding the First Nations rights and interests but for First Nations to understand the forest management plans of organizations. With this open dialogue, the two parties can then best work towards plans and operations that mutually agreeable. First Nations may provide useful information concerning the specific location of sites having a sacred or cultural significance and the specific forest characteristics requiring protection or management. The intent of the targets are to manage and/or protect those truly important sites, thus there is a degree of reasonableness in identifying the sites.</p>
Means of achieving objective and target	<p>Open communications with local First Nations during Plan reviews. Licencees maintain a record of Band interest areas and associated Band contacts. Information is shared in a variety of ways to meet the specific needs of the Band when harvesting, road building, herbicide application or broadcast fertilization activities are contemplated. In some instances this takes the form of an information sharing agreement, outlining the approach to communication and confidentiality. In other situations a Band may prefer a more informal one-on-one discussion to review Plans and share concerns. Licencees actively listen and respond to requests to manage or protect non-timber resources, and cultural and spiritual values.</p> <p>Written requests for communication are responded to.</p>
Baseline Data	<p>Target 11. Where forest operations occur, culturally important, sacred and spiritual sites are managed or protected. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p> <p>Target 37. There were 2 cutblocks where specific actions were requested. These two blocks have not been laid out yet, but it is the Licencee's intent to buffer a trail as requested (2006 baseline data).</p>
Forecast	Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.
Target	<p>11. 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities <u>or</u></p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities</p> <p>37. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning where they have been identified and shared by willing aboriginal communities.</p>
Basis for the Target	<p>Legal obligations, communication process developed by Licencees with First Nations</p> <p>Sharing information and communication with First Nations on Forest Stewardship Plans supports the provincial government's legal obligation to consult with First Nations regarding Aboriginal rights and title.</p> <p>Licencees are committed to assisting the Crown in carrying out its duty to consult by sharing information and endeavoring to address concerns.</p>
Legal Requirements	Constitution Act, Forest and Range Practices Act
Monitoring & Measurement Periodic	
Annual	<p>Target 11. Licencees will report the number of roads constructed or cutblocks planned or harvested where culturally important, sacred or spiritual sites had been identified and shared as well as the number that were either relocated or managed/protected in accordance with forest plans.</p> <p>Additionally, report any situation where an unknown feature (not previously identified and shared) was found and then managed or protected.</p> <p>Target 37. Number of cutblocks where specific actions were requested and were taken, using traditional knowledge where available, to manage for and/or protect non-timber resources, and cultural and spiritual values.</p>
Variance	None

Indicator	6.2.1 Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values
Element(s)	6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses
Strategy(s) Description	<p>The first step toward respecting Aboriginal title and rights, and treaty rights is compliance with the law. Section 7.3.3 of the CSA Z809 Standard reinforces legal requirements for many reasons, including the reality that demonstrating respect for Aboriginal title and rights, and treaty rights can be challenging in Canada’s fluid legislative landscape and therefore it is important to identify these legal requirements as a starting point. It is important for the organization to have an understanding of applicable Aboriginal title and rights, and treaty rights, as well as the Aboriginal interests that relate to the DFA.</p> <p>Open communication with local First Nations includes not only the organization understanding the First Nations rights and interests but for First Nations to understand the forest management plans of organizations. With this open dialogue, the two parties can then best work towards plans and operations that mutually agreeable. First Nations may provide useful information concerning the specific location of sites having a sacred or cultural significance and the specific forest characteristics requiring protection or management. The intent of the targets are to manage and/or protect those truly important sites, thus there is a degree of reasonableness in identifying the sites.</p>
Means of achieving objective and target	<p>Open communications with local First Nations during Plan reviews. Licencees maintain a record of Band interest areas and associated Band contacts. Information is shared in a variety of ways to meet the specific needs of the Band when harvesting, road building, herbicide application or broadcast fertilization activities are contemplated. In some instances this takes the form of an information sharing agreement, outlining the approach to communication and confidentiality. In other situations a Band may prefer a more informal one-on-one discussion to review Plans and share concerns.</p> <p>Licencees actively listen and respond to requests to manage or protect non-timber resources, and cultural and spiritual values.</p> <p>Written requests for communication are responded to.</p>
Baseline Data	<p>Target 11. Where forest operations occur, culturally important, sacred and spiritual sites are managed or protected. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p> <p>Target 36. Open communication and follow-up with local First Nations (2006 baseline data):</p> <ul style="list-style-type: none"> • A total of 38 meetings and meaningful communications were held with First Nations. • Licencees responded to all 10 First Nation written requests for communication. <p>Target 37. There were 2 cutblocks where specific actions were requested. These two blocks have not been laid out yet, but it is the Licencee’s intent to buffer a trail as requested (2006 baseline data).</p>
Forecast	Open and meaningful relationships with local First Nations leading to a trust in sharing sensitive information. Forest operations that respect Aboriginal title and rights and reflect the timber and non-timber interests of local First Nations.
Target	<p>11. 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities <u>or</u></p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities</p> <p>36. Open communication with affected aboriginal communities will be provided in advance of harvesting, road building, herbicide application or broadcast fertilization activities 100% of the time.</p> <p>Licencees respond to all written requests for communication from First Nations.</p> <p>37. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning where they have been identified and shared by willing aboriginal communities.</p>
Basis for the Target	<p>Legal obligations, communication process developed by Licencees with First Nations</p> <p>Sharing information and communication with First Nations on Forest Stewardship Plans supports the provincial government’s legal obligation to consult with First Nations regarding Aboriginal rights and title.</p> <p>Licencees are committed to assisting the Crown in carrying out its duty to consult by sharing information and endeavoring to address concerns.</p>
Legal Requirements	Constitution Act, Heritage Conservation Act, Forest and Range Practices Act

Monitoring & Measurement Periodic	
Annual	<p>Target 11. Licencees will report the number of roads constructed or cutblocks planned or harvested where culturally important, sacred or spiritual sites had been identified and shared as well as the number that were either relocated or managed/protected in accordance with forest plans.</p> <p>Additionally, report any situation where an unknown feature (not previously identified and shared) was found and then managed or protected.</p> <p>Target 36. Licencees will report harvesting, road building, herbicide application or broadcast fertilization activities that occurred during the reporting period, the number of times that meaningful communications were provided in advance of those activities and the number of times where that communication was not provided.</p> <p>Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).</p> <p>Target 37. Number of cutblocks where specific actions were requested and were taken, using traditional knowledge where available, to manage for and/or protect non-timber resources, and cultural and spiritual values.</p>
Variance	None

Indicator	6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy
Element(s)	6.3 Forest Community well-being and resilience
Strategy(s) Description	An economically and socially diverse community is often more sustainable in the long term. Support of efforts to increase diversity, the establishment of other enterprises and co-operation with other forest-dependent businesses and forest users is desirable. When forest licencees harvest their allowable cut levels they provide opportunities to other businesses. While there is limited information on the ecological services and non-timber benefits produced in the DFA, it is important to consider their contribution to community well being and resilience. Some of these goods and services include the ranching and tourism industries. Support for local communities through business relationships provides employment diversification and increased local revenue.
Means of achieving objective and target	Licencees contribute to the sustainable harvest level by adhering to their apportioned harvest volume within the TSA. Cut control regulations dictate the short-term harvest flexibility. Licencees promptly revegetate exposed mineral soil with certified seed. Continued discussions with existing and potential business customers. Site plan commitments to manage access, retain visual quality and manage/protect designated and other identified trails are adhered to.
Baseline Data	Target 15. Long term harvest level (2002, 2004 baseline data): <ul style="list-style-type: none"> • the Okanagan TSA (3,000,000 m3) can be maintained for 40 years • TFL 49 (385,900 m3) can be maintained for 70 years • WFN-CF K1P (55,000m3) can be maintained for 80 years Target 24. Road cuts and fill slopes were seeded or planted on average within one months of disturbance, compared to a target of completion within the growing season (2001 baseline data). Target 26. The licencee had 10 different value added and business initiatives/partnerships (2001 baseline data). Eighty seven percent of R/Ws were revegetated with grass seed that is graded “acceptable” (2001 baseline data). Target 27. Access management strategies indicated in the FDP were implemented as planned (2001 baseline data). Target 28. One hundred percent of harvested cutblocks (9 blocks total) met the objectives for visual impact assessment (2001 baseline data). Target 30. Designated and other identified trails are managed to the commitments in Site Plans. As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.
Forecast	Short and long term harvest flows that reflect forest conditions, forest practices, and the socio-economic objectives of the Crown. (see indicator 2.2.2 for more detail on forecast). Timely revegetation of exposed soils on newly constructed road cut and fill slopes will reduce the potential for soil movement and sedimentation thereby contributing to the maintenance of water quality. Application of certified grass seed will reduce invasive plant establishment. Business initiatives and partnerships are strengthened and provide benefits and opportunities to all parties. Implemented access controls (government lead process to determine locations) will minimize disruption to the sensitive ecosystems and disruption to sensitive wildlife populations. Visual quality within scenic areas reflects social preferences; important trails are managed as desired. Adaptive forest management, based on facts and data, that are supported by ongoing monitoring and research
Target	15. Harvest the annual cut over the cut control period. 24. Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application will be completed before or during favourable germinating conditions the following spring. 100 percent of rights-of-way revegetated for noxious weed and erosion control with Canada No.1 or equivalent grass seed. 26. Maintain active involvement with value-added and business initiatives/partnerships. 27. 100 percent of annual access management commitments contained within the FSP will be implemented during the reporting period. 28. 100 percent conformance to site plans having preservation, retention or partial retention visual quality objectives. 30. 100% conformance to Site Plan commitments that manage for trails.
Basis for the Target	Developed by licencees with input from the stakeholders, broader public or First Nations. Essential that holders of varying land use tenures on the same land base communicate regularly. Legal requirements.

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Legal Requirements	Forest Act, Cut Control Regulation, Heritage Conservation Act, Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	The schedule for subsequent Timber Supply Reviews for the TSA and TFL's can be found at: http://www.for.gov.bc.ca/hts/schedule.htm .
Annual	<p>Target 15. Licencees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MOFLNRO) tracks volume delivered.</p> <p>Target 24. Licencees will retain a record of permanent road construction and subsequent application of grass seed for the reporting period. The records will be used to provide a summary of timing of right-of-way revegetation application.</p> <p>Target 26. Report on value added and business initiatives/partnerships.</p> <p>Units will provide a file for tracking the grass seed purchased. Compile total amount of Canada No. 1 or equivalent seed purchased (kilograms) and compare to total seed purchased (kilograms) for the reporting period.</p> <p>Target 27. To enable reporting, licencees will utilize Forest Stewardship Plan access and timing restriction information. To determine the above has been achieved, refer to the information system for road completion status, access management commitment status, and other relevant information.</p> <p>Target 28. Report on the number of cutblocks harvested in the reporting period that had preservation, retention or partial retention visual quality objectives, and the number of cutblocks that achieved the visual intent as planned. Achievement of visual intent will be confirmed with photos from a key viewpoint demonstrating that operations provided results similar to plan.</p> <p>Target 30. Report on the number cutblocks harvested in the reporting period that had one or more commitments to manage for a trail (could be for hiking, biking, cattle, historic, etc) in the Site Plan. Also report whether those plan commitments were properly executed.</p>
Variance	<p>15. According to the Cut Control Regulation and Policy</p> <p>24. Maximum of 7 months for grass seed application</p> <p>There is no variance provided for the remaining targets (26, 27, 28, 30)</p>

Indicator	6.3.2 Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities
Element(s)	6.3 Forest Community well-being and resilience
Strategy(s) Description	<p>The BC Forest Safety Council was created in September 2004 after the release eight months earlier of a unanimous report from the provincial government's Forest Safety Task Force. The mandate of the task force had been to set out a comprehensive strategy to reduce high levels of injuries and fatalities in the forest sector. Its membership consisted of representatives of companies, unions, independent contractors, forestry associations and the Workers' Compensation Board of B.C. (since renamed WorkSafe BC).</p> <p>SAFE Companies is the flagship program of the BC Forest Safety Council, certifying B.C. forestry operations that show a commitment to safety and demonstrate, through audits, that their safety programs meet industry standards. This earns SAFE-certification status for companies of all sizes, from individual owner operators to the largest firms. More information is available at: http://www.bcforestsafe.org/index.html</p> <p>Effective January 1, 2009, certification became a pre-requisite to bid on BCTS contracts. The Ministry's Forests For Tomorrow program also requires SAFE certification for its agreement holders.</p> <p>Licencees that subscribe to the SAFE Company program demonstrate a commitment to forest workers that they go home safely to their families at the end of each work day.</p>
Means of achieving objective and target	Licencees require those who conduct forest operations be SAFE Company or equivalent registered and/or certified.
Baseline Data	<p>Forest workers who safely execute their work assignments.</p> <p>As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	From 1998 to 2005, WorkSafe BC accepted an average of nearly 22 harvesting fatality claims each year — the worst in 2005 with 34 claims. But the industry averaged fewer than 14 fatalities from 2006 to 2008. While this 35-per-cent reduction is a step in the right direction, no fatality is acceptable. Companies and contractors who are SAFE Company or equivalent certified demonstrate the efforts to make safety integral to each worker's life, and that unsafe is unacceptable.
Target	38. 100% of contractors conducting on the ground work are SAFE Company registered and/or certified or they carry an equivalent safety program.
Basis for the Target	Continuously improve forest worker safety record.
Legal Requirements	Workers Compensation Act
Monitoring & Measurement Periodic	
Annual	<p>Licencees will report:</p> <p>Number of on the ground contractors/BCTS licencees in total working within their DFA and the number of those that are SAFE Company registered and/or certified – or that carry an equivalent safety program.</p>
Variance	None

Indicator	6.3.3 Evidence that a worker safety program has been implemented and is periodically reviewed and improved
Element(s)	6.3 Forest Community well-being and resilience
Strategy(s) Description	<p>The BC Forest Safety Council was created in September 2004 after the release eight months earlier of a unanimous report from the provincial government’s Forest Safety Task Force. The mandate of the task force had been to set out a comprehensive strategy to reduce high levels of injuries and fatalities in the forest sector. Its membership consisted of representatives of companies, unions, independent contractors, forestry associations and the Workers’ Compensation Board of B.C. (since renamed WorkSafe BC).</p> <p>SAFE Companies is the flagship program of the BC Forest Safety Council, certifying B.C. forestry operations that show a commitment to safety and demonstrate, through audits, that their safety programs meet industry standards. This earns SAFE-certification status for companies of all sizes, from individual owner operators to the largest firms. More information is available at: http://www.bcforestsafe.org/index.html</p> <p>Effective January 1, 2009, certification became a pre-requisite to bid on BCTS contracts. The Ministry’s Forests For Tomorrow program also requires SAFE certification for its agreement holders.</p> <p>Licencees that subscribe to the SAFE Company program demonstrate a commitment to forest workers that they go home safely to their families at the end of each work day.</p>
Means of achieving objective and target	Licencees subscribe to the SAFE Company program.
Baseline Data	<p>Forest companies who demonstrate leadership and commitment to having a safe work environment.</p> <p>As this is a new target, 2010 Monitoring Report results will be used to establish the baseline data.</p>
Forecast	From 1998 to 2005, WorkSafe BC accepted an average of nearly 22 harvesting fatality claims each year — the worst in 2005 with 34 claims. But the industry averaged fewer than 14 fatalities from 2006 to 2008. While this 35-per-cent reduction is a step in the right direction, no fatality is acceptable. Companies and contractors who are SAFE Company or equivalent certified demonstrate the efforts to make safety integral to each worker’s life, and that unsafe is unacceptable.
Target	39. 100% of CSA SFM participating licencees will be SAFE Company certified.
Basis for the Target	Continuously improve forest worker safety record.
Legal Requirements	Workers Compensation Act
Monitoring & Measurement	
Periodic	
Annual	Licencees will report a yes/no answer as to whether they are SAFE Company certified.
Variance	none

Indicator	6.4.1 Level of participant satisfaction with the public participation process
Element(s)	6.4 Fair and Effective Decision Making
Strategy(s) Description	<p>The SFM Advisory Group was formed to assist Tolko, Gorman Bros. BCTS and WFN in developing the SFM Plan by identifying local values, objectives, indicators and targets and evaluating the effectiveness of the Plan. The SFM Plan is an evolving document that will be reviewed and revised on an annual basis with the SFM Advisory Group to address changes in forest condition and local community values.</p> <p>Ensuring the continuing interest and participation of this important Group is a Licensee priority. The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation.</p>
Means of achieving objective and target	Licensees provide all Advisory Group members, and interested public who have shown notable interest (written comments or SFM Plan meeting attendance) during the year, a feedback form (survey) to assess their satisfaction with the process. All survey questions will have a 1-5 scoring assessment(1 being poor or ineffective and 5 being excellent or highly effective).
Baseline Data	<p>Satisfied advisory group (2005 baseline data)</p> <ul style="list-style-type: none"> a. Survey response was an average of 4.0 out 5.0. There were 14 respondents to the survey. b. Results of the feedback form were compiled and are reported as part of the annual monitoring program in the Appendix of the Monitoring Report.
Forecast	Active, engaged Public Advisory Group
Target	<p>34. Advisory group feedback will result in:</p> <ul style="list-style-type: none"> a. 80% of survey responses “3” or better b. All written comments are reviewed and considered, and all line responses with a rating averaging less than 3.0 become action items
Basis for the Target	Ensure issues are identified discussed and where possible, resolved. Advisory Group process is being continuously improved.
Legal Requirements	NA
Monitoring & Measurement	
Periodic	
Annual	<ul style="list-style-type: none"> a. Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done). b. Results of feedback form compiled and reported as part of annual monitoring program.
Variance	None

Indicator	6.4.2 Evidence of efforts to promote capacity development and meaningful participation in general
Element(s)	6.4 Fair and Effective Decision Making
Strategy(s) Description	The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation. Many types of initiatives (e.g., two-way information exchanges, educational opportunities) can be used to help promote meaningful participation. This indicator and target recognizes the importance of providing opportunities for members of the public, to provide input into forestry planning. Open lines of communication allow forest licencees to maintain an awareness of social values and concerns and to respond accordingly. Members of the public can also provide local knowledge that contributes to socially and environmentally responsible forest management.
Means of achieving objective and target	Licencees are committed to work with members of the public on forest management issues and to improve the effectiveness of public processes. This includes involvement in public awareness and education forums related to sustainable forest management. Providing access to the measures and performance of sustainable forest management plans adds to the open understanding of concepts and practices. Licencees will provide opportunities/avenues for public participation in decision-making processes through participation in committees, meetings, and plan discussions. Licencees respond to all written requests from the public for communication.
Baseline Data	Target 35. The original Licencee participated in LRMP committee meetings, attended 4 open houses to view forest plans and attended 12 stakeholder meetings. A total of 43 information packages were sent out to interested parties (2001 baseline data). Target 40. One hundred percent of the public’s requests for communication relating to Forest Development Plans (or amendments) were responded to promptly (2001 baseline data). Target 41. Nineteen classroom visits involving 466 students. Eleven forest tours were undertaken, involving 144 individuals. Seven public presentations were conducted with a total audience of 70 people (2001 baseline data). Target 42. There was limited public access to the SFM Plan (2005 baseline data).
Forecast	Public participation in forest planning and operations that is open, inclusive and responsive to public concerns. An educated and informed public with a broad based understanding of forestry can provide local input into forest planning and operations. Public awareness and understanding of the SFMP. An SFMP that has openly informed, included and responded to the public.
Target	35. Participate in the following public processes: <ul style="list-style-type: none"> • OSLRMP or other higher level plan committee meetings • Forest Stewardship Plan meetings • Stakeholder meetings. 40. Respond to all written public communications related to forest operations within 30 days of receipt. 41. Conduct educational classroom visits in public schools, promote public participation in forestry tours and conduct public presentations to increase public knowledge and understanding about sustainable forest management. 42. Licencees will keep members of the public informed of TSA strategies being developed, and planning occurring, by maintaining websites or by other means as desired.
Basis for the Target	An educated and informed public with a broad based understanding of forestry can provide local input into forest planning and operations.
Legal Requirements	Forest Stewardship Plan commitments, Forest and Range Practices Act, Forest Planning and Practices Regulation
Monitoring & Measurement Periodic	

Annual	<p>Target 35. Documentation for OSLRMP and Forest Stewardship Plan meetings are kept at the appropriate licensee’s office.</p> <p>Target 40. Retain and review documentation (often contained within the Licensee’s Forest Stewardship Plan) for responses to public communications related to DFA forest operations. Licensees will report on the number of responses sent out compared to the number of written requests for communication. Report the average timeline for response.</p> <p>Target 41. Licensees to report:</p> <ul style="list-style-type: none"> • Number of students involved with classroom visits in the reporting period. • Number of individuals involved with forest tours in the reporting period. • Number of people involved with public presentations in the reporting period. <p>Target 42. Licensees will report a yes/no answer as to whether web sites or other tools to disseminate information are being maintained, and whether SFMP and other information were made publicly available in the last year.</p>
Variance	None

Indicator	6.4.3 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities
Element(s)	6.4 Fair and Effective Decision Making
Strategy(s) Description	<p>The ability of people to share information, discuss and solve problems, and set and meet objectives is key to achieving and maintaining meaningful participation. Many types of initiatives (e.g., two-way information exchanges, educational opportunities) can be used to help promote meaningful participation.</p> <p>Open lines of communication allow forest licencees to maintain an awareness of social values and concerns and to respond accordingly. First Nations members can also provide local knowledge that contributes to socially and environmentally responsible forest management.</p> <p>This indicator and related targets look specifically at First Nation participation in the forest economy: to look at open communications, licencees’ efforts to build capacity within First Nations on matters related to the forest industry and to how traditional knowledge, non-timber resources, and cultural and spiritual values have been incorporated into in forest planning</p>
Means of achieving objective and target	<p>Licencees engage in building mutually beneficial relationships with Aboriginal peoples.</p> <p>Open communications with local First Nations during Plan reviews. Information sharing requires an understanding of all parties interests and in doing so, building capacity of those involved. Licencees actively listen and respond to requests to manage or protect non-timber resources, and cultural and spiritual values.</p>
Baseline Data	<p>Target 32. There were 5 working partnerships with First Nations in the TSA at the time of initial reporting (2001 baseline data).</p> <p>Target 37. There were 2 cutblocks where specific actions were requested. These two blocks have not been laid out yet, but it is the Licencee’s intent to buffer a trail as requested (2006 baseline data).</p>
Forecast	<p>Licencees support First Nations in building organizational capacity. As responsible stewards of public forest land, licencees engage in building mutually beneficial relationships with Aboriginal peoples.</p> <p>Open and meaningful communications with local First Nations leading to a trust in sharing sensitive information. Two way dialogue of and understanding of interests helps to build capacity for the parties involved.</p>
Target	<p>32. Support partnership opportunities (including training) with First Nations through mutually beneficial involvement in forest management.</p> <p>37. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning where they have been identified and shared by willing aboriginal communities.</p>
Basis for the Target	Licencees engage in building mutually beneficial relationships with Aboriginal peoples. Communications process developed by Licencees with First Nations.
Legal Requirements	Forest and Range Practices Act
Monitoring & Measurement Periodic	
Annual	<p>Target 32. Documentation and reporting on First Nations partnerships and training sessions will be retained at the appropriate licencee’s office.</p> <p>Target 37. Number of cutblocks where specific actions were requested and were taken, using traditional knowledge where available, to manage for and/or protect non-timber resources, and cultural and spiritual values.</p>
Variance	None

Indicator	6.5.1 Number of people reached through educational outreach
Element(s)	6.5 Information for Decision-Making
Strategy(s) Description	The licencees are committed to working with directly affected stakeholders and members of the public on forest management issues and have a well-established history of participation in community meetings, including local planning processes. Organizations and the public provide and receive information through interactions with each other. The sharing of learning's and opinions contributes to informed, balanced decisions and plans acceptable to the majority of public. When informed and engaged, members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.
Means of achieving objective and target	Licencees maintain their involvement and sponsorship in research and educational initiatives (e.g., summer students, post graduate research projects, volunteer sites for studies, association support – FERIC, Forest Products Association of Canada, etc.). Licencees will be involved with educational support to ensure the importance of resource management is conveyed. In addition to direct actions by licencees and their employees, additional outside resources including the sharing of information on the website: http://thompsonokanagansustainableforestry.ca/okanagan_top.htm may be used to achieve the target.
Baseline Data	Target 29. Eight separate educational or research initiatives occurred ranging from summer student hiring to water quality research (2001 baseline data). Target 41. Nineteen classroom visits involving 466 students. Eleven forest tours were undertaken, involving 144 individuals. Seven public presentations were conducted with a total audience of 70 people (2001 baseline data).
Forecast	Adaptive forest management, based on facts and data, that are supported by ongoing monitoring and research. An educated and informed public with a broad understanding of forestry that can provide local input into forest planning and operations.
Target	29. Maintain involvement and sponsorship in research and educational initiatives (e.g., summer students, post graduate research projects, volunteer sites for studies, association support – FERIC, Forest Products Association of Canada, OSLRMP Wildlife subcommittee, etc.). 41. Conduct educational classroom visits in public schools, promote public participation in forestry tours and conduct public presentations to increase public knowledge and understanding about sustainable forest management.
Basis for the Target	Adaptive forest management should be based on facts and data, and supported by ongoing monitoring and research. An educated and informed public with a broad based understanding of forestry can provide local input into forest planning and operations.
Legal Requirements	NA
Monitoring & Measurement Periodic	
Annual	Target 29. To enable reporting, documentation on research programs and educational initiatives will be retained at the appropriate licencee's office. Target 41. Licencees to report: <ul style="list-style-type: none"> • Number of students involved with classroom visits in the reporting period. • Number of individuals involved with forest tours in the reporting period. • Number of people involved with public presentations in the reporting period.
Variance	None

Indicator	6.5.2 Availability of summary information on issues of concern to the public
Element(s)	6.5 Information for Decision-Making
Strategy(s) Description	This target recognizes the importance of keeping members of the public informed of forestry strategies being developed and planning occurring in their area. Open lines of communication facilitate public awareness and understanding of the SFMP and other current forestry topics, and provide an open opportunity for the public to respond. Members of the public can provide local knowledge that contributes to socially and environmentally responsible forest management.
Means of achieving objective and target	Licencees cooperatively manage a web site dedicated to providing the latest SFM Plan information, providing topical forestry information and links to other sources. Licencees develop and distribute the SFM Plan and performance results to the public annually, including a summary of research and extension initiatives.
Baseline Data	Target 42. There was limited public access to the SFM Plan (2005 baseline data).
Forecast	Public awareness and understanding of the topical forest issues and the SFM Plan. A continuously improving SFM Plan that has openly informed, included and responded to the public – one that is supported by ongoing monitoring and research..
Target	42. Licencees will keep members of the public informed of TSA strategies being developed, and planning occurring, by maintaining websites or by other means as desired.
Basis for the Target	Developed by Licencees in consultation with the Public Advisory Group. Provides topical information to local public as well as a world wide audience. Has instant feedback mechanism for those looking for additional information.
Legal Requirements	n/a
Monitoring & Measurement Periodic	
Annual	Target 42. Licencees will report a yes/no answer as to whether web sites or other tools to disseminate information are being maintained, and whether SFMP and other information were made publicly available in the last year.
Variance	None

6.0 Links to Other Planning Processes and Policies

Resource use planning in British Columbia occurs at a variety of levels ranging from strategic land use plans (LRMPs) to site specific plans for small areas (e.g., site plans for individual cutblocks). Strategic land use plans provide broad direction for the sustainable management of land and resources through the establishment of resource management zones (e.g., protected areas, special management areas and general resource management zones), management objectives and strategies to guide land and resource management activities.

Forest Stewardship Plans (FSP's) address resource management at various scales and are often regulated by government objectives. These objectives come from a variety of sources including the Forest and Planning Practices Regulation, orders made under the Land Act, the Land Use Objectives Regulation, the Government Actions Regulation, and strategic land use plans such as the Kootenay Boundary Higher Level Plan Order. The Forest Stewardship Plans contain results and strategies to manage for these objectives set by government. There is little contradiction between these Plans and that of the SFMP for the DFA. In fact, the indicators and targets found in the SFMP are often complimentary to those found in a Licencee's FSP.

The figure 7 on Page 94 illustrates the links between various levels of provincial resource use plans and related policies and procedures.

6.1 Kootenay Boundary Land Use Plan

The Kootenay-Boundary Land Use Plan was developed in the early 1990s based on regional land use plans developed by the Commission on Resources and Environment (CORE) for the East Kootenay and West Kootenay-Boundary regions of the province. The provincial government announced the Kootenay Boundary Land Use Plan in 1995 and approved a more detailed implementation strategy in 1997. As of January 31, 2001, the government approved the Kootenay-Boundary Higher Level Plan, which makes key parts of the plan legally binding.

Key elements of the higher-level plan include:

- a timber supply target of 4.7 million cubic metres per year;
- mature and old forest retention targets;
- measures to address caribou, regional connectivity and important avalanche tracks for grizzly bears;
- green-up reduced, while maximum patch size increased in accordance with natural forest disturbance patterns;
- enhanced resource development zones for timber;
- restoration of fire-maintained ecosystems
- some increased protection for streams within domestic watersheds; and
- establishment of scenic areas.

6.2 Okanagan-Shuswap Land and Resource Management Plan

The Okanagan-Shuswap Land and Resource Management Plan was completed in September 2000. A wide cross-section of stakeholders, interest groups and members of the general public from throughout the area developed the plan. The OSLRMP was approved in January 2001. The Okanagan-Shuswap LRMP is intended to reflect a balance of social, economic and environmental values. It incorporates the principles of sustainability and integrated resource management into a long term, strategic vision for Crown land and resource development for the

plan area and will assist statutory decision-makers in making determinations about land and resource use. It will also assist in building cooperation and partnerships among government agencies, First Nations, licensed tenure holders and other interested stakeholders in the plan area. The OSLRMP provides strategic direction to the management of land and resources on all Crown lands in the Okanagan-Shuswap plan area. Direction is provided through the establishment of resource management zones (e.g., protected areas), management objectives and strategies. Objectives define the intent or desired future state for a particular resource value and strategies are the activities or conditions that must be met to achieve the objective. The objectives in the plan that relate to forest management may be established legally binding Land Use Objectives under the *Land Act*, or Orders under the *Government Actions Regulation (GAR) of FRPA*. Both Land Use Objectives and GAR Orders have legal basis and give direction to resource tenure holders in the planning of future operations. Recently, through the Land Use Objective Regulation, eight objectives have been established. All licencees have amended their FSP's to incorporate these new objectives. Objectives and strategies for non-forestry related activities (e.g., mining, recreation, tourism, and agriculture) are government policy and provide strong direction to management decision-making in the plan area.

In the hierarchy of planning for forest management, LRMPs provide direction to landscape unit plans, which provide direction to Licencee plans. Local plans and other public input processes, including the SFM Advisory Group, feed into this process (see Figure 7, Page 94). The OSLRMP will be monitored annually by the Implementation and Monitoring Committee to assess implementation progress and the effectiveness of the plan in meeting its stated goals and objectives.

A number of objectives and strategies in the Okanagan-Shuswap LRMP relate to the values, objectives, indicators and targets in the SFM Plan as follows.

Protected Areas

The Protected Areas Strategy was established by the provincial government in 1992 with the objective of protecting 12 percent of the province's land base by the year 2000. In the Okanagan-Shuswap LRMP, lands were recommended for protection based on their representation of natural diversity, wildlife, wilderness, recreation and cultural and heritage values. As a result of the OSLRMP, an additional 122,963 hectares of protected area was added increasing the total amount of protected area from 2.9 percent to 7.9 percent of the plan area. Protected areas are located across the landbase to provide representation of the cross-section of ecosystems. Logging, mining and hydroelectric development are not permitted within protected areas and other resource development activities such as grazing and commercial tourism development, are permitted only in specified areas and under strict guidelines.

Forest Ecosystem Management

The Okanagan-Shuswap TSA contains a wide variety of forest ecosystems. Within the TSA ecosystems range from grassland and semi-arid ecosystems in the south and as elevation increases, ponderosa pine and Douglas-fir forests give way to lodgepole pine, sub-alpine fir and spruce, which are common in the south and central plateaus. The northern part of the TSA is much wetter and supports cedar and hemlock forests at low elevations, and sub-alpine fir and spruce at upper elevations, before rising to rugged mountains. In the south and central portion of the TSA where the DFA is located these forest ecosystems have been historically influenced by the presence or absence of fire as a dominant form of natural disturbance. The similarities in fire return intervals, and disturbance sizes and patterns form the basis for categorizing each of the

ecosystems into Natural Disturbance Types (NDT), which in turn is used to provide guidance for maintaining biodiversity.

Biological diversity (biodiversity) is the diversity of plants, animals and other living organisms in all their forms and levels of organization. It includes the diversity of genes, species, and ecosystems and the functional and evolutionary processes that link them. The great diversity of physical features and prevailing climatic conditions in the Okanagan-Shuswap LRMP area has resulted in a great diversity of habitats and species. Biodiversity can be affected by the disruption of natural processes. Future maintenance of biodiversity is dependent upon:

- the protection and connectedness of representative ecosystems as ecological benchmarks at the provincial and regional level;
- the maintenance and connectivity of representative habitats and seral stages at the landscape and watershed level;
- management for important attributes at the stand (site) level; and
- protection of known rare and endangered species and ecosystems.

The overall goal for forest ecosystem management is to maintain a representation of the biological and physical diversity native to the plan area, and maintain forested ecosystem functions and conditions.

Key objectives related to the above goal include:

- maintain well distributed habitat for wildlife tree dependent species (retain wildlife tree patches and individual wildlife trees);
- avoid disturbances to known rare ecosystems;
- maintain representative old growth forests throughout the plan area;
- maintain functional connectivity (movement of plants and animals) at the regional, landscape and stand level; and
- retain coarse woody debris.

Wildlife Tree Retention

Strategies related to wildlife tree retention are consistent with the direction in the Landscape Unit Planning Guide with additional consideration for individual large diameter stems in NDT4.

Rare Ecosystems

Rare ecosystems are those of limited distribution or those that have been altered through historic land use practices. In the southern part of the plan area, the very dry desert ecosystems are considered rare. Key strategies for managing known rare ecosystems include avoidance of new road construction where practicable, and inclusion of known rare ecosystems, as areas to be given priority for the establishment of old growth management areas.

Maintain Representative Old Growth Forests

Strategies for biodiversity include direction to landscape unit planning, identifying areas where conservation is a priority through assignment of biodiversity emphasis options. The OSLRMP has assigned preliminary biodiversity emphasis options to each landscape unit in the plan area. Old growth management areas (OGMAs) will be established through Landscape Unit planning. OGMAs will be defined in a manner that is biologically relevant (i.e., considers connectivity, age and spatial distribution, etc.).

The plan calls for the avoidance of harvesting in OGMA's until such time as the structural and functional attributes can be identified and maintained during timber harvesting.

Connectivity

Connectivity will be achieved at the Landscape Unit planning level through the placement of OGMA's or by planning for harvested and leave areas that maintain mature/older stands in a connected manner.

Coarse Woody Debris

Coarse woody debris (i.e., downed wood) plays an important role in forest ecosystems including provision of food and shelter for invertebrates and smaller wildlife, growing sites for trees, nutrients for soils, and structure in streams to maintain channel stability.

Excessive removal of coarse woody debris (CWD) may affect habitat needs for some wildlife species (e.g., pine marten, fisher, grizzly bear, many small mammals and snakes, some amphibians and numerous invertebrates).

The OSLRMP has a number of specific strategies relating to CWD. These strategies include direction for basic levels of CWD, creation of stubs, and guidelines for enhanced levels of CWD in landscape units with high biodiversity emphasis options.

Forest Health

In the Okanagan-Shuswap LRMP healthy forests are described as having “a condition that does not pose unacceptable risks to resources or values; characterized by biodiversity, the forest contains sustained habitat for indigenous life and meets present and future resource and value objectives”. Biotic forest health factors and abiotic factors that impact the health of forests are (e.g., fire, root rot, bark beetle, mammal, weevil, defoliators, wind, sun, drought and bacteria). The general approach suggested in the OSLRMP for managing forest health is to identify a favourable forest health condition for an area, or type of area, and that management strategies are focused on support of that condition.

Indicators identified in this plan that are applicable to forest health include 1, 2, 3, 4, 13, and 15.

Land and Soils

Soil productivity is vital to all forest resource interests. Objectives in the Okanagan-Shuswap LRMP are aimed at preserving soil resources, managing plant-soil systems and minimizing the potential for the contamination of water resources by naturally occurring uranium deposits.

OSLRMP goals for land and soil resource include:

- healthy plant soil systems;
- forest health, productivity and full functioning ecosystems; and
- minimal dissolution of naturally occurring uranium.

Regulations and guidelines in the Forest Practices Code and the Forest and Range Practices Act complement strategies for land and soils in the Okanagan-Shuswap LRMP. For example both the Code and the Forest and Range Practices Act set out forest management guidelines to minimize soil disturbance and degradation.

Range

In the Okanagan-Shuswap LRMP range is broadly defined as any land that provides food and habitat for animals, both wildlife and domestic livestock. Rangeland includes natural grasslands, forests, alpine communities, parklands and cutblocks. Two key issues related to range

management include the loss of grassland communities from forest in-growth (due largely to fire suppression) and invasion by noxious weeds that out competes native vegetation and threaten the biodiversity and long-term viability of susceptible grassland ecosystems. The CSA standard recognizes both of these threats in the content of the standard and provides guidance to promote activities that fall within their range of natural variation.

The goal of the range management in the OSLRMP is to maintain and/or enhance the long-term productivity and sustainability of the range resource for all users.

Wildlife

The Okanagan-Shuswap LRMP has a great diversity of wildlife including several species that are considered rare at the provincial level. A key management requirement for sustaining wildlife populations is the protection, maintenance and enhancement of wildlife habitat. To address the needs of wildlife habitat, resource managers have recently begun to adopt an ecosystem approach that addresses the needs of many species at a landscape level. However, in following this approach, the habitat needs of certain key species may not be addressed and additional specific actions may be required to deal with these needs (e.g., mule deer, bighorn sheep).

The OSLRMP plan area provides habitat through protected areas and OGMAs for several rare (red and blue-listed) species and plant communities. Many of these are associated with the lower elevations of main valleys, particularly in the South Okanagan and the lower Similkameen valleys. Habitat loss or alteration of habitat has contributed to the threat to some of these species, however, many are naturally rare (they have sparse distributions or numbers, or are near the geographic limits of their distribution).

The Identified Wildlife Management Strategy (IWMS) provides some management direction for rare species, however, it does not address all rare species in the plan area and only addresses site level features (e.g., den or nest sites). Additional species are managed under the “Interim Measures” document developed as part of the Okanagan-Shuswap LRMP.

Fisher and pine marten are two of the rare species that are addressed in the OSLRMP as well as in the IWMS. These species occupy forested ecosystems dominated by mature and older seral stages. Retention of forest attributes – including intact riparian systems and coarse woody debris – during forest operations can reduce many of the impacts on these two species.

The primary goal for wildlife management is to maintain adequate habitat for all naturally occurring and regionally important species through appropriate management of cover requirements, access, forage productivity, movement opportunities and protection of special features.

In addition to the management direction provided for wildlife management through general resource management objectives and strategies, polygon-specific resource management zones (RMZs) were established for NDT4, Bighorn Sheep, Elk, Grizzly Bear, Moose, Mountain Caribou, Mountain Goat and Mule Deer. These zones provide area specific objectives and strategies for managing the values identified in the RMZ.

Fish and Aquatic Habitat, Riparian and Wetlands

There are some 43 species of fish found within the Okanagan-Shuswap LRMP plan area. Salmon are an important resource in the area and depend on the streams and lakes for migration, spawning and rearing.

Human population growth, urban development, land and resource development and water use have all had a cumulative impact on fish populations and fish habitat. A combination of low summer flows, high water temperatures, fines in the gravel and shortage of pools has seriously

diminished the quality of fish habitat in many watersheds. Impacts include changes in flow rates, loss of riparian vegetation, destabilization of stream channel, erosion and sedimentation. The Interior Watershed Assessment Procedure (IWAP) is a program for assessing the cumulative impacts of disturbance to a watershed. IWAPs identify impacts that affect fish habitat and water quality and quantity and include recommendations for mitigating impacts and preventing further impacts from occurring.

The main goal of the OSLRMP is to conserve the natural diversity of fish and fish habitat, with priority given to wild fish stocks. Key objectives for achieving this goal include protecting the integrity of critical and environmentally sensitive fish habitats and maintaining and restoring the structural and functional integrity of streams, stream channels, lakes, riparian areas and other aquatic ecosystems.

Objectives that relate to the SFM Plan include:

- reduce the impacts of development activities on fish habitat;
- maintain stream temperature conditions considered necessary to sustain and protect fish and fish habitat;
- rehabilitate and stabilize stream banks that have been impacted by resource development activities;
- achieve and maintain properly functioning conditions of streams including the timing and magnitude of flows;
- provide adequate riparian habitat to sustain healthy aquatic ecosystems, fish and wildlife populations; and
- identify and protect wetlands in provincial forests.

Regulations and guidelines in the Forest Practices Code and the Forest and Range Practices Act complement strategies for aquatic and riparian ecosystems in the Okanagan-Shuswap LRMP. For example, management within riparian areas is outlined in the Code and in the *Riparian Management Area Guidebook*. The Okanagan Shuswap and Arrow - Boundary Forest Districts also have district policies for riparian and lakeshore management⁶.

Water

The Okanagan-Shuswap LRMP recognizes water as a primary and fundamental resource. Water is a crucial component of the plan area's ecosystems with lakes, rivers and riparian areas providing critical habitat for many fish and wildlife species. Water is also an important resource for human consumption. As a finite resource it needs to be protected and managed in order to sustain human populations and natural ecosystems.

Fish and wildlife and domestic and industry water users rely on a stable supply of water as well as good quality water. A major concern related to water quality is sedimentation, which can impact aquatic life by smothering the streambed organisms that fish depend upon for food. Sedimentation can also impact water quality for human use.

A major issue in the plan area is the protection of water quality and quantity in watersheds in the face of increasing population growth and resource development activities. Activities such as urban development, agriculture, forestry and other land uses have created cumulative impacts for some of the area's watersheds. For example, uncontrolled timber harvesting and road development may contribute to increases in peak season flows resulting in erosion, channel destabilization and sedimentation of streams.

⁶ The Boundary Forest District does not have specific policies for lakeshore management over and above those contained in the Forest Practices Code.

OSLRMP objectives for water management that relate to the SFM plan include:

- manage surface water quality and timing of flow to meet both instream and consumptive requirements;
- protect and/or enhance both surface and ground water quality and quantity;
- do not increase the risk to life and property from floods, erosion, mass wasting and debris torrents and protect ecosystem values;
- maintain and/or restore the functional and structural integrity of streams, stream channels, lakes, riparian areas and aquatic ecosystems; and
- manage the water resource on a watershed basis.

Timber and Silviculture

The forest industry in the Okanagan-Shuswap LRMP area plays an important role in the regional and provincial economies and accounts for approximately 4 percent of the provincial allowable annual cut (AAC). Within the Okanagan Timber Supply Area (TSA) approximately 65 percent of the 2.2 million hectare landbase is considered productive Crown forest and 45 percent of the land base is deemed suitable for harvesting. The difference between the productive forest land base and the timber harvesting land base is largely attributable to unmerchantable forest types, roads and landings, and inoperable areas.

Key land and resource issues for the forest industry in the plan area include security of timber supply and increased costs associated with managing other resource values (e.g., forage for livestock, wildlife habitat, visual quality, etc.). Cost increases are a major concern to the forest industry as they may affect its international competitiveness.

The goal of the OSLRMP for timber and silviculture is to maintain or enhance the sustainable supply of economically viable timber and minimize costs while maintaining environmental standards and addressing other resource values.

Objectives relating to the SFM Plan include:

- maintain or enhance AAC as determined by the Chief Forester for Tree Farm Licenses (TFLs) and the Timber Supply Areas (TSA);
- when constructing new forest development roads, minimize, where practical, site disturbance that causes permanent withdrawals from the timber harvesting land base;
- maintain a diversity of tree species in managed forests; and
- Where practical, important range use related information will be incorporated into Licencee plans.

Access Management

The Okanagan-Shuswap LRMP does not contain a specific section on access management, but does include the following principles (somewhat abbreviated) for coordinated access management planning⁷:

- incorporate the advice of a broad spectrum of user groups;
- organized forest users must assume some responsibility for resolution;
- roaded access may not be compatible with all forest uses and may be a detriment to some;
- road networks may need to change over time;
- access use decisions should be made in the context of a larger plan area to accommodate the full spectrum of user's demands;
- scheduled review periods are required to address new information;
- utilize a range of alternatives (e.g., physical closure, signage and enforcement); and
- information/education strategies to increase public awareness and acceptance of the plan.

6.3 Provincial Landscape Unit Plans

The Landscape Unit Planning Guide – released March 1999 – provides a foundation for achieving landscape level biodiversity through the achievement of priority objectives for the retention of old growth and wildlife trees. The guide provides clear rules on the development of appropriate objectives for biodiversity conservation based on requirements and direction provided in the Forest Practices Code. Landscape units are areas of land and water for long term planning of resource management activities with an initial priority for biodiversity conservation. They are important in creating objectives and strategies for landscape-level biodiversity and for managing other forest resources.

The establishment of old growth management areas (OGMAs) is the most important part of the Forest Practices Code for managing the conservation of biodiversity. The guide provides direction for determining the area of old growth for each of the three types of biodiversity emphasis areas (high, medium, low) and size and spatial location of OGMAs. The Okanagan-Shuswap LRMP has defined target amounts of OGMA for each biogeoclimatic subzone variant and or the timber harvesting land base and the non-timber harvesting landbase.

Wildlife trees provide habitat for a variety of species at the stand level. Although wildlife tree retention is managed at the stand level it contributes to landscape level forest structure.

Landscape unit planning falls into two categories:

- biodiversity planning; and
- forest resources planning.

⁷ Based on a review by BC Environment of the Ministry of Forests Publication: A Guide to Coordinated Access Management Planning (1989)

Biodiversity planning involves setting objectives for six elements including

- retention of old growth forest;
- stand structure through wildlife tree retention;
- seral stage distribution;
- landscape productivity;
- species composition; and
- temporal and spatial distribution of cutblocks (patch size).

Forest resources planning may include objectives for any of the following resources:

- timber;
- recreation;
- water;
- botanical forest products;
- wildlife;
- forage; and
- fisheries.

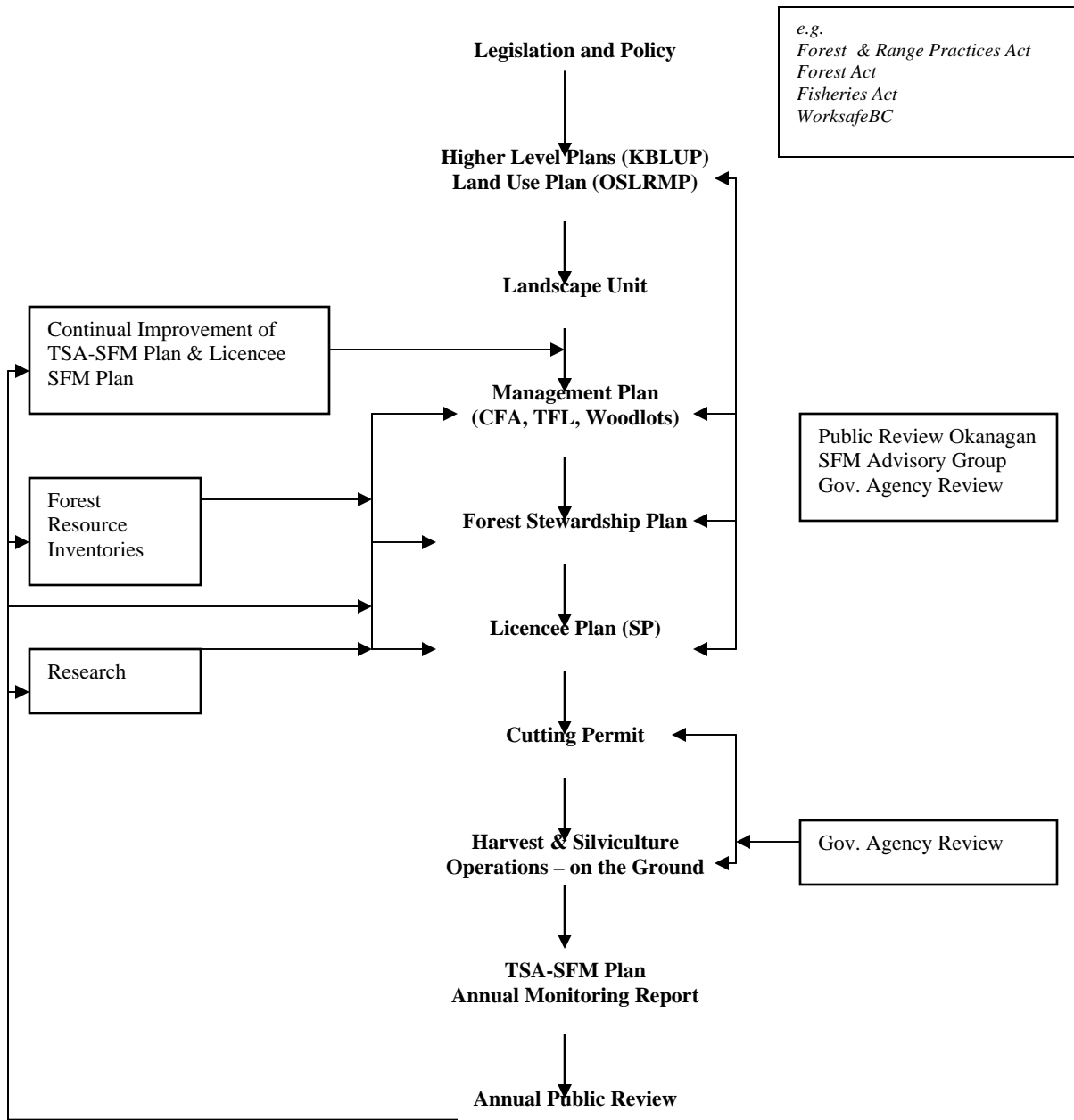
The first phase of landscape unit planning will focus on the achievement of priority biodiversity objectives for the retention of old growth and wildlife trees. Objectives for non-priority elements may be developed if they do not delay the establishment of objectives for priority biodiversity elements or create an impact on timber supply that exceeds government policy. In some cases, non-priority biodiversity elements may be included as objectives in approved strategic land use plans and will therefore be included in the first phase of landscape unit plans.

6.4 Plans, Policies and Management Strategies to Support the Achievement of the SFM Plan

The SFM Plan is a complementary plan that demonstrates field level performance of commitments made within this plan, the Okanagan-Shuswap LRMP and higher-level plans such as the Kootenay-Boundary Land Use Plan, and Licencee plans. Figure 6 shows the flow of input and direction to Licencee plans. It also shows the feedback loops of research, monitoring and adaptive management that occur from operations to the SFM plan, higher-level plans and Licencee plans.

The intent is, over the long term, to rigorously apply the management direction provided through the hierarchy of planning shown in Figure 6, combined with regular monitoring and assessment. Through this process, the SFM plan will continue to be updated and improved to incorporate new information and best management practices based on the most current understanding of effective resource management practices.

Figure 7. Links Between Plans



Existing legislation and policy contributes to sustainable forest management. Current legislation requires the identification of old growth management areas and wildlife/leave tree retention areas. There are also numerous policies and guidelines in place at the regional and district levels that contribute to the principles of sustainable forest management. These include the following:

- **Public Involvement:** Provincial direction for forest management on publicly owned lands includes a requirement to maintain a mix of opportunities that reflect changing resources and social values over time. Public involvement in Forest Stewardship Plan (FSP) reviews is intended to facilitate the exchange of information between developers and people interested in, or affected by, forest operations.

To ensure that public input can be considered in FSP development, comments must be submitted to the licensee in writing. The licensee's response should document actions taken to accommodate public concern. This formal process ensures public concerns pertaining to items such as recreation features, visual quality, identified trails or other features of significance are identified. Early identification of issues enables the forest licensee to adapt plans accordingly.

Licencees within the Okanagan Defined Forest Area have a long-standing commitment to work with members of the public on forest management issues, and there is a well-established history of licensee participation in community meetings, including local planning processes and strategic plans such as the OSLRMP. In addition, licencees are committed to providing topical education updates on forest management issues during meetings. This ensures the public and local First Nation tribal councils and bands have up-to-date information. Members of the public continue to support strategic and local planning processes and actively participate in meetings on forest management issues. Licencees are committed to improving the effectiveness of public processes in the TSA.

- **Access Management:** Access plans are co-coordinated by government with input from the public and forest resource stakeholders. Forest licencees and proponents from other resource industries follow the advice and direction set by the government agencies through these planning processes. Presently access management is discussed at localized meetings with affected stakeholders and Licencees implement them through commitments made in their Forest Stewardship Plan. Access plans consider the condition of roads, road maintenance and deactivation, and the need for access restrictions based on long term objectives for an area. Access planning includes identifying potential impacts on resources such as wildlife, tourism, recreation, or other values due to open public access. Public access controls are implemented where required.
- **Terrain stability:** The Defined Forest Area (DFA) has significant climatic variations from wet conditions in the north to drier conditions in the south. Steep slopes and terrain conditions in the entire DFA have the potential for landslides and surface soil erosion. Landslides are a natural and inevitable phenomenon that contributes to the evolution of the landscape. Although landslides occur in both logged and unlogged terrain, logging and road building can increase their frequency. Impacts of landslides include acceleration of sediment delivery to streams, possible damage to fish and invertebrate habitat and productivity, loss of forest site productivity, unsightly scars and damage to roads, culverts and bridges. The Forest

and Range Practices Act (FRPA) stipulates that forest harvesting and road construction must not cause landslides (FPPR 37). The following are examples of the process undertaken to minimize landslides:

- i. Assess all steep/sensitive terrain prior to road construction or harvesting to evaluate terrain stability and provide recommendations on:
 - whether or not development should proceed;
 - best road and cutting boundary locations or changes to proposed layout or road alignment;
 - riparian management areas;
 - possible mitigative actions and criteria; and
 - road construction and harvesting constraints or special techniques.
 - ii. Inspections of drainage ditches and culverts regularly and take preventative measures to minimize the potential for debris flow initiation and soil erosion.
- **Road construction and maintenance procedures:** Certain soil types are sensitive to disturbance especially from road construction and harvesting activities involving mobile equipment such as excavators and skidders. These sensitive soils are identified in advance to help prevent/minimize soil compaction, poor drainage, puddling and soil displacement that result in loss of productive forest sites. With respect to forest roads, the soil and water information collected during the planning phase and future expected use of the road are used to determine the type of road constructed and level of maintenance, deactivation or rehabilitation to be prescribed. Deactivation and rehabilitation provides a distinction between the varying construction standards and duration of roads as follows:
 - **Deactivation:** The intent is to control water and maintain natural drainage patterns based on the risks associated. Activity includes: cross ditches, waterbars, backup drainage control or removing culverts, bridges, seeding and revegetation and pulling back of material (recontouring or returning material).
 - **Rehabilitation:** some of the same prescriptions above may be completed to control water and maintain natural drainage; however, the intent is to have the site capable of growing a productive crop of trees. Potential strategies may include pulling back of material (recontouring or returning material), seeding and revegetation and decompaction.

There are two administrative categories of road types: status and non-status.

- i. Status roads are ones held under road permit or road use permit by licencees. These permits give the licencees responsibility for maintaining the roads. There are two types of status roads:
 - *permanent roads* are long term roads that may be deactivated for control of water
 - *temporary roads* are short-term roads that will be rehabilitated – including water management – to return the area into a productive growing site.

Commitments related to the amount of permanent access structures (i.e. roads, gravel pits) are included in site-specific plans. Temporary access structures included in plans are part of the net area that requires reforestation and must be suitably treated to enable tree survival and growth.

- i. Non-status roads have no assigned permit holder and responsibility is that of the Crown (usually old trails and roads)

The new Forest Stewardship Plans contain several results and strategies where road construction and deactivation are referenced, and that must be met or implemented. Communication and input by the public, other resource users and resource agencies are important to ensure access meets necessary requirements.

- **Invasive Plants:** Invasive plants are non-native plant species that can be difficult to control. They can have a significant impact on agriculture and timber production, reducing forage production for livestock and wildlife and threatening forest regeneration. They may also alter the structure of natural plant communities, threatening biodiversity. The most effective strategy for controlling invasive plants is to prevent their establishment. Once established, the cost and difficulty of controlling invasive plants increases significantly. The licencees have committed to promptly re-vegetate road cuts and fills in order to reduce the spread of invasive plants..
- **Quality of seed for revegetation of rights-of-way:** Grass seeding is carried out for three reasons: 1) invasive plant control; 2) erosion prevention; and, 3) to provide forage. The seed used for revegetation is graded by Agriculture Canada to protect against the presence of invasive plants and other unwanted species. Measures used to ensure seed quality in the production cycle include sowing seeds with clean equipment, crop inspection, crop certificate permitting seed from inspected crop to be sold as certified seed, seed crop harvested with clean equipment, seed inspected, graded and sealed to Canada Seeds Act requirements by Agriculture Canada.
- **Pest Management:** The licencees are required under their Crown licenses to address forest pest/health at the operational level. Managing for health must take into account the natural variability and cyclical variations that occur on the landscape. Management for forest health includes both preventive action and proactive response measures. Examples include participation in overview flights, focused reconnaissance action resulting from overview flights, strategies and coinciding action plans, communication, implementation and review.
- **Forest Industry-Caused Wildfires:** The forest industry has numerous legal requirements to minimize the potential for wildfires being started by forest operations. Licencee employees and contractors are trained and knowledgeable in preventing and actioning wildfires. During fire season, the licencees monitor fire weather indices, which help determine the level of risk in terms of forest operations. Fire prevention activities such as maintaining fire watch and moving to early shift help reduce the risk of fires starting and spreading as a result of industrial operations. Wildfires are a natural part of ecosystem rejuvenation. However, human safety and potential loss of resources plays a role in strategies to control loss.
- **Free to Grow Silviculture Practices:** A free growing stand is defined in the legislation as a healthy stand of trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees. Prior to 1987, the Ministry of Forests, Lands and Natural Resource Operations funded all stand establishments to the free to grow stage on Crown lands. With a change to the Forest

Act that year, stand establishment (basic silviculture) became the financial responsibility of the licensee.

The regeneration date is the date by which at least the minimum number of healthy well-spaced trees of the preferred and acceptable species per hectare must be established and subsequently maintained until the stand is declared free growing. The free growing assessment period is the time within which a free growing stand must be established as required in the Licence Plan. A survey must be conducted on or before the latest free growing date to determine whether the number of free growing trees per hectare meets the number set in the Licence Plan. Periodic monitoring and/or assessments are completed between the harvest and free growing dates.

- **Genetic diversity:** The Ministry of Forests, Lands and Natural Resource Operations Tree Improvement Branch (TIB) oversees the development and implementation of regulations, guidelines, policies and standards to ensure that tree seed used for Crown land reforestation is locally adapted and contains sufficient genetic diversity.

To conserve the genetic diversity of the province’s forests, tree breeders collect hundreds of samples of tree species. Collections range from places where the species are found in large quantities to isolated populations at the edge of where they grow naturally. Breeders ensure that enough trees are selected to provide a level of diversity that will buffer future forests from environmental extremes and insect and disease attacks. In addition to breeding protocols, the genetic diversity of British Columbia’s trees is protected in parks, protected areas and in special reserves that are established by making “duplicates” of parent trees.

All trees planted on Crown lands must have originated from seed registered by the BC Tree Seed Centre. The Centre has strict requirements for tree seed acceptability, selection and storage. More information on the Tree Improvement Branch and the Seed Centre can be found at the website: <http://www.for.gov.bc.ca/HTI/>.

- **Seed and Vegetative Material Transfer Guidelines:** Seed and vegetative material transfer guidelines are intended to minimize the risks of maladaptation or growth loss associated with regenerating trees (planted from seed or vegetative material) in a different location from their source. Transferring seeds or vegetative materials beyond the limits specified in the guidelines may decrease productivity or increase susceptibility to frost, insects or disease. With respect to genetic diversity, these guidelines geographically limit the amount of natural change and spread of seed or vegetative material over the landscape. The transfer guidelines must be adhered to when prescribing reforestation measures in Licence plans. The government has implemented its Future Forest Strategy that recognizes the impact that climate change may have on future forests and how seed transfer guidelines may need to be modified.
- **Wildlife Tree Retention:** During forest development planning, licensees incorporate a number of strategies for maintaining diversity of structure and function within cutblocks. These include wildlife/leave tree retention, either in single trees or patches, as described in the [Wildlife Tree Retention Guidance, May 2006 document](#). During operational activities, tree species of merchantable size will be retained, where this is in keeping with safety standards of Worksafe BC. Included are green trees that will develop into wildlife trees.

Characteristics that make broad leaf trees and conifers suitable as future wildlife/leave trees include large diameter and height, and structural features such as cavities, loose bark, dead tops, and signs of damage or rot. Also retained are trees of suitable quality and productivity that can act as seed trees to aid in the natural regeneration of harvested areas. Locating wildlife/leave trees in unique microsites, in known habitat areas, and along riparian areas can contribute to long-term forest function and biodiversity.

The intent is to provide wildlife tree patches that are windfirm and that will provide standing live and dead trees for habitat within or on the edge of harvested areas for the course of the rotation. Where merchantable trees in adjacent areas are not threatened, natural processes will be allowed to take their course within wildlife tree patches. Trees that burn, are attacked by insects, or are blown down contribute to biodiversity objectives.

Other strategies for managing a diversity of vertical structure within cutblocks include regenerating a diversity of tree species and maintaining understory vegetation.

Other aspects of maintaining structural diversity within cutblocks include providing a diversity of tree species, maintaining understory vegetation, and retaining coarse woody debris on sites after logging.

- **Visual management:** Visually sensitive areas are viewsheds or viewscapes visible from communities, public use areas and travel corridors, or viewpoints identified through a variety of referral or planning processes where the maintenance of visual quality is important. The OSLRMP has identified and mapped the priority (Zone 1) areas for visual management. Planned harvesting within this priority area requires a visual impact assessment and operations must be conducted to maintain visual quality. Measures to maintain visual quality are included in Licence plans.
- **Archaeology:** During plan development, cutblock and road proposals are provided to archeologists to determine if there is potential significance through an archaeological overview assessment. If yes, then additional fieldwork is scheduled as an archaeological impact assessment and any necessary changes are incorporated into the appropriate Licence plan

- **Carbon Balance:**

Forests have great potential to sequester and store carbon from the atmosphere. Given this, managers should recognize the imperative of keeping forest lands in vigorous tree growth at all times. This often means understanding any age class imbalances and strategies for correction. It also includes ensuring prompt tree regeneration following disturbances such as timber harvests and converting the smallest possible amount of forest land to non-forest land during forest operations (e.g., minimizing roads and landings).

Forest carbon has recently become a key SFM value, especially in light of Canada's international commitment to lower its net carbon outputs to the atmosphere. Models for calculating a forest carbon budget (e.g., the Canadian Forest Service's Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3)) are becoming available for use by practitioners particularly where they can be linked to forest inventory and timber supply models. Their use in forest planning can indicate whether a specific forest is expected to be a net carbon source or sink over the period normally used for wood-supply forecasts.

A retrospective analysis of the forest carbon budget for BC (1920-1989) revealed that forest ecosystem carbon storage has increased from 14.2 Pg C in 1920 to 18.1 Pg C 1990 (Pg stands for petagram =one billion metric tonnes or 1000 x one billion kg). The increase in ecosystem C storage is attributed to an increase in the average age of forests and to the associated accumulation of C in biomass and soil and detritus pools. The average annual increase in ecosystem C storage over the 70-year period was 55.2 Tg C yr⁻¹ (Tg stands for teragram = one million metric tonnes or 1000 x one million kg. One teragram is also equivalent to one megatonne or Mt). In figure 10 following, the Interior Cordilleran (lower left) graph provides an indication of how this applies to the Okanagan.

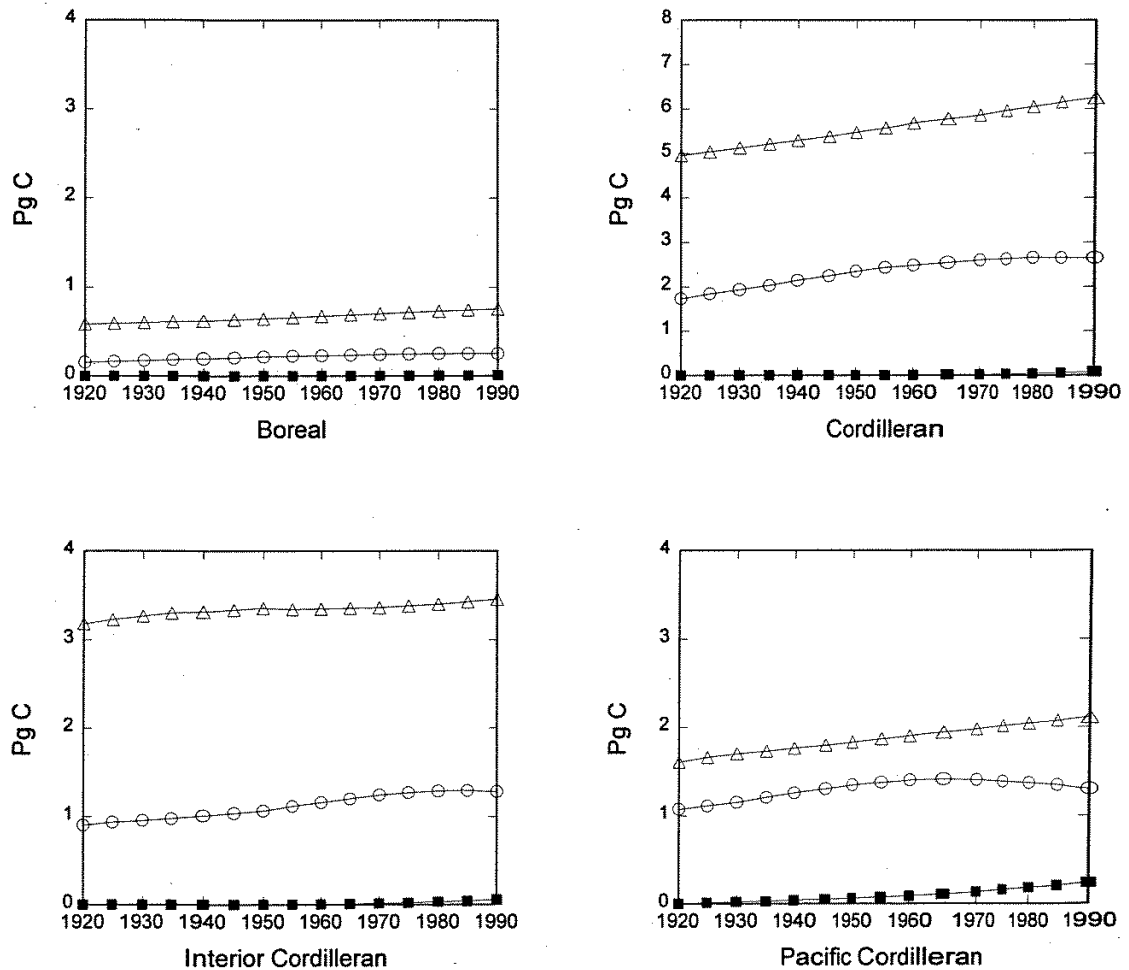


Figure 8. Changes to the total above ground and below ground biomass C (o), soil (Δ) and forest product sector (◆) by ecoclimatic provinces from 1920 to 1989.

The steady increase to carbon stored can be attributed to large scale natural disturbances of the previous century (where large amounts of carbon were released). Since these disturbances, forests have been in a rigorously growing phase sequestering large amounts of carbon. As time progresses, these forests will lose their ability to take up large amounts of

carbon. They will also become more susceptible to large scale natural disturbances such as that occurring presently with Mountain Pine Beetle.

The following graph (Figure 11) provides an illustration of the overall carbon cycle within Canada:

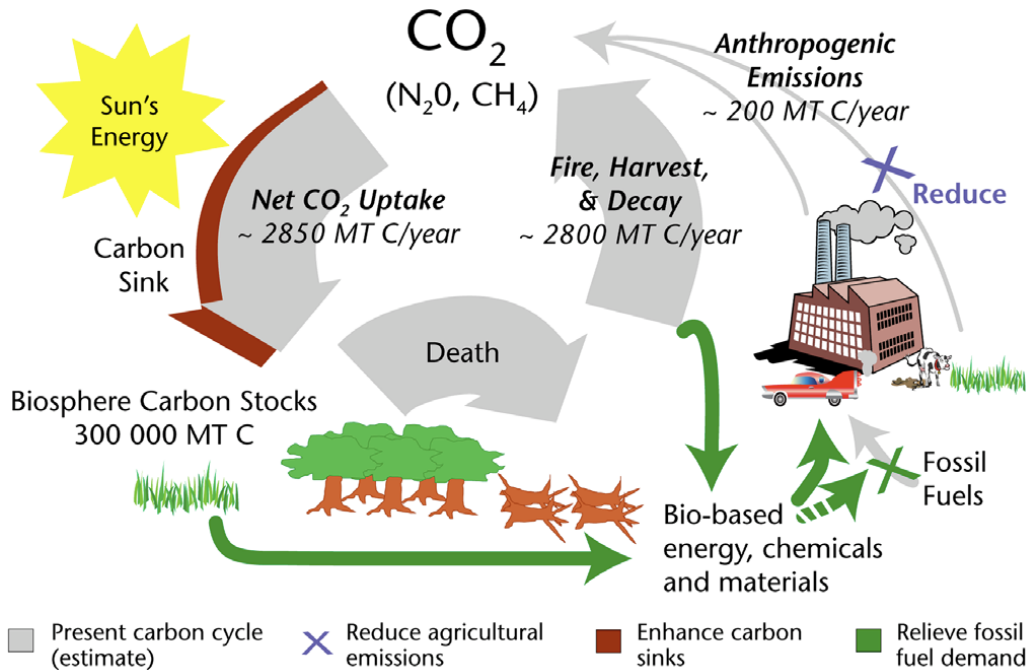


Figure 9. Carbon cycle within Canada.

In a 2009 Report - Carbon Management in British Columbia's Forests: Opportunities and Challenges, authors Mike Greig and Gary Bull consolidated forest carbon management information currently available for British Columbia in the policy, research, and operational communities. They summarized the forest carbon cycle as:

"Net changes in forest carbon stocks determine whether a forest ecosystem is a net source of atmospheric carbon or a net sink of atmospheric carbon. Overall, it is the forest's net carbon balance that must be accounted for by adding up the ever-changing contributions of all the stands. For example, when a tree is harvested, carbon is removed in the logs, but 40–60% of the tree biomass (branches, roots, leaves) remains in the forest where it decomposes slowly and gradually releases nutrients and CO₂. The harvested areas also regenerate so that over time a substantial new pool of carbon is created. Harvested logs are sent to mills for conversion into forest products, such as lumber, panels, or paper. Depending on the use and disposal of these products, the carbon may be stored for a very long time, or it may be released into the atmosphere relatively quickly. About 45–50% of the carbon harvested and removed from the forest is stored in long-lasting structures such as houses. This carbon is not released back into the atmosphere until, for instance, a house is torn down many decades later and the wood is burnt or sent to landfills. About 25–30% of the carbon goes into less durable products such as wooden pallets, or quickly disposed of newspapers and other paper goods. Strategies prolonging the storage of carbon in wood products and landfills can help to reduce green house gas emissions. The remaining carbon (about 25%) is in the bark and leftover wood pieces, which are often used to fuel pulp and paper mills, thus providing a

renewable energy substitute for fossil fuels (Natural Resources Canada 2007). In most Canadian forests, however, more carbon exists in soils and dead organic matter than in the living biomass”.

The report notes the interest in managing British Columbia’s forests for climate control and CO₂ offsetting projects has built to the point where forest managers are seeking guidance. “Equally important is the public’s desire to understand the potential of provincial forests in mitigating climate change and to have this clearly communicated. Some work has taken place in assembling carbon yield curves, researching local carbon storage (Kranabetter and Macadam 2006), and undertaking carbon accounting projects. However, no published handbooks or policies exist to guide forest managers, practitioners, or the public”.

The report includes example of carbon offsetting projects such as:

- **Afforestation/Reforestation:** Creating a forest where none has existed in recent history (e.g., planting trees on agricultural land, urban landscapes, riparian areas and parks, and on previously degraded forest sites such as old roads and landings).
- **Avoided/reduced deforestation:** Avoiding or reducing the permanent loss of forest (e.g., narrowing of cleared rights-of-way on utilities and roadways, reducing road density, and reducing site degrading processes).
- **Forest Management:** Managing activities or changing the level of an existing activity within forest areas to increase carbon sequestration and to reduce or avoid emissions (e.g., fire and pest management; intensive silviculture involving fertilization and the use of faster-growing tree species; prompt reforestation of sites that might not regenerate quickly; extension of harvest rotations; reclamation of slash piles; use of differing tree retention levels in harvest areas; and rehabilitation of skids trails and roads).

Finally the report concludes by recognizing the uncertainty that exists in managing forests for carbon.

“But who are the forest managers that will be compensated for managing forests for carbon stock? And who owns the carbon credits? A carbon credit is generated on the amount of carbon sequestered above the normal business practice for an area, or “in addition to” what would have occurred had no change in management strategy taken place. On private land, the landowner is generally considered to be the forest manager and owns carbon credits the land generates.

British Columbia, however, comprises almost 48 million ha productive Crown forest land. Who owns the carbon credits generated on Crown forest land? Companies that wish to establish carbon sequestration projects or simply alter forest management practices to increase carbon storage or uptake on Crown land will require some level of certainty to the ownership before investing in these projects. This remains one of the province’s key challenges. Given the province’s vast forested area, its advanced levels of forest management, and the presence of knowledgeable forest managers and communities in all parts of British Columbia, Crown land offers great opportunities for forest carbon stock management. Logically, the forest manager should reap the benefits, although implications exist for those who do not presently have Crown tenure.

This leads to the need for incentives that encourage innovative approaches or practices leading to carbon sequestration/storage or reduction of impacts on sequestration/storage.”

In British Columbia, two models have generally been used to calculate carbon stock. The first, developed by the Canadian Forest Service (CFS), is a net volume-to-biomass

conversion model that estimates the gross biomass quantity based on the net merchantable volume (an attribute readily available in our forest inventory) (Boudewyn et al. 2007). This carbon-stock calculator is used in conjunction with the CFS carbon accounting model, Carbon Budget Model of the Canadian Forest Sector 3 (cbm-cfs3). The second model (forecast), developed at the University of British Columbia, uses a different technique whereby biomass accumulation (live and dead) is modeled directly for the various components of forest ecosystems (a bottom-up approach). Volume is calculated as a function of stemwood biomass and tree height, if needed.

The level of carbon budget analysis in British Columbia relies largely on the forest inventory (species and growth rates) and underlying assumptions the forest management regime and what makes up the timber harvesting land base. Because of some of the uncertainty surrounding the data inputs, it can be difficult to tease out changes in carbon sequestration modeling that are strictly as a result of changes to a particular management regime. This creates difficulties for forest managers who are trying to understand the carbon balance implications of various management regimes.

Licencees will continue to monitor the evolving field of carbon budgets and offsets and look for opportunities to positively contribute to the carbon cycle.

- **Allowable Annual Cut (AAC) determination:** The AAC is the allowable rate of timber harvesting in a management unit such as timber supply area (TSA) or a tree farm licence (TFL). The Chief Forester sets the AAC for each of the province's Timber Supply Areas and Tree Farm Licences. The Regional Executive Director sets the AAC for Community Forest Licences and Woodlot Licences.

Timber supply is the rate at which timber could be made available for harvesting. It is a measure of the potential flow of logs out of the forest. It is not the same as the inventory or amount of wood in the forest. The size and productivity of a given area of land available for timber harvesting (timber harvesting land base) are factors used to determine the amount of timber that can be produced over time. Economic, environmental and social factors affect the rate of timber harvesting and the methods used. Economic factors may include prices for wood products, location and quality of timber, and costs of production. Environmental considerations include wildlife habitat, riparian buffers and environmentally sensitive areas. Examples of social factors are visual appearance of the landscape and drinking water quality and supply.

Timber supply analysis is a process that explores the effects on timber supply of existing or possible future forest management strategies and alternative timber harvesting levels. The analysis makes it possible to compare how alternative management strategies affect forest structure and timber production over time. The steps in timber supply analysis to support AAC determination include:

- i. *Categorize the land base* – define the timber harvesting land base by separating lands suitable for timber production from lands unavailable or inappropriate for timber production (e.g., protected areas or inaccessible terrain). Lands outside of the timber harvesting land base are still part of the provincial forest and contribute to and are managed for other values (e.g., wildlife habitat, old growth).

- ii. *Project growth and yield* – growth and timber yield are projected for each stand based on current management. These projections show the characteristics of a stand (e.g., timber volume per hectare, average stem diameter) at different ages.
- iii. *Identify management activities and requirements* – current management practices – including those that enhance timber production (e.g., planting) and those that maintain or enhance other values (e.g., wildlife habitat, visual quality) – are identified and the amount and timing of each activity is specified. It is often necessary to restrict some activities in some areas to achieve multiple objectives.
- iv. *Model timber supply based on current management* – a computer model is used to simulate the way a stand grows and is harvested over time. Forecasting occurs out for the next 250 years.
- v. *Run sensitivity analyses* – sources of uncertainty in the data and management assumptions are analyzed to determine which factors most affect analysis results (e.g., where small changes in a management objective can cause large changes in timber supply). This knowledge helps to establish priorities for collecting new information and indicates where caution is required in interpreting results.

In setting an AAC, the Chief Forester considers information such as biodiversity, wildlife, and the social impacts of changes to timber supply including:

- ⇒ the rate of timber production that may be sustained from the area;
 - ⇒ the short- and long-term implications to the province of alternative rates of timber harvesting from the area;
 - ⇒ constraints on the amount of timber produced from the area due to use of the forest for purposes other than timber production;
 - ⇒ the nature, production capabilities and timber requirements of established and proposed processing facilities;
 - ⇒ the economic and social objectives of the Crown, for the area, the region and the province, as expressed by the Minister of Forests and Range; and,
 - ⇒ abnormal insect or disease infestations and major salvage programs planned for the area.
- ⇒
Ultimately the Chief Forester’s AAC determination is based on independent professional judgment.

Glossary of Terms

Glossary of Terms

Abbreviations/Acronyms

Acronym	Meaning	Acronym	Meaning
AAC	Allowable Annual Cut	MOE	Ministry of Environment
BCTS	British Columbia Timber Sales	MOFLNRO	Ministry of Forests, Lands and Natural Resource Operations
BEC	Biogeoclimatic Ecosystem Classification	NAR	Net Area to Reforest
CFA	Community Forest Licence	NDT	Natural Disturbance Type
CSA	Canadian Standards Association	NP	Non-Productive
CWD	Coarse Woody Debris	NTHLB	Non Timber Harvesting Land Base
DFA	Defined Forest Area	OGMA	Old Growth Management Area
DFO	Department of Fisheries and Oceans	OSFMP	Okanagan SFMP
EMS	Environmental Management System	OSLRMP	Okanagan Shuswap Land and Resource Management Plan
ESA	Environmentally Sensitive Area	RMZ	Resource Management Zone
FERIC	Forest Engineering Research Institute of Canada	SFM(P)	Sustainable Forest Management (Plan)
FPAC	Forest Products Association of Canada	SP	Site Plan
FPC	Forest Practices Code of BC Act	SU	Standards Unit
FPPR	Forest Planning and Practices Regulation	TDG	Transportation of Dangerous Goods
FRPA	Forest and Range Practices Act	TFL	Tree Farm Licence
FSP	Forest Stewardship Plan	THLB	Timber Harvesting Land Base
FSSIM	Forest Service Simulation Model	TSA	Timber Supply Area
GAR	Government Actions Regulation	TSL	Timber Sale Licence
HLP	Higher Level Plan	TSR	Timber Supply Review
IWMS	Identified Wildlife Management Strategy	VQO	Visual Quality Objective
KBLUP	Kootenay Boundary Land Use Plan	WFN	Westbank First Nation
LRMP	Land and Resource Management Plan	WFN-CF	Westbank First Nation Community Forest
LU	Landscape Unit	WHA	Wildlife Habitat Area
LUP	Land Use Plan	WTP	Wildlife Tree Patch
		WTRA	Wildlife Tree Retention Area

Definitions

The following definitions were taken from the Canadian Standards Association (CSA) Sustainable Forest Management; Requirements and Guidance Z809, the Okanagan-Shuswap LRMP, the *Forest Act*, the *Forest and Range Practices Act* or provided by the Licencees.

Aboriginal Rights: are recognized and affirmed by *Sec. 35(1) of the Constitution Act, 1982*. Aboriginal rights involve practices that were integral to the aboriginal society before contact. For example, Aboriginal rights may include (but are not limited to) fishing, hunting, gathering, trapping, and the use of land and resources for social, medicinal, spiritual and ceremonial purposes (*Sparrow Decision, Guerin Decision, Calder Decision, Jack Decision*). Generally the priority set in the Courts is conservation first, aboriginal rights to carry on an activity and/or practice next. (SFM Advisory Group)

Aboriginal Title: (*Delgamuukw Decision*): is an Aboriginal right recognized and affirmed in Section 35(1) of the *Constitution Act, 1982*. Aboriginal title is right to the land itself and encompasses the right to exclusive use and occupation of the land held pursuant to that title for a variety of purposes, which need not be aspects of those aboriginal practices, customs and traditions that are integral to distinctive aboriginal cultures (Para 177). Aboriginal title also encompasses within it a right to choose to what ends a piece of land can be put (Para 168). (SFM Advisory Group)

Adaptive management – a learning approach to management that recognizes substantial uncertainties in managing forests and incorporates into decisions experience gained from the results of previous actions. (Can/CSA Z809 – 02)

Biodiversity (or biological diversity) – the diversity of plants, animals, and other living organisms in all their forms and levels of organization, including genes, species, ecosystems, and the evolutionary and functional processes that link them. (Glossary of Resource Planning Terms)

Cultural heritage resource – means an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people. (*Forest Act*)

Defined Forest Area (DFA) – a specified area of forest, including land and water (regardless of ownership or tenure) to which the requirements of this Standard apply. The DFA may or may not consist of one or more contiguous blocks or parcels. (Can/CSA Z809 – 02)

Forest resources – all resources and values associated with forests and range including, without limitation, timber, water, wildlife, fisheries, recreation, botanical forest products, forage, and biological diversity. (*Forest Practices Code of British Columbia Act*)

Free growing stand – a stand of healthy trees of a commercially valuable species, the growth of which is not impeded by competition from plants, shrubs or other trees. (*Forest and Range Practices Act*)

Indicator – a variable that measures or describes the state or condition of a value (see Figure 5 of Standard). (Can/CSA Z809 – 02)

Information System – A system to manage harvesting, road activities and reforestation obligations and commitments. (The licencees)

Invasive Plant – means a plant listed in the *Invasive Plants Regulation* (B.C. Reg. 18/2004). (*Forest and Range Practices Act*)

Licencee – includes Tolko Industries Ltd., Gorman Bros. Lumber Ltd., B.C. Timber Sales (BCTS) and Westbank First Nation (WFN)

Licencee plans – detail the logistics for forest and range development in particular locations. Methods, schedules and responsibilities for accessing, harvesting, renewing, and protecting the resources are set out to enable site-specific operations to proceed. Licencee plans include Forest Stewardship Plans, harvest plans, range use plans, fuel management prescriptions, and site plans.

Objective – a broad statement describing a desired future state or condition of a value (see Figure 5 of Standard). (Can/CSA Z809 – 02)

Old growth management area – means an area that is subject to old growth management objectives established under section 3 [*resource management zones and objectives*] or 4 [*landscape units and objectives*] of the Forest Practices Code of British Columbia Act. (*Forest Planning and Practices Regulation*)

Permanent access structure – means an access structure in a cutblock that a) at the time of its construction, is reasonably expected to provide access for timber harvesting and other activities that are not wholly contained in the cutblock, or b) is constructed on or through, or contains, materials unsuitable for the establishment of a commercial crop of trees and is not an excavated or bladed trail
(*Forest Planning and Practices Regulation*)

Pest -- means an injurious, noxious or troublesome living organism but does not include a virus, bacteria, fungus or internal parasite that exists on humans or animals. (*Provincial Pesticide Control Act*)

Potential natural community (PNC) – the biotic community that would become established on an ecological site if all successional sequences were completed without interference by humans under the present environmental conditions. Natural disturbances are inherent in its development. The PNC may include acclimatized or naturalized non-native species. (*Ministry of Forests and Range Management Guidebook*)

Range development – means (a)) a structure, (b) an excavation, (c) a livestock trail indicated in a range use plan or a range stewardship plan as a range development, or (d) an improvement to forage quality or quantity on an area that results from (i) the application of seed, fertilizer or prescribed fire to the area, or (ii) the cultivation of the area (*Forest and Range Practices Act*)

Recreation feature – means a biological, physical, cultural or historic feature that has recreational significance or value. (*Forest and Range Practices Act*)

Resource feature – includes all of the following: (a) a cultural heritage resource; (b) a recreation feature; and (c) a range development that is a structure, excavation or constructed livestock trail. (*Forest Practices Code of British Columbia Act*)

Riparian reserve zones – means an area described under Division 3 [*Riparian areas*] of Part 4 [*Practice requirements*], that (a) is a portion of a riparian management area, and (b) is established to protect fish, wildlife habitat, biodiversity and the water values of the riparian reserve zone (*Forest and Range Practices Act - Forest Planning and Practices Regulation*)

Rare ecosystem – is an ecosystem (site series or surrogate) that makes up less than 2 percent of a landscape unit and is not common in adjacent landscape units. (*Forest Practices Code of British Columbia Act, Biodiversity Guidebook*)

Rare physical environment – a landscape where very uncommon features are present including wildlife, plants, vegetation associations and rock formations (Okanagan-Shuswap LRMP)

Seral stage distribution – the stages of ecological succession of a plant community (e.g., from young stage to old stage). The characteristic sequence of biotic communities that successively occupy and replace each other by which some components of the physical environment become altered over time. (Glossary of Resource Planning Terms)

Stubs – Merchantable residual tree cut by a mechanical harvester and retained during harvest with an approximate height of 3-5 meters. (The licencees)

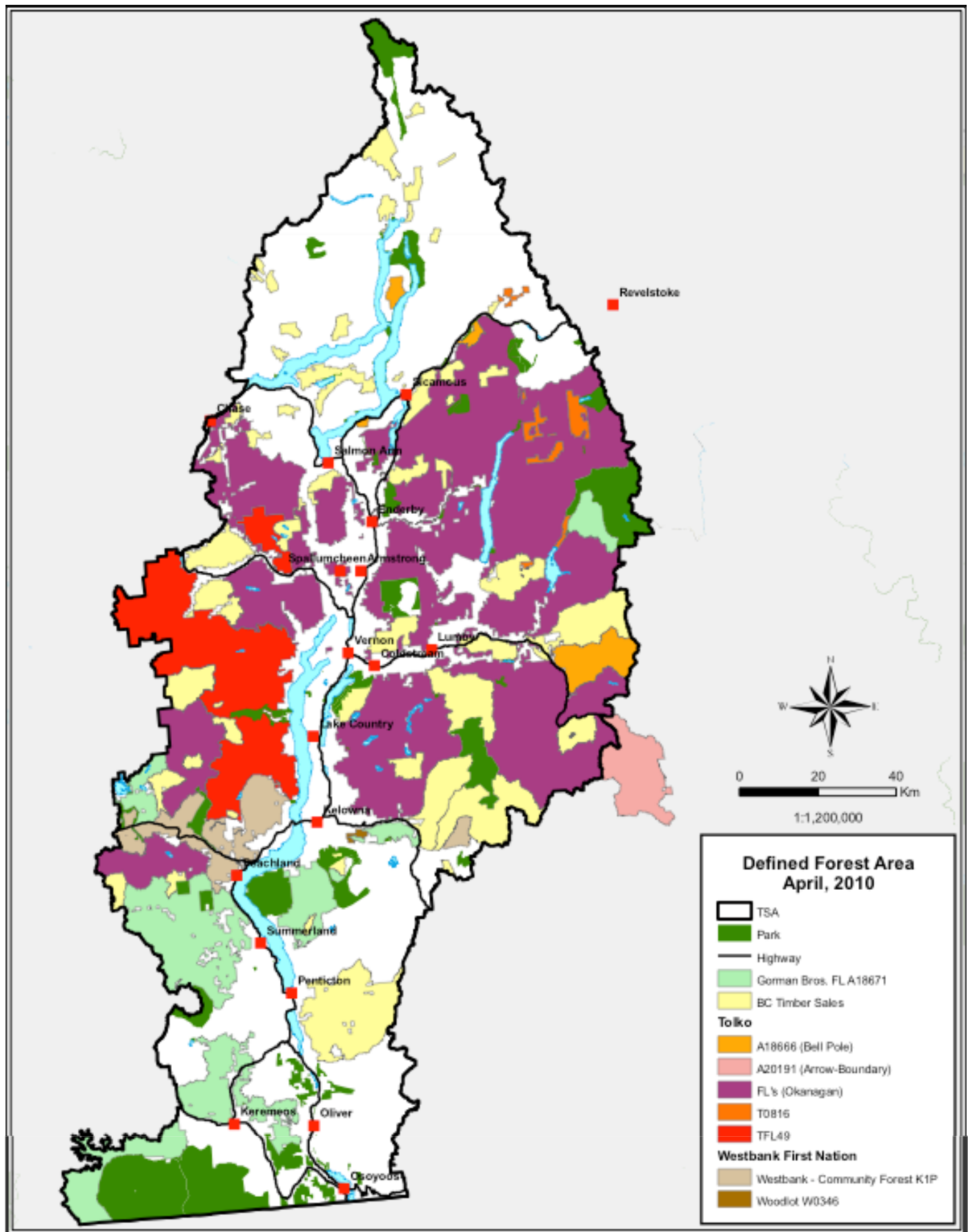
Sustainable forest management – management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations. (Can/CSA Z809 – 02)

Sustainable forest management system – the structure, responsibilities, practices, procedures, processes, and timeframes set by a registration applicant for implementing, maintaining, and improving sustainable forest management. (Can/CSA Z809 – 02)

Target – a specific statement describing a desired future state or condition of an indicator. Targets should be clearly defined, time-limited, and quantified, if possible (see Figure A.4 of the Standard). (Can/CSA Z809 – 08)

Appendix 1

Defined Forest Area Map



Appendix 2

Information for Future Consideration

Appendix 2: Information for Future Consideration

The licencees and the Sustainable Forest Management Advisory Group decided that the "parking lot" items should be added to the SFM Plan as an appendix to ensure the ideas are not forgotten. Items were placed in the parking lot generally because they lacked information or a practical means of measurement.

Information below will be revisited periodically to determine if new information allows for their incorporation into the indicator set.

1. Future Indicators

Genetic Diversity

- Develop indicators to measure genetic diversity in the plan area
 - Reviewed 4/5/06 PAG meeting
 - Current focus is on water, no action yet; retain

Ecosystem changes

- Develop indicators to measure:
 - Wildlife population census
 - Changes in landscape capability/suitability (habitat suitability index)
 - Extent to which disturbance exceeds natural range of variability
 - Forest fragmentation and connectedness (patch size)
 - Retention of natural forest attributes in managed forests
 - Reviewed 4/5/06 & 12/7/06 PAG meetings
 - Licencee review of the Trapper Survey with a Trapper Association member resulted in a mutual decision that using it would not be viable
 - What industry can manage for and influence is habitat, not populations
 - Intention: industry to work with trappers to understand habitat and animals in the habitat. (effective communication)

2. Other Parking Lot Information

Overlapping Licenses:

Non-Replaceable Forest Licenses (NRFLs) and Licenses to cut – Small Scale Salvage Program (SSSP) operations occur within the DFA. The Licensees are working with the MOFLNRO to capture reporting of performance against indicators for licenses issued to third parties within the DFA. . Currently most NRFL's are reporting, while harvest occurring under the SSSP is not reported.

Ingress on Grasslands: (added 4/5/06 PAG Meeting)

Suggest the primaries and the TFL 35 operators actively manage ingress on grasslands. Update: Page 48 of the CSA Z809-08 Standard has language in the section on Forest Ecosystem Productivity that indicates that increasing forest area should not always be the primary objective of an SFM Plan, particularly when they would not occur under natural conditions – such as ingress on grasslands where fire suppression activities have lead to increased forest cover.

Local workers underrepresented: (added 4/5/06 PAG Meeting)

Large scale long term contracts are limiting opportunities for participation. Potential to adjust the tendering process?

Grass Seed application vs. germination and establishment (added February, 2010)

Agreed to continue to look for efficient ways to assess results (actual grass establishment on exposed soils where it is applied) as opposed to the action of applying the seed.

Appendix 3

SFM Plan Reporting Format

Appendix 3: SFM Plan Reporting Format

The following table is the reporting form that licencees will use when reporting the results of monitoring the SFM Plan. The Plan will be monitored annually and the information will contribute to an annual review to confirm that CSA that performance measures are being met. The SFM Advisory Group will review and comment on the annual report.

Okanagan/Boundary Sustainable Forest Management Plan Annual Report

Licencee Name and Reporting Year: _____

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
1	1.1.1	<p>Target: Maintain the presence and representative area of Biogeoclimatic Zones to the subzone level within the Plan area.</p> <p>Reporting: Part of periodic Timber Supply Review (TSR) – often used to define of Analysis Units for timber supply modeling. Licencees will report the area for all Biogeoclimatic subzones as updated for the most current TSR’s. Reporting to occur periodically – in the year following completion of subsequent TSR’s and determination of the allowable annual cut (or other known updates to BEC).</p>	<p>Periodic reporting following TSR or known updates by the MoFLNRO.</p>
2	1.1.1, 1.1.3,	<p>Target: Licencee operations will maintain the retention of existing or replacement draft old growth management areas.</p> <p>Reporting: Licencees report the total area of draft OGMA’s within their operating area and the area of net OGMA reduction (or increase) as a result of their operations.</p>	<p>Total draft OGMA area (ha) _____</p> <p>Net change in OGMA area for the reporting year (ha) _____</p>
3	1.1.1, 1.3.1, 1.4.1	<p>Target: Licensee operations will maintain the retention of forested mature “rare” ecosystems within old growth management areas (variance for this new target to be set after a few years of monitoring).</p> <p>Reporting: Licencees report the total rare ecosystem area within OGMA’s and the reduction of net rare ecosystem area within OGMA’s as a result of their operations.</p>	<p>Total rare within OGMA (ha) _____</p> <p>Reduction of net rare area for the reporting year (ha) _____</p>
4	1.1.2, 1.3.3, 2.1.1	<p>Target: 70 percent of the area of cutblocks harvested will have three or more tree species (includes conifer and deciduous comprising one percent or more of total trees) in the free growing survey.</p> <p>Reporting: To enable reporting, an information system will be used to generate a list of cutblocks that were declared free growing and to track information on the free growing survey (inventory label). A summary will be generated of field survey information, showing tree species present at free growing during the reporting period.</p> <p>The average (in percent) of the leading tree species for those cutblocks having three or more species, will be identified in the report.</p> <p>Data Pool: Reporting based on NAR, species data based in inventory label.</p>	<p>Total area (ha) declared free growing _____</p> <p>Area (ha) with 3 or more species _____</p> <p>Percent primary species (average) for declared areas having 3 or more species _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
5	1.1.3, 4.1.1	<p>Target: Progress towards a stable forest age class distribution on the timber harvesting land base where each age class to 100 years old [1 (1 to 20), 2 (21-40), 3 (41-60), 4 (61 to 80) and 5 (81 to 100)] occupies at least 10% of the timber harvesting land base. Three age classes meet this target within 50 years.</p> <p>Reporting: Licencees to report periodically (in the year following completion of subsequent TSR's and determination of the allowable annual cut.) using the TSR inventory data for their Defined Forest Area.</p>	<p>Periodic reporting for the DFA following TSR:</p> <p>Age class 1 (1 -20): THLB Area (ha) _____</p> <p>Age class 2 (21-40): THLB Area (ha) _____</p> <p>Age class 3 (41-60): THLB Area (ha) _____</p> <p>Age class 4 (61 -80): THLB Area (ha) _____</p> <p>Age class 5 (81 -100): THLB Area (ha) _____</p> <p>Total THLB Area (ha) _____</p>
6	1.1.4	<p>Target: 100 percent of harvested cutblocks requiring wildlife tree retention (patches and/or individual trees) will be completed in accordance with their Site Plan.</p> <p>80 percent of harvested cutblocks <i>contain a minimum average of 2-5 stub trees and/or wildlife trees per hectare with consideration given to spatial distribution.</i></p> <p>Reporting: To enable reporting, an information system will be used to generate a list of cutblocks where harvesting was completed, those blocks that had WTP requirements, areas where plan commitments related to WTP's not met as well as a list of cutblocks that contained mature reserve summary data and/or reserve trees and/or reserve stubs.</p> <p>The remaining harvested cutblocks not identified in the information system as having reserve trees or patches associated with the harvest area, will be cross referenced with GIS databases, Forest Stewardship Plan or other plans.</p> <p>Data Pool: Site Plan exempt areas are excluded.</p>	<p>Number of cutblocks where harvest complete: _____</p> <p>Number of cutblocks where harvest complete and site plan had WTP requirements: _____</p> <p>Number of cutblocks where harvest complete and site plan WTP requirements were not met: _____</p> <p>Number of cutblocks harvested where a minimum average of 2-5 in-block stubs or trees per hectare remained _____</p>
7	1.2.1, 1.3.2, 1.4.1	<p>Target: 100% conformance to site plans to manage for and/or protect important habitat for IWMS species and species identified as rare in the OSLRMP and KBLUP.</p> <p>Reporting: Licencees will monitor and report the number of cutblocks harvested where operational plans contained commitments to manage for Identified Wildlife and rare species identified in the OSLRMP or KBLUP. Licencees will also report their success rate at conforming to those commitments.</p>	<p>Number of cutblocks harvested with Site Plan commitments for Identified Wildlife or HLP rare species: _____</p> <p>Number of cutblocks above where commitments were properly executed: _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
8	1.2.2	<p>Target: Conserve habitat for Tiger Salamander, Great Basin Spadefoot, Great Basin Gopher Snake, Flammulated Owl, Fringed Myotis and Spotted Bat by retaining the amount of habitat (provided for in Government’s Section 7 notice for the Okanagan Shuswap Forest District) in a condition suitable for the survival of the species:</p> <p>Tiger Salamander – 541 ha Great Basin Spadefoot – 200 ha Great Basin Gopher Snake – 6250 ha Flammulated Owl – 540 ha Fringed Myotis – 12 ha Spotted Bat – 120 ha</p> <p>Reporting: Licencees will report on the number of ha of suitable habitat they have conserved or managed for each of the focal species. At the forest district level, hectares of Wildlife Habitat Areas will be reported by focal species. Specific species reporting to stop once area targets have been met at the district level.</p>	<p>Habitat retained by species:</p> <p>Tiger Salamander _____ Great Basin Spadefoot _____ Great Basin Gopher Snake _____ Flammulated Owl _____ Fringed Myotis _____ Spotted Bat _____</p> <p>For forest district reporting, data to be obtained by the facilitator by going to the website: http://www.env.gov.bc.ca/wld/frpa/iwms/wha.html</p>
9	1.2.2	<p>Target: Manage Mountain Caribou habitat so it is consistent with Government Action Regulation orders and/or higher level plan orders.</p> <p>Reporting: Licencees will report the area (ha) harvested that is consistent with Government Action Regulation orders and/or higher level plan orders against all of the area harvested within the designated Mountain Caribou recovery strategy during the reporting year.</p>	<p>Total area harvested (ha) within Mountain Caribou strategy area _____</p> <p>Area harvested (ha) in strategy area consistent with the strategy _____</p>
10	1.2.3, 2.2.3	<p>Target: 100% of trees planted will conform to plan commitments related to the species requirements within approved stocking standards (requires reforestation with commercially valuable and ecologically suitable tree species).</p> <p>Reporting: Licencees will report the number of hectares where trees were planted with species appropriate to the site as outlined in the stocking standards of their Forest Stewardship Plan. Additionally, licencees will report the total number of hectares where planting occurred.</p>	<p>Total area planted (ha) _____</p> <p>Area planted (ha) with species appropriate for the site _____</p> <p><i>(note: reporting on species only)</i></p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
11	1.4.2, 5.1.1, 6.1.3, 6.2.1	<p>Target: 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities or</p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities</p> <p>Reporting: Licencees will report the number of roads constructed or cutblocks planned or harvested where culturally important, sacred or spiritual sites had been identified and shared as well as the number that were either relocated or managed/protected in accordance with forest plans.</p> <p>Additionally, report any situation where an unknown feature (not previously identified and shared) was found and then managed or protected.</p>	<p>The number of roads constructed or cutblocks planned where culturally important, sacred or spiritual sites had been identified and shared and blocks were subsequently relocated to avoid the site _____</p> <p>The number of roads constructed or cutblocks harvested where culturally important, sacred or spiritual sites had been:</p> <p>a. identified and shared _____</p> <p>b. managed or protected in accordance with plans _____</p> <p>Also report any situation where an unknown feature was found and protected _____</p>
12	2.1.1, 2.2.3, 4.1.1	<p>Target: 70 percent of cutblock area planned for planting is completed within two growing seasons. 100 percent of natural regeneration cutblock area meeting natural regeneration delay.</p> <p>Reporting: To enable reporting an information system will be used to generate a summary of area where harvesting was completed and the time delay to have the planned cutblock area planted.</p> <p>Data Pool: Regeneration delay due (by SU) in the reporting period.</p> <ul style="list-style-type: none"> • For SUs with 4 year delay due, compare planting dates and harvest completion date. • For SUs with 7 year delay due, compare declaration met 	<p>Area (ha) planted within, or prior to the second complete growing season _____</p> <p>Total hectares planned for planting _____</p> <p>Area (ha) managed for natural regeneration and meeting regeneration delay _____</p> <p>Total area (ha) managed for natural regeneration _____</p>
13	2.1.1	<p>Target: All cutblocks will reach free growing requirements on or before the latest date.</p> <p>Reporting: Report on the cutblock area (hectares) that achieved free growing status and the average time (years) that the cutblock outperformed late free growing date (weighted average).</p> <p>Data Pool: cutblocks where late free growing is due in the reporting period</p>	<p>Area (ha) where late free-growing date is due in the reporting period _____</p> <p>Area (ha) of cutblocks that achieved free growing status _____</p> <p>Average time (years) that cut blocks outperformed late date _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
14	2.2.1, 3.1.1, 4.1.1	<p>Target: Less than 6 percent, on average, of harvested areas will be in permanent roads and landings.</p> <p>Reporting: To enable reporting an information system will be used to generate a list of cutblocks where harvesting was completed during the reporting period and to provide a summary of gross cutblock area and planned area of permanent roads and landings within these cutblocks.</p>	<p>Gross cutblock area (ha) harvested _____</p> <p>Area (ha) in permanent roads and landings _____</p>
15	2.2.2, 5.1.1, 5.2.1, 5.2.3, 6.3.1	<p>Target: Harvest the annual cut over the cut control period.</p> <p>Reporting: Licencees will report the harvest level allocated for each licence and harvest level cut (cut control volume) for the past reporting year. The existing scaling system in place (monitored by MOFLNRO) tracks volume delivered.</p>	<p>Licence _____ Annual harvest (m3) _____</p> <p>Licence _____ Annual harvest (m3) _____</p> <p>Licence _____ Annual harvest (m3) _____</p> <p>Licence _____ Annual harvest (m3) _____</p>
16	3.1.1	<p>Target: Zero percent of cutblocks harvested in which soil disturbance exceeds specified level of disturbance.</p> <p>Reporting: Utilize incident reports completed for the reporting year to determine the number of non-conformances related to soil disturbance commitments made in plans. Also agreed to report percent of areas harvested where the maximum allowable soil disturbance level was 5%, indicating operations on more sensitive soils.</p> <p>Data Pool: For area of sensitive soils, reporting based on net area to be reforested.</p>	<p>Total cutblocks harvested _____</p> <p>Cutblocks harvested where planned soil disturbance commitments achieved _____</p> <p>Area (ha) of NAR for all cutblocks harvested _____</p> <p>Area (ha) harvested where max allowable soil disturbance level set at 5% _____</p>
17	3.1.1	<p>Target: Zero slides induced from forest management activities.</p> <p>Reporting: Utilize incident reports completed for the reporting year to compile the number of slides >0.1 hectare from forest management activities. For perspective, cutblock area where harvesting was completed during the reporting period will be provided.</p> <p>17. Utilize incident reports completed for the reporting year to compile the number of slides >0.1 hectare from forest management activities. For perspective, cutblock area where harvesting was completed during the reporting period and kilometers inspected of permanent roads will be provided.</p>	<p>Slides resulting from activities _____</p> <p>Gross cutblock area (ha) harvested _____</p> <p>Km of permanent Roads inspected during the reporting period _____</p>
18	3.1.2	<p>Target: One hundred percent of cut-blocks will be consistent with the CWD requirements identified in plans.</p> <p>Reporting: Report on adherence to CWD strategies identified in plans for cutblocks where harvesting was completed during reporting period. To enable reporting, an information system will be used to generate a list of cutblocks where harvesting was completed and a list of cutblocks that comply with the stated CWD targets.</p>	<p>Total cutblocks harvested _____</p> <p>Cutblocks harvested where planned CWD commitments achieved _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
19	3.1.2	<p>Target: One hundred percent of cut blocks that require debris accumulating to meet reforestation objectives have a proportion of loose piles or windrows retained.</p> <p>Reporting: To enable reporting, an information system will be used to generate a list of blocks where burning of accumulations piled during site prep occurred, and those blocks which met the target of retaining a portion of loose piles or windrows.</p>	<p>Number cutblocks with plans for retention of loose piles _____</p> <p>Number of cutblocks where piles retained as planned _____</p>
20	3.2.1	<p>Target: Maintain ECA's in community watersheds such that the peak flow hazard is at or below a moderate rating. If it is necessary to increase the peak flow hazard beyond moderate as the result of harvesting for forest health or because of catastrophic natural events, the harvesting must be consistent with the recommendations in the watershed assessment.</p> <p>Report current equivalent clear cut area (ECA) for all community watersheds where harvesting operations occurred during the reporting period.</p> <p>Reporting: Licencees will report the peak flow hazard for all community watersheds where harvest operations occurred. Where the hazard exceeds moderate, licencees will further report if harvesting was consistent with recommendations contained in the watershed assessment.</p> <p>Report current equivalent clear cut area (ECA) for all community watersheds where harvesting operations occurred during the reporting period. <i>Use recent ECA determinations (new calculation not needed) when planned incursion for harvest is minor (such as a small amount of salvage harvest).</i></p> <p>Data Pool: Reporting based on NAR, species data based in inventory label.</p>	Complete table below.

Community Watershed	ECA (current%)	Harvest in Year (Y/N)	Peak Flow Hazard	Harvest consistent with Assessment (Y/N/)

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
21	3.2.2	<p>Target: 100% of newly constructed or reconstructed permanent road stream crossings in Community Watersheds have a water quality effectiveness evaluation incorporated into the planning, construction, and maintenance and monitoring phases.</p> <p>Licencees will bench mark and report on the number of crossings rated as High, Medium and Low.</p> <p>No “High” ratings</p> <p>Reporting: Licencees report both the number of new or reconstructed permanent road stream crossings in Community Watersheds, and the number of those stream crossings that have had a water quality effectiveness evaluation completed.</p> <p>The number of crossings rated as High, Medium and Low will be reported</p> <p>The number of crossings rated as High excluding those where all reasonable mitigation measures were taken</p>	<p>Number of new or reconstructed permanent road stream crossings in Community Watersheds _____</p> <p>Number of these stream crossings that have had a water quality effectiveness evaluation completed _____</p> <p>Crossings by rating: High _____ Medium _____ Low _____</p> <p>Number of High where all reasonable mitigation measures were taken _____</p>
22	3.2.3	<p>Target: 100 percent of permanent roads inspections will be completed as planned.</p> <p>Reporting: To enable reporting, units will keep a file for inspections required based on the roads risk (high, medium and low). For the reporting period, query permanent road information system for inspections planned and completed.</p> <p><i>Reporting will also include percent of perm roads by High, Medium and Low risk category (if a Licencee had a VH category, they would be added to the H category for reporting).</i></p>	<p>Permanent roads (km) with inspections required _____</p> <p>Permanent roads (km) with inspections completed _____</p> <p>Percent of roads by risk category: High _____ Moderate _____ Low _____</p>
23	3.2.4	<p>Target: Inspect all temporary status roads at least once per year until rehabilitated.</p> <p>Reporting: Inspections on temporary roads (where not rehabilitated at the completion of harvesting) are conducted in the field and will be recorded. Information systems will be used to ensure rehabilitation activities and inspections are completed as planned.</p>	<p>Temporary roads (km) with inspections required _____</p> <p>Temporary roads (km) with inspections completed _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
24	3.2.5, 5.1.1, 6.3.1	<p>Target: Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application will be completed before or during favourable germinating conditions the following spring.</p> <p>100 percent of rights-of-way revegetated for noxious weed and erosion control with Canada No.1 or equivalent grass seed.</p> <p>Reporting: Licencees will retain a record of permanent road construction and subsequent application of grass seed for the reporting period. The records will be used to provide a summary of timing of right-of-way revegetation application.</p> <p>Units will provide a file for tracking the grass seed purchased. Compile total amount of Canada No. 1 or equivalent seed purchased (kilograms) and compare to total seed purchased (kilograms) for the reporting period.</p>	<p>Total km of permanent non-winter constructed road _____</p> <p>Total km of permanent non-winter constructed road re-vegetated within the current growing season. _____</p> <p>Total km of winter constructed road in the previous reporting period _____</p> <p>Total km of winter road constructed in the previous reporting period that was revegetated before or during favourable germinating conditions the following spring _____</p> <p>Kilograms of Canada No.1 or equivalent seed purchased _____</p> <p>Total kilograms of seed purchased _____</p>
25	3.2.6	<p>Target: Licencees will report the number of environmental incidents related to riparian areas. 100% of action items to restore the area and/or prevent the reoccurrence of those incidents will be completed within the timeframes.</p> <p>Reporting: Licencees will record any non-conformances to riparian areas that are contained within plans as an environmental incident. Incident reports will have appropriate action items to restore the area and/or prevent the incidents re-occurrence.</p> <p>Licencees will report number of related incidents, number of action items planned and the number of action items completed within their set timeframe.</p>	<p>Number of riparian related environmental incidents _____</p> <p>Number of incidents where action items related to those incidents were not completed within time frames _____</p>
26	5.1.1, 5.2.1, 6.3.1	<p>Target: Maintain active involvement with value-added and business initiatives/partnerships.</p> <p>Reporting: Licencees report on value added and business initiatives/partnerships.</p>	<p>List partnerships:</p> <p>_____</p> <p>_____</p> <p>_____</p>
27	5.1.1, 5.2.5, 6.3.1	<p>Target: 100 percent of annual access management commitments contained within the FSP will be implemented during the reporting period.</p> <p>Reporting: To enable reporting, licencees will utilize Forest Stewardship Plan access and timing restriction information. To determine the above has been achieved, refer to the information system for road completion status, access management commitment status, and other relevant information.</p>	<p>Number of access plan commitments implemented _____</p> <p>Number of access plan commitments not implemented _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
28	5.1.1, 6.3.1	<p>Target: 100 percent conformance to site plans having preservation, retention or partial retention visual quality objectives.</p> <p>Reporting: Report on the number of cutblocks harvested in the reporting period that had preservation, retention or partial retention visual quality objectives, and the number of cutblocks that achieved the visual intent as planned. Achievement of visual intent will be confirmed with photos from a key viewpoint demonstrating that operations provided results similar to plan.</p> <p>Data Pool: Authorized harvest (ie. for salvage) that is given an exemption from the VQO is deemed to have met the intent.</p>	<p>Number of cutblocks harvested that had preservation, retention or partial retention visual quality objectives _____</p> <p>Number of cutblocks harvested that achieved the intent of the visual quality objective _____</p>
29	5.1.1, 6.5.1	<p>Target: Maintain involvement and sponsorship in research and educational initiatives (e.g., summer students, post graduate research projects, volunteer sites for studies, association support – FERIC, Forest Products Association of Canada, OSLRMP Wildlife subcommittee, etc.).</p> <p>Reporting: To enable reporting, documentation on research programs and educational initiatives will be retained at the appropriate licensee’s office.</p>	<p>List involvement in research and educational initiatives:</p> <p>_____</p> <p>_____</p> <p>_____</p>
30	5.1.1, 6.3.1	<p>Target: 100% conformance to Site Plan commitments that manage for trails.</p> <p>Reporting: Report on the number cutblocks harvested in the reporting period that had one or more commitments to manage for a trail (could be for hiking, biking, cattle, historic, etc) in the Site Plan. Also report whether those plan commitments were properly executed.</p>	<p>Cutblocks harvested with a commitment to manage for one or more trails _____</p> <p>Cutblocks harvested where trail commitments completed as per plan _____</p>
31	5.2.2	<p>Target: 90% of DFA forest contractors will have both environmental and safety training.</p> <p>90% of woodlands employees are trained in accordance with training plans.</p> <p>Reporting: <u>Forest contractor target:</u> Licensees will report the total number of forest contractors and identify the number that had received both environmental and safety training. For BCTS, report on the number of licences and contracts awarded that required SAFE certification or an equivalent safety certification/registration.</p> <p><u>Woodlands employees target:</u> Licensees will report the total number of forestland employees (staff) and identify the number that had received training in accordance with their training plan.</p>	<p>Total number of forest contractors _____</p> <p>Number of forest contractors with environmental and safety training _____</p> <p>Total number of employees _____</p> <p>Number of employees trained as per their training plan _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
32	5.2.4, 6.4.3	<p>Target: Support partnership opportunities (including training) with First Nations through mutually beneficial involvement in forest management.</p> <p>Reporting: Documentation and reporting on First Nations partnerships and training sessions will be retained at the appropriate licensee’s office.</p>	<p>List First Nation partnerships and training sessions:</p> <p>_____</p> <p>_____</p> <p>_____</p>
33	5.2.4	<p>Target: At the discretion of government, approximately 10% of the TSA’s AAC will be offered to First Nation ventures. Licensees will also report the volume that has been accepted by First Nations.</p> <p>Reporting: Licensees report total AAC of any tenure offered under Section 12 of the Forest Act (forms of agreement) to First Nations (see data pool for source) and the volume that has been accepted by those First Nations (source from MoFLNRO District).</p> <p>Data Pool: http://www.for.gov.bc.ca/haa/fn_agreements.htm</p>	<p>AAC volume offered to First Nations (m3)</p> <p>_____</p> <p>AAC volume accepted by First Nations (m3)</p> <p>_____</p>
34	5.2.5, 6.4.1	<p>Target: Advisory group feedback will result in:</p> <ol style="list-style-type: none"> a. 80% of survey responses “3” or better b. All written comments are reviewed and considered, and all line responses with a rating averaging less than 3.0 become action items <p>Reporting: Survey responses coded 1 (poor), 2, 3 (satisfactory), 4, 5 (well done).</p>	<p>Data from completed surveys, see previous monitoring reports for survey.</p> <p>Surveys completed and tallied (Y?N) _____</p> <p>Average response _____</p>
35	5.2.5, 6.4.2	<p>Target: Participate in the following public processes:</p> <ul style="list-style-type: none"> • OSLRMP or other higher level plan committee meetings • Forest Stewardship Plan meetings • Stakeholder meetings <p>Reporting: Documentation for OSLRMP and Forest Stewardship Plan meetings is kept at the appropriate licensee’s office.</p>	<p>OSLRMP or other higher level plan committee involvement (Y/N) _____</p> <p>FSP meetings attended _____</p> <p>Stakeholder meetings attended _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
36	6.11, 6.12, 6.21	<p>Target: Open communication with affected aboriginal communities will be provided in advance of harvesting, road building, herbicide application or broadcast fertilization activities 100% of the time.</p> <p>Licencees respond to all written requests for communication from First Nations.</p> <p>Reporting: Licencees will report the number of times that meaningful communications were provided in advance of harvesting, road building, herbicide application or broadcast fertilization activities and the number of times where that communication was not provided.</p> <p>Number of written requests for communication from First Nations versus the number of responses made to First Nations. Reporting is on a one to one ratio (one response for each request).</p>	<p>Number of times communication was provided in advance of activities _____</p> <p>Number of times communication was not provided in advance of activities _____</p> <p>Number of written requests for communication _____</p> <p>Number of responses made _____</p>
37	6.1.2, 6.1.3, 6.2.1, 6.4.3	<p>Target: Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning where they have been identified and shared by willing aboriginal communities</p> <p>Reporting: Number of cutblocks where specific actions were requested and were taken, using traditional knowledge where available, to manage for and/or protect non-timber resources, and cultural and spiritual values.</p>	<p>The number of cutblocks harvested where traditional knowledge, non-timber resources, and cultural and spiritual values had been identified and shared and resulted in specific plan commitments _____</p> <p>The number of related sites where plan commitments were achieved _____</p>
38	6.3.2	<p>Target: 100% of contractors conducting on the ground work are SAFE Company registered and/or certified or they carry an equivalent safety program.</p> <p>Reporting: Number of on the ground contractors in total working within their DFA and the number of those that are SAFE Company registered and/or certified – or that carry an equivalent safety program.</p>	<p>Total number of forest contractors _____</p> <p>Number of contractors with SAFE certification or equivalent _____</p>
39	6.3.3	<p>Target: 100% of CSA SFM participating licencees will be SAFE Company certified.</p> <p>Reporting: Licencees will report a yes/no answer as to whether they are SAFE Company certified.</p>	<p>Licencee SAFE Company certified (Y/N) _____</p>
40	6.4.2	<p>Target: Respond to all written public communications related to forest operations within 30 days of receipt.</p> <p>Reporting: Retain and review documentation (often contained within the Licencee's Forest Stewardship Plan) for responses to public communications related to DFA forest operations. Licencees will report on the number of responses sent out compared to the number of written requests for communication. Report the average response timeline.</p>	<p>Number of written communications as a result of forest operations _____</p> <p>Number of written communications responded to _____</p> <p>Average timeline for response (days) _____</p>

Tar #	Indicators (that target applies to)	Monitoring parameter	Monitoring results
41	6.4.2, 6.5.1	<p>Target: Conduct educational classroom visits in public schools, promote public participation in forestry tours and conduct public presentations to increase public knowledge and understanding about sustainable forest management.</p> <p>Reporting: Licencees to report:</p> <ul style="list-style-type: none"> •Number of students involved with classroom visits in the reporting period. •Number of individuals involved with forest tours in the reporting period. •Number of people involved with public presentations in the reporting period. 	<p>Number students _____</p> <p>Number of classroom visits _____</p> <p>Number of forest tours _____</p> <p>Total attendance at tours _____</p> <p>Number of public presentations _____</p> <p>Total attendance at presentations _____</p>
42	6.4.2, 6.5.2	<p>Target: Licencees will keep members of the public informed of TSA strategies being developed, and planning occurring, by maintaining websites or by other means as desired.</p> <p>Reporting: Licencees will report a yes/no answer as to whether web sites or other tools to disseminate information are being maintained, and whether SFMP and other information were made publicly available in the last year.</p>	<p>Website or other tools used (Y/N) _____</p>
43	1.1.5	<p>Target: Licencees will report annually on the area harvested by silviculture-system (even-aged, even-aged with reserves, uneven aged) by Biogeoclimatic Zone</p> <p>Reporting: Report net area to be reforested for harvested cutblocks by silviculture system (even aged, even aged with reserves, uneven aged) and by Biogeoclimatic zone (ie. IDF, MS, ESSF)</p>	<p>See table below</p>

BEC	Silviculture System			
	Even Aged	Even Aged With Reserves	Uneven Aged	Total (ha)
IDF				
MS				
ESSF				
Total (ha)				

Appendix 4

Summary of Publicly Developed Values, Objectives and Indicators

CCFM CRITERION: 1) Biological Diversity

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>1.1 Ecosystem Diversity Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that naturally occur in the DFA.</p>	<ul style="list-style-type: none"> • Healthy, productive, well-balanced ecosystem • Well functioning, ecologically diverse ecosystem • Abundance of connected and productive habitat (i.e. distribution across the landscape) 	<ul style="list-style-type: none"> • Maintenance of a full range of seral stage distribution • Maintain full range of habitat • Retention of vertical structure for stand level attributes 	<p>1.1.1 Ecosystem area by type</p> <p>1.1.2 Forest area by type or species composition</p> <p>1.1.3 Forest area by seral stage or age class</p> <p>1.1.4 Degree of within-stand structural retention or age class</p> <p>1.1.5 Harvest system diversity (variation on old SFM Plan indicator 3, non-core).</p>	<p>(1) Licencee operations will maintain the retention of existing or replacement old growth management areas.</p> <p>(New) Maintain the presence and representative area of Biogeoclimatic Zones to the subzone level within the Plan area.</p> <p>(New) Licencee operations will maintain the retention of “rare” ecosystems within old growth management areas.</p> <p>(7) Percent of harvested cutblocks having three or more tree species identified in the free growing inventory.</p> <p>(1) Licencee operations will maintain the retention of existing or replacement old growth management areas.</p> <p>(8) Forest age class distribution</p> <p>(5) Stand level retention – individual wildlife trees/stubs and/or wildlife tree patches</p> <p>(new) Licencees will report annually on the area harvested by silviculture-system (even-aged, even-aged with reserves, uneven aged) by Biogeoclimatic Zone</p>

CCFM CRITERION: 1) Biological Diversity

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>1.2 Species Diversity Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained through time, including habitats for known occurrences of species at risk.</p>	<ul style="list-style-type: none"> • Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation 	<ul style="list-style-type: none"> • Species native to the DFA are maintained at sustainable levels 	<p>1.2.1 Degree of habitat protection for selected focal species, including species at risk.</p> <p>1.2.2 Degree of suitable habitat in the long term for selected focal species, including species at risk</p> <p>1.2.3 Proportion of regeneration comprised of native species</p>	<p>(2) Conformance to plans related to IWMS and rare species identified in Land Use Plans.</p> <p>(New) Conserve habitat for select focal species (New) Level of compliance with Mountain Caribou strategies</p> <p>(New) Conform to stocking standards</p>
<p>1.3 Genetic diversity Conserve genetic diversity by maintaining the variation of genes within species and ensuring that reforestation programs are free of genetically modified organisms.</p>	<ul style="list-style-type: none"> • Diversity of genetic material within species • Adaptability to change <p>Sustainable populations of flora and fauna native to the DFA (including subspecies) and the abundance and distribution of species within their natural range of variation</p>	<ul style="list-style-type: none"> • Maintain genetic diversity of all species (and subspecies) native to the DFA 	<p><u>Note:</u> there are no mandatory CSA core indicators for this element</p> <p>1.3.1 Management strategies for rare ecosystems (non-core indicator)</p> <p>1.3.2 Management and/or protection of important habitat for select species. (non-core indicator)</p> <p>1.3.3 Percent of harvested cutblocks having three or more tree species identified in the free growing inventory (non-core indicator)</p>	<p>(new) Licencee operations will maintain the retention of “rare” ecosystems within old growth management areas.</p> <p>(2) Conformance to plans related to IWMS and rare species identified in Land Use Plans.</p> <p>(7) Percent of harvested cutblocks having three or more tree species identified in the free growing inventory.</p>

CCFM CRITERION: 2) Forest Ecosystem Condition and Productivity

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>2.1) Forest Ecosystem Resilience Conserve ecosystem resilience by maintaining both ecosystem processes and ecosystem conditions.</p>	<ul style="list-style-type: none"> Resilient forest ecosystems 	<ul style="list-style-type: none"> Forest management system does not compromise ecosystem resilience 	<p>2.1.1 Reforestation success</p>	<p>(16) Percent of cutblock area planned for planting is completed before or during the second complete growing season; -Percent of naturally regenerated cutblock area not meeting the natural regeneration delay.</p> <p>(17) Percentage of cutblock area that meets free growing requirements on or before the latest date.</p> <p>(7) Percent of harvested cutblocks having three or more tree species identified in the free growing inventory.</p>
<p>2.2) Forest Ecosystem Productivity Conserve forest ecosystem productivity and productive capacity by maintaining ecosystem conditions that are capable of supporting naturally occurring species. Reforest promptly and use tree species ecologically suited to the site.</p>	<ul style="list-style-type: none"> Well-functioning, biologically productive forest ecosystems 	<ul style="list-style-type: none"> Forest ecosystems that support naturally occurring species 	<p>2.2.1 Additions and deletions to the forest area</p> <p>2.2.2 Proportion of the calculated long-term sustainable harvest level that is actually harvested</p> <p>2.2.3 Ecosystems with naturally occurring species (non-core indicator)</p>	<p>(12) Annual percent of opening areas in permanent access structures.</p> <p>(25) Harvest level.</p> <p>(New) Conform to stocking standards</p> <p>(16) Percent of cutblock area planned for planting is completed before or during the second complete growing season;</p>

CCFM CRITERION: 3) Soil and Water

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>3.2 Water Quality and Quantity Conserve water resources by maintaining water quality and quantity.</p>	<ul style="list-style-type: none"> • Protection and security of the water resource 	<ul style="list-style-type: none"> • Stream flow regimes that provide levels of water quality and quantity within a natural range of variability • Retain natural systems that support water quality and quantity (e.g., beaver) • Protection of quality and quantity of water in licensed domestic watersheds 	<p>3.2.1 Proportion of watershed or water management areas with recent stand-replacing disturbance</p> <p>3.2.2 Water quality impacts at stream crossings in Community Watersheds</p> <p>3.2.3 Completion of inspections on permanent roads.</p> <p>3.2.4 Completion of inspections on temporary roads.</p> <p>3.2.5 Amount of time for road cut and fill slope revegetation application (soil erosion).</p> <p>3. 2.6 Number of environmental incidents related to riparian areas and for those incidents, reporting on the action items and timeframes to restore the area and/or prevent its reoccurrence.</p>	<p>(new) Report current equivalent clear cut area (ECA) for all community watersheds where harvesting operations occurred during the reporting period.</p> <p>(new) Maintain ECA's in community watersheds such that the peak flow hazard is at or below a moderate rating. If it is necessary to increase the peak flow hazard beyond moderate as the result of harvesting for forest health or because of catastrophic natural events, the harvesting must be consistent with the recommendations in the watershed assessment.</p> <p>(13) 100 permanent road stream crossings in Community Watersheds have a water quality effectiveness evaluation incorporated into the planning, construction, and maintenance and monitoring phases.</p> <p>(21) 100 percent of permanent status roads will have risk assessments and plans developed based on assessments.</p> <p>(22) Inspect all temporary status roads at least once per year until rehabilitated.</p> <p>(11a) Permanent road cut and fill slope revegetation application carried out within the current growing season of road completion under normal conditions; and for roads completed during winter, revegetation application</p> <p>(4 revised) Complete 100% of (all) action items within their prescribed timeframe.</p>

CCFM CRITERION: 4) Carbon Uptake and Storage

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>4.1 Carbon Uptake and Storage Maintain the processes that take carbon from the atmosphere and store it in forest ecosystems.</p>	<ul style="list-style-type: none"> Balanced, well-functioning ecological processes that support healthy, productive forest ecosystems 	<ul style="list-style-type: none"> Forest management activities are conducted in ways that maintain ecological processes 	<p>4.1.1 Net carbon uptake Note: indicator text to include a commitment to conduct (or utilize any existing) long term carbon budget modeling – timing prior to next TSR.</p> <p>2.1.1 Reforestation success.</p>	<p>(8) Forest age class distribution (12) Annual percent of opening areas in permanent access structures. (16) Percent of cutblock area planned for planting is completed before or during the second complete growing season; -Percent of naturally regenerated cutblock area not meeting the natural regeneration delay.</p> <p>(16) Percent of cutblock area planned for planting is completed before or during the second complete growing season; -Percent of naturally regenerated cutblock area not meeting the natural regeneration delay.</p> <p>(17) Percentage of cutblock area that meets free growing requirements on or before the latest date.</p>
<p>4.2 Forest Land Conversion Protect forestlands from deforestation or conversion to non-forests, where ecologically appropriate.</p>	<ul style="list-style-type: none"> Protection and security of forest land to ensure health of global ecological cycles 	<ul style="list-style-type: none"> Conserve and maintain a healthy, productive forest land base 	<p>2.2.1 Additions and deletions to the forest area.</p>	<p>(12) Annual percent of opening areas in permanent access structures.</p>

CCFM CRITERION: 5) Economic and Social Benefits

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>5.1 Timber and Non-Timber Benefits Manage the forest sustainably to produce an acceptable and feasible mix of timber and non-timber benefits. Evaluate timber and non-timber forest products and forest based services.</p>	<ul style="list-style-type: none"> Forests contribute to the quality of life 	<ul style="list-style-type: none"> Opportunity and access to the forest resource for a variety of commercial and non-commercial uses 	<p>5.1.1 Quantity and quality of timber and non-timber benefits, products, and services produced in the DFA</p>	<p><u>Timber:</u> 25. Harvest level. 26. Report annual initiatives/partnerships.</p> <p><u>Non timber:</u> 11. Amount of time for road cut and fill slope revegetation application (control of noxious weed). 18. Report on access management commitments contained in Forest Stewardship Plans (FSPs). 27. Level of compliance with preservation, retention and partial retention of visual quality objectives in Licence plans. 30. Report educational and research initiatives (new target) 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities or 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities. (new target) 100% conformance with Site Plan commitments that manage for trails</p>

CCFM CRITERION: 5) Economic and Social Benefits

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>5.2 Communities and Sustainability Contribute to the sustainability of communities by providing diverse opportunities to derive benefits from forests and by supporting local community economies.</p>	<ul style="list-style-type: none"> • Sustained multiple benefits from our forests • Local public involvement 	<ul style="list-style-type: none"> • Opportunity and access to the forest resource for a variety of commercial and non-commercial uses • Affected and local interested parties have input into decisions 	<p>5.2.1 Level of investment in initiatives that contribute to community sustainability</p> <p>5.2.2 Level of investment in training and skills development</p> <p>5.2.3 Level of direct and indirect employment</p> <p>5.2.4 Level of Aboriginal participation in the forest economy</p> <p>5.2.5 Opportunities for public access and public input</p>	<p>25. Harvest level. 26. Report annual initiatives/partnerships. 28. Report on: -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended 18. Report on access management commitments contained in Forest Stewardship Plans (FSPs). (33) An effective Public Advisory Group</p> <p>(new) Percent of DFA forest contractors having both environmental training, including invasive plant awareness, and safety training (90% target).</p> <p>(new target) Percent of woodlands employees trained in accordance with training plans (90% target). 25. Harvest level. (new) also agreed to report (one time as text in the indicator): - Number of DFA woodlands staff and contractors - Number of manufacturing and sales staff working within the DFA.</p> <p>32. Report annually on the number of First Nation partnerships. (new) AAC % offered to First Nations (10% target), and % volume accepted by First Nations.</p> <p>18. Report on access management commitments contained in FSP's 28. Report on: -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended 33. An effective Public Advisory Group</p>

Criterion 6: Accepting Society's Responsibility for Sustainable Development

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>6.1 Aboriginal and Treaty Rights Recognize and respect Aboriginal title and rights and treaty rights. Understand and comply with current legal requirements related to Aboriginal title and rights and treaty rights.</p>	<ul style="list-style-type: none"> Respect for Aboriginal and treaty rights 	<ul style="list-style-type: none"> Duly established Aboriginal and treaty rights considered in forest management planning and opportunities provided for meaningful participation by First Nations in forest management and planning 	<p>6.1.1 Evidence of a good understanding of the nature of Aboriginal title and rights</p> <p>6.1.2 Evidence of best efforts to obtain acceptance of management plans based on Aboriginal communities having a clear understanding of the plans</p> <p>6.1.3 Level of management and/or protection of areas where culturally important practices and activities (hunting, fishing, gathering) occur</p>	<p>29a,b. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.</p> <p>29a,b,c. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.</p> <p>29c. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.</p> <p>(new) 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities <u>or</u></p> <p>100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities.</p>

Criterion 6: Accepting Society's Responsibility for Sustainable Development

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>6.2 Respect for Aboriginal Forest Values, Knowledge, and Uses Respect traditional Aboriginal forest values, knowledge and uses as identified through the Aboriginal input process.</p>	<ul style="list-style-type: none"> Respect for the special and unique needs of Aboriginal peoples 	<ul style="list-style-type: none"> Participation by First Nations in forest management and planning to ensure that the special and unique needs of Aboriginal peoples are respected and accommodated in forest management decisions 	<p>6.2.1 Evidence of understanding and use of Aboriginal knowledge through the engagement of willing Aboriginal communities, using a process that identifies and manages culturally important resources and values</p>	<p>29a,b,c. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available.</p> <p>(new target) 100 % protection of culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities <u>or</u> 100% conformance to all plan commitments specifically designed to manage for culturally important, sacred and spiritual sites that have been reasonably and specifically identified and shared by willing aboriginal communities.</p>
<p>6.3 Forest Community well-being and resilience</p>	<ul style="list-style-type: none"> Economic benefits to society 	<ul style="list-style-type: none"> A prosperous forest industry with a sustainable supply of timber and non-timber resources 	<p>6.3.1 Evidence that the organization has co-operated with other forest-dependent businesses, forest users, and the local community to strengthen and diversify the local economy</p> <p>6.3.2 Evidence of co-operation with DFA-related workers and their unions to improve and enhance safety standards, procedures, and outcomes in all DFA-related workplaces and affected communities</p> <p>6.3.3 Evidence that a worker safety program has been implemented and is periodically reviewed and improved</p>	<p>11. Amount of time for road cut and fill slope revegetation application (control of noxious weed). 18. Report on access management commitments contained in Forest Stewardship Plans (FSPs). 26. Report annual initiatives/partnerships. 27. Level of compliance with preservation, retention and partial retention of visual quality objectives in Licence plans.</p> <p>(new target) 100% conformance with Site Plan commitments that manage for trails 25. Harvest level.</p> <p>(new) 100 percent of contractors conducting on the ground work that are SAFE Company registered and/or certified or that carry an equivalent safety program.</p> <p>(new) 100% of CSA SFM participating licences will be SAFE Company certified.</p>

Criterion 6: Accepting Society's Responsibility for Sustainable Development

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>6.4 Fair and effective decision making Demonstrate that the SFM public participation process is designed and functioning to the satisfaction of the participants and that there is general public awareness of the process and its progress.</p>	<ul style="list-style-type: none"> • Awareness of what is going on (knowledge/information) • Ability to influence • Participate in decision making 	<ul style="list-style-type: none"> • Public values are incorporated in decision-making processes and fairly considered in development and maintenance of the SFM Plan • Implementation of the SFM Plan will influence forest management outcomes 	<p>6.4.1 Level of participant satisfaction with the public participation process</p> <p>6.4.2 Evidence of efforts to promote capacity development and meaningful participation in general</p> <p>6.4.3 Evidence of efforts to promote capacity development and meaningful participation for Aboriginal communities</p>	<p>33. An effective Public Advisory Group</p> <p>28. Report on: -OSLRMP committee involvement -Number of Forest Stewardship Plan meetings attended -Number of stakeholder meetings attended</p> <p>31. Percent response to written communications received.</p> <p>34. Educational forums</p> <p>35. Public awareness of the SFMP</p> <p>29c. Incorporation of traditional knowledge, non-timber resources, and cultural and spiritual values in forest planning, where available</p> <p>32. Report annually on the number of First Nation partnerships</p>

Criterion 6: Accepting Society's Responsibility for Sustainable Development

ELEMENT	VALUE	OBJECTIVE	NEW INDICATOR	USE OF OLD INDICATOR (target)
<p>6.5 Information for Decision-Making Provide relevant information and educational opportunities to interested parties to support their involvement in the public participation process, and increase knowledge of ecosystem processes and human interactions with forest ecosystems.</p>	<ul style="list-style-type: none"> Shared knowledge and informed decisions 	<ul style="list-style-type: none"> Adaptive forest management that is responsive to research, experience and public input 	<p>6.5.1 Number of people reached through educational outreach</p> <p>6.5.2 Availability of summary information on issues of concern to the public</p>	<p>30. Report educational and research initiatives</p> <p>34. Educational forums</p> <p>35. Public awareness of the SFMP</p>

Appendix 5

Advisory Group Terms of Reference

Criterion 6: Accepting Society's Responsibility for Sustainable Development

Tolko, Gorman Bros, BCTS⁸, WFN

Okanagan Sustainable Forest Management Plan

**SFM Advisory Group
Terms of Reference and Procedures**

Last revised: Nov 25, 2010

Introduction

The purpose of the Terms of Reference and Procedures is to define the goals, tasks, roles and procedures that will guide the development of the Tolko, Gorman Bros, BCTS⁹ and Okanagan Sustainable Forest Management (SFM) Plan. The SFM Plan has been developed based on the Canadian Standards Association (CSA) Standard CAN/CSA-Z809, and will be applied to the participating licencees' operating area within the Arrow-Boundary and Okanagan Shuswap Forest Districts.

The Terms of Reference and Procedures include the following sections:

- Goals
- Operating guidelines
- Conflict of interest
- Timelines
- Roles and responsibilities
- Resources
- Decision-making process
- Information
- Communication
- Changes to the process.
- Evaluation of the public participation process

Goals

The goals of the process are to:

- Develop and maintain an SFM plan in accordance with the CSA guidelines
- Develop and maintain procedures for the Advisory Group to monitor the effectiveness of the SFM Plan.
Provide ongoing public input into the implementation, monitoring and continual improvement of the SFM Plan.

Operating Guidelines

The SFM Plan will be maintained by Tolko, Gorman Bros. BCTS and WFN based on advice and recommendations provided by the SFM Advisory Group. The SFM Advisory Group will include a cross-section of participants with varying interests and backgrounds. Participants in the process will:

- contribute to the development of the SFM Plan
- attend meetings on a regular basis
- consider the views of others in developing recommendations
- act in "good faith" in all aspects of the process
- aim to reach decisions on the basis of consensus
- support an open and transparent process in both the development and implementation of the SFM Plan.

Meetings of the SFM Advisory Group will be open to the general public, and as a minimum will be held twice a year with an additional field trip to review issues of concern in the field.

The SFM Plan for participating licencees' operating areas will comply with all existing legislation and regulations and will be consistent with the strategic direction and intent of the Okanagan-Shuswap LRMP and the Kootenay-Boundary Regional Land Use Plan.

⁸ Okanagan-Columbia Business Area

⁹ Also referred to as "Participating licencees"

Criterion 6: Accepting Society's Responsibility for Sustainable Development

Sustainable ecosystem management will be characterized by resource management practices that are ecologically sound, scientifically based, socially and culturally responsible, and recognize and respect First Nations interests.

Conflict of Interest

Advisory group members will declare any possible or perceived conflict of interest pertaining to a specific discussion topic, should the situation arise. In such cases, the advisory group will decide on the members' level of involvement relative to the specific topic matter.

Timelines

The SFM Advisory Group will be engaged to review annual progress on performance measures with a goal of continual improvement of the SFM Plan.

Roles and Responsibilities

Active Members of the Public Advisory Group (PAG)

Active members of the PAG commit to regular attendance to, and participation in, Advisory Group meetings and field trips. Active members receive all PAG information and communication including the most recent SFM Plan and Monitoring Report, draft agendas, meeting summaries, information of interest, and invitations for additional participation (audits, special non PAG meetings, and information sessions). A list of active members, including contact information, is maintained. Regular participation in the PAG is key to its effectiveness; PAG members who miss two or more consecutive meetings, and have not otherwise expressed a desire to remain a member of the PAG, may be removed from the membership list.

Partial Participants of the Public Advisory Group

Partial participants are those that are interested in the SFM Plan process but have decided they cannot fully commit the time and effort required to be an active member of the Advisory Group. Partial participants receive the most recent SFM Plan and Monitoring Report. Included with this correspondence is an invitation, and encouragement, to more fully participate as an active member of the Advisory Group. Any additional Advisory Group communication is available to partial participants on request. A list of partial participants, including contact information, is maintained.

SFM Advisory Group Functioning

Participation in the SFM Advisory Group is open to all interested members of the public. First Nation participation in the advisory group is valued and will be encouraged. Government participation and support is valued, particularly in the capacity of technical advisor on how the SFM Plan aligns with legislation, policy and government direction. Public members agree to participate in the advisory group as an individual member of the public and not as a representative of any interest group. A record of attendance will be included as part of each meeting summary.

The roles and responsibilities of participants in the process are to assist the participating licencees in their development of the SFM Plan by:

- expressing local values that relate to the Canadian Council of Forest Ministers (CCFM) SFM criteria and critical elements
- setting objectives that describe a desired future state or condition for each value
- developing indicators to be used to assess progress in meeting goals
- setting targets related to each indicator that will provide a clear, specific statement of expected results
- developing procedures for monitoring the effectiveness of the SFM plan including annual meetings of the SFM Advisory Group to review results of performance measures and the outcomes of any CSA audits.

The long-standing rights and interests of First Nations will be considered in the development of the SFM Plan. Participation in the Public Advisory Group by First Nations is without prejudice to Aboriginal title and rights and treaty rights.

The participating licencees will engage an independent facilitator who is knowledgeable about the CSA certification process to assist the SFM Advisory Group in its work. The role of the facilitator will be to:

- facilitate advisory group meetings
- prepare agendas and summaries for meetings
- prepare a work plan and time table for the process
- assist participants in developing recommendations for the SFM Plan.

Criterion 6: Accepting Society's Responsibility for Sustainable Development

Resources

Public participants traveling to attend meetings will be reimbursed at a rate equivalent to the provincial government Group I rate. Expenses incurred in the development of this Plan will be the responsibility of the participating licencees. These will include, but not be limited to, meeting facility rental, catering, publishing and printing costs and field trip transportation.

Decision-making Process

Participants in the process will aim to reach decisions on the basis of consensus. Consensus is defined as "agreement by all participants on a recommendation related to the SFM Plan process or on the final SFM Plan". In negotiating to reach consensus, participants agree to:

- negotiate in good faith.
- state concerns openly and directly and as interests rather than positions.¹⁰
- listen carefully, ask questions and educate themselves regarding the interests of others.
- share relevant information.

When consensus is reached, a written record of the agreement will be recorded in the meeting summary. If consensus is not achieved, the facilitator will assist the participants in resolving their differences. If consensus is still not achieved, participants will agree to disagree and the options defined in the negotiation process will be recorded in the meeting summary. The participating licencees will consider all options in development of the final SFM plan and will provide a written explanation for decisions taken where consensus was not achieved. The participating licencees will consider consensus recommendations of the SFM Advisory Group as advice to guide the development of the SFM Plan. In the event that the participating licencees decide not to accept a consensus recommendation of the SFM Advisory Group, a written explanation for this decision will be included in the SFM Plan process documents.

Non consensus items will be periodically revisited by the facilitator and disagreeing parties to work towards common ground and consensual agreement. Consensus will not be required for housekeeping items such as scheduling meeting dates and locations.

Information

The SFM Plan process will be supported by relevant information including the CSA SFM guidelines and supporting reference documents, examples of other British Columbia-based SFM Plans, and other technical information as required. Web links to relevant information will be posted on the website (see Communication section below). Where desired by the advisory group the participating licencees will seek to provide internal or external experts to gain a better understanding of a particular issue.

Communication

Agendas and meeting summaries will be prepared for each meeting. These materials will be distributed to members of the SFM Advisory Group and as requested, to other interested members of the public. Revised SFM Plans and Annual Monitoring Reports will be shared with advisory group members and posted to the website: <http://thompsonokanaganustainableforestry.ca> for broad distribution to all public. The Plans and Reports will also be shared with all affected First Nation communities.

Changes to the Process

The Terms of Reference and Procedures for the SFM Plan process may be changed at any time during the process in accordance with the decision-making process described under the section so named, above.

Evaluation of the Public Participation Process

Participant's satisfaction with the public process will be measured through the completion of an annual survey. Survey results will be included in the annual SFM Monitoring Report.

¹⁰ Interests are defined as the needs, wants, fears and concerns that are connected to an issue. Positions are defined as a predetermined solution to a problem without consideration for the interests of others.