

Timber Supply Review

Bulkley Timber Supply Area

Information Report

June 1998



BRITISH
COLUMBIA

Ministry of Forests

Introduction

The British Columbia Forest Service is required by law to formally review the timber supply* in all timber supply areas* and tree farm licence* areas in the province. A review of each of the areas is completed at least once every five years. The main objectives of the five-year reviews are to:

- identify the economic, environmental and social information that reflects the current forest management practices—including their effects on the short- and long-term timber supply
- identify where improved information is required for future timber supply forecasts
- provide the chief forester with information to make any necessary adjustments to the allowable annual cuts* for the next five years

* Throughout this document, an asterisk at the end of a phrase or word indicates that a definition can be found in the margin.

Objective of this document

The objective of this document is to provide an opportunity for public review of the draft data and management assumptions that will be applied in reviewing the timber supply for the Bulkley timber supply area. This document represents the early stages of the timber supply review process and is intended to provide a non-technical overview of the draft data and management assumptions that will be used in the upcoming *Bulkley Timber Supply Area Analysis Report*.

The *Bulkley Timber Supply Area Analysis Report* will be one of the documents that the chief forester will consider in making the allowable annual cut determination under Section 8 of the *Forest Act*. Public input is encouraged to ensure

the best information is used in determining allowable annual cuts.

This report contains a general description of the data assumptions and current forest management practices related to timber supply for the Bulkley timber supply area. For the purpose of this timber supply review, current practices can be defined as the set of land-use decisions and forest management practices that are currently implemented and enforced. Future forest management objectives that may be established but are not currently implemented and enforced are not included.

The draft data and management assumptions are summarized on pages six through nine. For a more detailed description of the information, please contact the Bulkley/Cassiar Forest District Office or the Prince Rupert Forest Region Office (both in Smithers) and request a copy of the data package. The public will have 30 days to review and comment on the information report and data package. A response form at the end of this document will assist you in providing your comments. Written comments will be accepted until July 3, 1998.

Timber Supply Review process

In British Columbia, a process of determining allowable annual cuts has been in place since the late 1940s. However, the process has changed significantly since then. More recently, the process has had some minor revisions designed to improve efficiency and encourage earlier public review through the release of this report.

Figure 1 (next page) illustrates the five-step process that has been developed for the Timber Supply Review of timber supply areas. The diagram indicates the current status of the timber supply review for the Bulkley timber supply area, and the estimated time required for each step.

Timber Supply Review

in the Bulkley TSA

Timber supply

A harvest level that is forecasted to be available over time, under a particular management regime.

Timber supply area

An integrated resource management unit established in accordance with Section 7 of the *Forest Act*.

Tree farm licence

An agreement entered into with the provincial government which provides for the establishment, management and harvesting of timber by a private interest on a defined area of Crown land in accordance with the *Forest Act*.

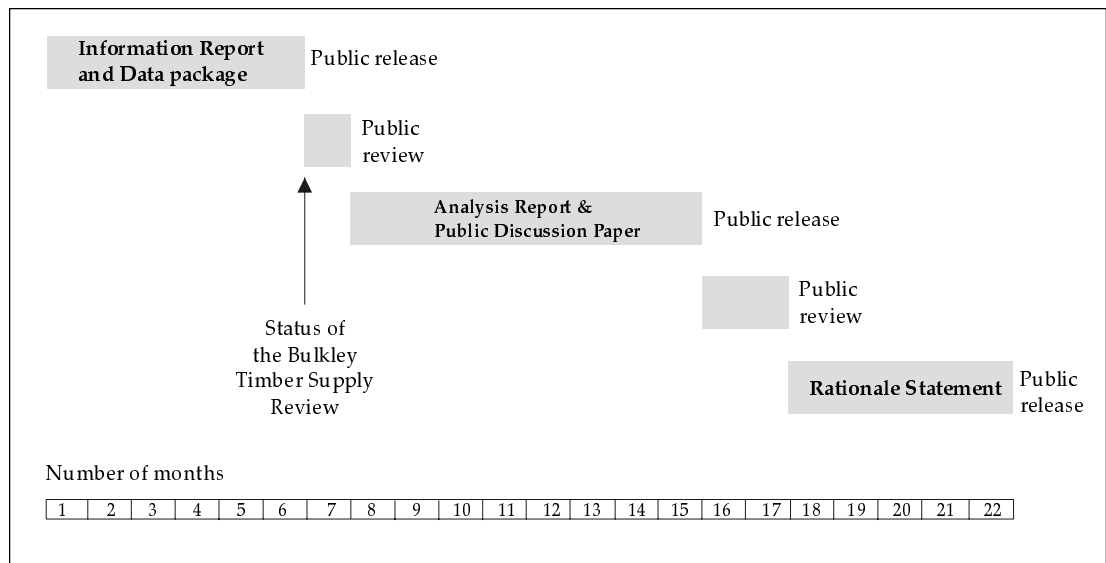
Allowable annual cut

The rate of timber harvest permitted each year from a specified area of land, usually expressed as cubic metres of wood per year.

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Figure 1.
Review process for the Bulkley timber supply area.



The process for reviewing the timber supply and establishing the allowable annual cut for tree farm licence areas is based on similar principles; however, the process takes 30 months from start to completion.

The chief forester's responsibility

Determining the allowable annual cuts for Crown forest lands in British Columbia is the responsibility of the province's chief forester. It is one of the chief forester's most important responsibilities since it affects the local and provincial economies and environment—now and in the future. Section 8 of the *Forest Act* requires the chief forester to consider the following factors to determine allowable annual cuts for timber supply areas and tree farm licence areas:

- a) the rate of timber production that may be sustained from the area, taking into account:
 - the composition of the forest and its expected rate of growth
 - the time in which the forest will become re-established
 - silvicultural treatments, including reforestation
 - standards of timber utilization

- constraints on the amount of timber produced from the area due to use of the forest for purposes other than timber production
- any other information which relates to the capability of the area to produce timber

- b) the short- and long-term implications to the province of alternative rates of timber harvesting from the area
- c) the nature, production capabilities and timber requirements of established and proposed processing facilities
- d) the economic and social objectives of the Crown for the area, the region and the province, as expressed by the minister of forests
- e) abnormal insect or disease infestations and major salvage programs planned for the timber on the area

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent, professional judgment based on the best available information. Information that is relevant to the factors listed above is provided to the chief forester by government agencies, the minister of forests and the public.

One of the objectives of the Timber Supply Review is to incorporate changes arising from new information, new practices and new government initiatives that may have an impact on timber supply. In the event of significant change, the allowable annual cut may be reviewed in less than the required five years.

Following the release of the allowable annual cut determination by the chief forester, the minister of forests apportions the cut to the various licenses and programs.

Principles of the Timber Supply Review

In determining allowable annual cuts—in addition to the requirements outlined in Section 8 of the *Forest Act*—the following principles have been developed.

The Timber Supply Review:

- is a decision-making process for establishing the allowable annual cut for timber supply areas and tree farm licence areas by the chief forester on a maximum five-year cycle, as required under Section 8 of the *Forest Act*; **it is not a process for making land-use or management decisions**
- incorporates the best information available including all relevant current practices, and identifies where new information is needed
- reflects the results of implemented plans and land-use decisions, and provides a benchmark for future planning processes
- involves other agencies, affected groups and the public

Bulkley Land and Resource Management Plan

The Bulkley Land and Resource Management Plan covers approximately 760,000 hectares of north central British Columbia, including the Bulkley timber supply area. In March 1998, the plan was

completed and approved by government. The five-year planning process provided an opportunity for the public, interest groups and government to make recommendations regarding future management of public forest lands in the Bulkley timber supply area. As part of the plan, the Babine Mountain Recreation Area, and Babine extension and corridor were recommended as provincial parks.

Land-use planning decisions regarding forest practices which are implemented and protected areas that have final approval from government will be reflected in this timber supply review.

Description of the timber supply area

The Bulkley timber supply area comprises 736,000 hectares in the northwest interior of the province. Bounded by the Telkwa watershed in the south, the timber supply area extends north to the headwaters of the Nilkitkwa River. The Bulkley timber supply area is administered by the Bulkley/Cassiar Forest District Office located in Smithers.

The communities

The Bulkley timber supply area includes the communities of Smithers, Telkwa, Moricetown and Fort Babine. According to the 1996 Census, the population of the timber supply area was 11,812. By 2001, the population of the timber supply area is expected to grow to approximately 12,600.

The economy

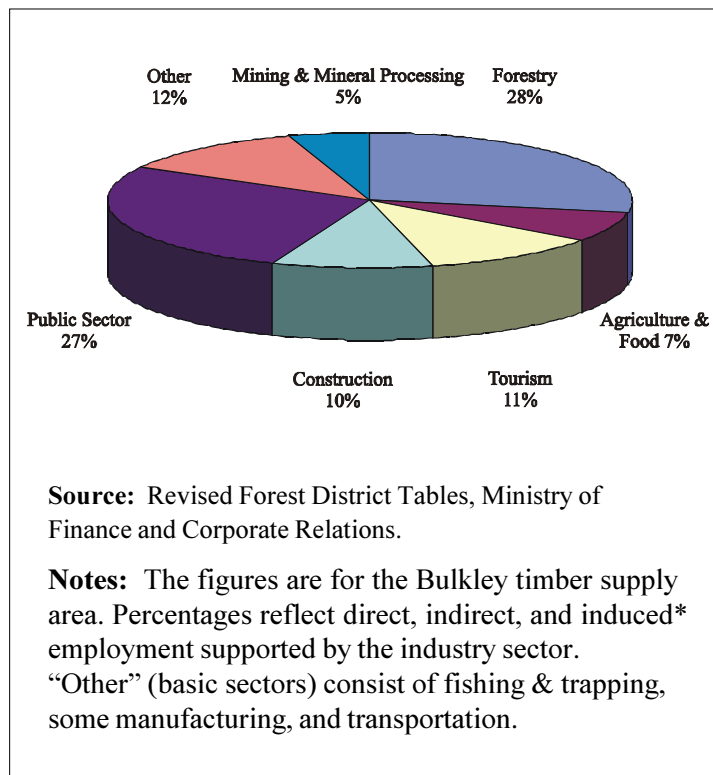
The economy of the Bulkley timber supply area is well diversified. Figure 2 (next page) illustrates total employment by industry sector for the area.

The forest sector accounts for almost 28 per cent of the timber supply area's total employment. Forestry employment is supported by harvesting and silviculture activity, and the processing of wood products at two major facilities: West

Fraser Mills Ltd., Pacific Inland Resources Division and Skeena Cellulose Inc. sawmills in Smithers. In 1996, employment at these facilities totalled 330 jobs.

The forest sector supports numerous other jobs in the region through companies and employees purchasing goods and services from local businesses. This spending is another indicator of the role forestry has in the economy. Each 100 direct jobs in the Bulkley timber supply area is estimated to support a further 30 to 55 indirect and induced jobs, depending on the type of forestry activity and the associated level of income. In comparison, each 100 public sector jobs are estimated to support another 11 positions while each 100 tourism jobs support a further seven.

Figure 2.
Bulkley timber
supply area
(Employment by
industry sector,
1991).



First Nations

The Gitksan, the Wet'suwet'en, the Nat'oot'en and the Tsimshian First Nations have traditional lands within the Bulkley timber supply area. Currently there are two First Nations communities in the timber supply area, with a combined population of approximately 900.

The Gitksan, the Wet'suwet'en and the Nat'oot'en First Nations have submitted comprehensive land claims covering portions of the Bulkley timber supply area. When the land claims have been finalized, they will be considered in future timber supply reviews.

All of the First Nations have expressed concerns about timber harvesting in areas with high cultural and economic values. Once cultural heritage inventory studies, impact assessments and traditional-use surveys have been completed, this information will be considered in the timber supply review.

The forest land resources

Numerous natural resources are associated with the forest land base. Forest products, recreation, tourism, agriculture, mineral exploration and a variety of wildlife habitat highlight the wide range of values and uses found in the Bulkley timber supply area.

The mountainous terrain, lakes and rivers offer a wide range of opportunities for recreation and tourism. Outdoor activities in the timber supply area include climbing and mountaineering, hiking, rafting, canoeing, skiing, dog-sledding, snowmobiling, fishing and hunting.

Hunting, trapping and fishing have been a traditional activity in the timber supply area for many years and has cultural significance for First Nations residents.

Approximately 90,000 hectares in the Bulkley timber supply area are part of the agricultural land reserve. More than half of this area is being used as farmland, while most of the remaining land is forested.

Induced
Induced employment is generated through the spending of direct and indirect employment income, such as in local retail outlets.

The Bulkley timber supply area has significant potential for mineral exploration. In 1994 almost five per cent of the area was under active claim.

The environment

There are six biogeoclimatic zones* in the Bulkley timber supply area. The distinct ecological features as well as the unique nature of the area contribute to high biodiversity values.

The Bulkley timber supply area hosts an abundance of wildlife including grizzly bear, caribou, mountain goat, deer and moose.

The Babine, Copper and Bulkley Rivers support a rich variety of habitat and fishery resources. The rivers and their tributaries provide important migration routes and spawning habitat for sockeye, Chinook, pink and coho salmon and steelhead trout. Lakes in the timber supply area are inhabited by Dolly Varden char and cut-throat trout.

History of the allowable annual cut

On May 15, 1995, the chief forester set the allowable annual cut at 895,000 cubic metres, unchanged from the previous determination. This includes a partition of 367,000 cubic metres for the harvest of marginally economic forest types.

As part of the 1995 determination, the chief forester gave direction to resolve uncertainties with respect to the timber supply in the Bulkley timber supply area. In preparation for the next allowable annual cut determination, the following issues were to be examined:

- **estimates of unsalvaged losses** - at the time of the last determination, there was concern that losses in timber quality and volume caused by western balsam bark beetle infestations may be more significant than estimated.

Since then, studies assessing western balsam bark beetle losses in balsam-leading stands have been completed. The results of these studies

will be considered in the timber supply analysis.

- **effects of alternative silviculture systems** - the previous determination noted that the effects of alternative silviculture systems on short-term timber supply were uncertain.

Research into the implications of these silviculture systems is progressing and may be available for consideration in future timber supply reviews.

- **estimates of site productivity** - at the time of the last allowable annual cut determination there was a concern that estimates of site productivity was underestimated.

Recent studies show that site productivity is generally underestimated for regenerating stands in the Bulkley timber supply area. Two processes are underway to provide improved estimates of site productivity: the Old-Growth Site Index Study and Operational Adjustment to Site Index Study. The information from these studies will be examined through sensitivity analysis in the timber supply review.

- **compliance with partition** - the previous determination noted the importance of ensuring that harvesting was well-distributed throughout the various qualities of timber, including the poorer forest types. As part of the determination, a harvest-level partition was established to indicate performance in the marginally economic forest types.

Since then, Forest Service district staff have developed a partitioned-cut tracking system to establish harvesting targets for the various forest types and to monitor licensee harvesting performance in these types.

Note: For more information on these points, please refer to the Bulkley timber supply area Rationale for Allowable Annual Cut Determination, May 15, 1995.

Biogeoclimatic zones

A large geographic area with broadly homogeneous climate and similar dominant tree species.

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Integrated resource management

The identification and consideration of all resource values, including social, economic and environmental needs, in resource planning and decision-making.

Forest Practices Code

Legislation, standards and guidebooks that govern forest practices and standards, with heavy penalties for violators.

Timber harvesting land base

Crown forest land within the timber supply area that is currently considered feasible and economical for timber harvesting.

Current timber supply review

Public forest lands in British Columbia provide recreational enjoyment, fish and wildlife habitat, water supplies, timber resources and many other benefits. The Ministry of Forests manages the timber, range and recreation resources on public lands, while the Ministry of Environment, Lands and Parks is responsible for the management of fish, wildlife, water resources and parks. Both agencies subscribe to the principle of integrated resource management*, where all resources are considered when making forest management decisions.

The Forest Practices Code* is now law and has been fully implemented in the timber supply area since June 15, 1997. The new practices may influence both the short- and long-term timber supply.

The data and management assumptions that will be used in the timber supply analysis will be based on the existing land-use designations and resource management practices that are currently approved and implemented in the Bulkley timber supply area. The chief forester will also consider any new information, based on implemented changes, at the time of the allowable annual cut determination.

Draft data and management assumptions for public review

The public is encouraged to review the data and management assumptions for completeness and accuracy. In determining an allowable annual cut, the chief forester will consider these assumptions as required by Section 8 of the *Forest Act*. The following general outline contains some of the more pertinent information that will be used in the timber supply analysis and, subsequently, in the chief forester's

allowable annual cut determination for the Bulkley timber supply area. More detailed information can be found in *Appendix A: Data Package*. This appendix is available upon request from the Ministry of Forests offices listed at the end of this report.

Land base factors

- **Operable area** - the forested area in the Bulkley timber supply area has been assessed for operability based on economic attributes, timber types and physical accessibility. Only those areas that are considered operable will contribute to the timber harvesting land base*.
- **Agricultural land reserve** - forested Crown land within the reserve has been divided into areas with agricultural potential that will initially contribute to the timber harvesting land base. It is expected that this area will be harvested within 60 years and after harvesting will be managed for agricultural purposes and therefore no longer contribute to timber supply.

The remaining productive forested Crown land within the agricultural land reserve (without agricultural potential) will be considered as contributing to the timber harvesting land base in the short and long term.
- **Environmentally sensitive areas*** - all or portions of these areas will not contribute to the timber harvesting land base. An evaluation of the environmental concerns and the past level of harvesting within these areas was used to determine the appropriate contributions. For the Bulkley timber supply area, all of the areas identified with avalanche concerns, or combined avalanche and regeneration problems, will not contribute to the timber harvesting land base.
- **Forest roads** - harvesting and road construction follow provincial guidelines. Currently, it is estimated that there are 4160 hectares of existing roads, trails and landings in the Bulkley timber supply area. Also, it is estimated that an

additional 6.1 per cent of the remaining unharvested areas will be lost over time to future roads, landings and trails construction.

Inventory factors

- **Forest inventory** - the forest inventory has been updated to 1998 to take into account new harvesting and silviculture activities.

The dominant tree species in the Bulkley timber supply area are western hemlock, subalpine fir, spruce hybrid and lodgepole pine. Other tree species found are amabilis fir, mountain hemlock, trembling aspen, balsam poplar, black cottonwood, white birch, whitebark pine and western redcedar.

- **Minimum harvestable ages** - for the purposes of the timber supply analysis, the minimum harvestable age is defined as the earliest age at which a forest stand is estimated to reach a merchantable size. This age is based on the time required for regenerated stands to achieve desired physical characteristics such as a minimum average stand diameter of 25 centimetres at 1.3 metres above the ground and minimum volume of 150 cubic metres per hectare for sawlog-quality stands or 175 cubic metres per hectare for pulp-quality stands.

Forest re-establishment factors

- **Basic silviculture** - British Columbia laws require that areas that are harvested and expected to produce timber in the future must be reforested with ecologically acceptable species within a specified time frame. The most common silvicultural practice is to harvest; then if necessary prepare the site for reforestation; reforest by planting a mix of species or by relying on natural regeneration; and control competing vegetation.

In the Bulkley timber supply area, reforestation is achieved predominantly by planting acceptable coniferous

species. In the timber supply analysis, it is assumed that areas will be reforested two years after harvesting has begun.

Timber utilization factors

- **Timber utilization** - volume estimates will be based on the utilization of all trees which meet or exceed the following standards: a minimum 10-centimetre top diameter and a minimum diameter of 15 centimetres at 1.3 metres above the ground in sawlog-quality forests; and a minimum 10-centimetre top diameter and a minimum diameter of 12.5 centimetres at 1.3 metres above the ground in marginal sawlog or pulp-quality forests; and a maximum 30-centimetre high stump for all stands.

Infestations, devastations, and salvage of timber

Each year portions of the forests in the Bulkley timber supply area are damaged by natural agents such as forest pests, fire and wind. It is anticipated that some of the damaged timber will not be salvaged due to road and economic limitations. The unsalvaged volume is estimated to be 48,033 cubic metres annually.

Factors to be considered for purposes other than timber production

Forest management guidelines used to manage forest resources such as biodiversity, scenic values, wildlife habitat and water quality will be included in the timber supply analysis through the use of forest cover requirements, and volume and land-base reductions.

- **Forest cover requirements** - under current forest management practices, cutblocks* must achieve green-up* before adjacent areas are permitted to be harvested. For example, to account for forest cover requirements in integrated resource management areas, a maximum of 33 per cent of the timber harvesting land base will be allowed to have forests less than 3 metres tall at

Environmentally sensitive areas

Areas identified as requiring special management to protect important recreation and scenic values, fisheries resources, sensitive soils and unstable slopes.

Cutblock

A specific area, with defined boundaries, authorized for harvest.

Green-up

The time required for regenerated forests to reach a desired condition (usually a specific height) after harvesting to meet specific management objectives and allow harvesting to take place in adjacent areas.

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Riparian habitat

The stream bank and flood plain area adjacent to streams or water bodies.

Coarse woody debris

Logs and stumps that provide habitat for plants, animals and insects, and a source of nutrients for soil development.

Wildlife tree

A standing live or dead tree with special characteristics that provide valuable habitat for conservation or enhancement of wildlife.

Seral stages

Sequential stages in the development of plant communities that successively occupy and replace each other over time.

Landscape unit

A planning area based on topographic or geographic features.

any time. Other cover constraints are used to manage for hydrological green-up in community watersheds, as well as wildlife and ecosystem management.

- **Visually sensitive areas** - these are areas where the maintenance of scenic landscapes is a priority for recreation and tourism management, particularly in areas that are adjacent to major travel corridors and waterways. Road construction and logging within these areas are planned and implemented to minimize visual impacts. Recommended visual quality objectives have been established for scenic areas identified in the Bulkley timber supply area and vary according to the degree of visual sensitivity.
- **Riparian habitat*** - to meet the requirements of the Forest Practices Code, a portion of the timber harvesting land base will be considered unavailable for timber harvesting to account for riparian habitat areas along streams and lakes.
- **Biological diversity** - or biodiversity, is the full range of living organisms, in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems, and the evolutionary and functional processes that link them. The Forest Practices Code requires that biodiversity be examined at both the stand- and landscape-level.

Leaving coarse woody debris* and wildlife tree* patches for stand-level biodiversity is current practice in the Bulkley timber supply area. Generally, coarse woody debris objectives can be met by the contributions of non-merchantable timber. The current practice for leaving wildlife tree patches requires that a percentage of each cutblock be retained. This requirement can be partially met by riparian habitat areas and other areas outside of the timber harvesting land base. On average it is estimated that approximately 2.3 percent of the timber harvesting land base will be considered unavailable for

timber harvesting as a result of leaving wildlife tree patches.

Considerations for landscape-level biodiversity will be accounted for in the timber supply analysis by applying averaged seral stage* constraints to each draft landscape unit* and natural disturbance type*. This approach has been taken because at this time the landscape units and biodiversity objectives are still draft and have not yet been formally established.

Sensitivity analyses* will be undertaken to examine the potential impact on timber supply from applying the draft biodiversity objectives from the Prince Rupert Regional Landscape Unit Plan.

Implications of alternative rates of harvesting

- **Alternative rates of harvesting** - there are many alternative harvest forecasts that can be produced for a given set of forest conditions and management assumptions. Each alternative usually represents a trade-off between the harvest level in the short term and the subsequent rate of decline to the long-term harvest level. For the projected base-case forecast*, the initial harvest forecast will be based on trying to achieve the current rate of harvest in the short term without compromising the long-term harvest level. The implications of alternative short-term rates of harvest will be tested in sensitivity analyses.
- **Implications related to community dependence** - the impact of timber supply adjustments on local communities and the provincial economy is an important consideration in the timber supply review. The August 1994 *Bulkley Timber Supply Area Socio-Economic Analysis* reported that, provincially, harvesting, silviculture and processing activities associated with the harvesting of the Bulkley timber supply supported 750 direct person-years* and

a further 1125 indirect and induced person-years of employment. About 55 per cent of these are located in the Bulkley timber supply area.

The socio-economic section of the upcoming timber supply analysis report will review the role of the forest sector in the Bulkley timber supply area. To provide this update, current information on employment and fibre flows will be gathered from licensees, processing facilities, the B.C. Forest Service and other stakeholders. Indirect and other related employment at both local and provincial levels will also be estimated using employment multipliers provided by the Ministry of Finance and Corporate Relations.

To examine the implications of alternative rates of harvest, employment co-efficients, reported in person-years per 1,000 cubic metres, will be developed and used to estimate changes to employment levels now and in the future from any potential harvest level changes.

Timber processing facilities

The socio-economic analysis will examine the implications of potential changes of timber supply for the area's major processing facilities.

The major mills in the Bulkley timber supply area are the West Fraser Mills Ltd., Pacific Inland Resources Division and the Skeena Cellulose Inc. sawmills in Smithers. In addition, two medium size mills also operate in Smithers: Northwest Panelboard and Alpine Cedar Products (shake and shingle).

During 1996 these four facilities processed approximately 925,000 cubic metres of timber. From 1994 to 1996, the annual harvest level in the Bulkley timber supply area was about 940 thousand cubic metres.

Economic and social objectives of the Crown

In a letter and a memo to the chief forester, the minister of forests has expressed the Crown's economic and social objectives for the province. The harvest flow objectives to be used in the timber supply analysis (see above, "Alternative rates of harvesting") are consistent with the minister's stated objectives.

In addition, economic and social objectives for the area and the general region will be derived from public input.

Your input is needed

Establishing the allowable annual cut is an important decision which requires well-informed and thoughtful public input. Feedback is welcomed on any aspect of this *Information Report*, the *Data Package Appendix* and other topics related to the timber supply in the Bulkley timber supply area. The response form at the end of this document will assist you in preparing your comments. As well, Forest Service staff would be pleased to discuss questions or concerns that may help you prepare your response.

Please mail the completed response form and your comments to the Forest Service district manager located at the address below. Your comments will be accepted until July 3, 1998.

After receiving public input, Forest Service will finalize the data and management assumptions that will be applied in this timber supply analysis. The timber supply analysis will be completed and available for review by January 1999. You may also wish to participate in the second public review period, which will follow the release of the *Bulkley Timber Supply Area Analysis Report*.

Timber Supply Review in the Bulkley TSA

Natural disturbance type

An area that is characterized by a natural disturbance regime, such as wildfires, and affects the seral stages. Areas with less stand-initiating disturbance have older forests, and generally a greater abundance of species.

Sensitivity analysis

Examines how uncertainty in data and management assumptions affect timber supply.

Base case forecast

The timber supply forecast which illustrates the effect of current forest management practices on the timber supply using the best available information.

Person-year

One person working the equivalent of one full year. If someone works full-time for six months, he or she accounts for 0.5 person-years.

Following the second public review period, the chief forester will examine all the information available in order to review the timber supply for the Bulkley timber supply area. The chief forester will then establish the allowable annual cut based on his consideration of the factors as required under Section 8 of the *Forest Act*.

You may identify yourself on your response if you wish. If you do, you are reminded that responses will be subject to the *Freedom of Information and Protection of Privacy Act* and may be made public. If copies of the responses are requested, personal identifiers will be removed before the responses are released.

For more information contact and/or mail your comments to:

District Manager
Bulkley/Cassiar Forest District
B.C. Forest Service
Bag 6000, 3333 Tatlow Road
Smithers, B.C.
V0J 2N0
Phone: (250) 847-6300
Fax: (250) 847-6353

or electronically mail to:

Glen.Buhr@gems3.gov.bc.ca

APPENDIX A

Data Package Description of Data Inputs and Management Assumptions

*This appendix is available upon request from the
Ministry of Forests.*

Offices are located at:

Bulkley/Cassiar Forest District
B.C. Forest Service
Bag 6000,
3333 Tatlow Road
Smithers, B.C.
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Prince Rupert Forest Region
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