Area-based Allowable Annual Cut Determination
Recommended Information Requirements
for Tree Farm Licences

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1. Introduction

This document discusses the information and analysis necessary to support a determination of an area-based allowable annual cut for tree farm licences, as allowed by recent legislation.

It is intended that this review will provide background information to the provincial chief forester, who is responsible for establishing information needs and standards for determining allowable annual cuts. It is also intended to assist those in government and the private sector who will be compiling information and conducting analyses to support this new approach to determinations.

This report is in fulfilment of the second phase of the area-based allowable annual cut project. The project has three phases: (1) The identification of sections of legislation, regulation or contract which must be changed to give effect to trials; (2) provide advice to the chief forester on information requirements for area-based allowable annual cut trials; and, (3) establishment of trials.

In B.C., allowable annual cuts, with one small exception, are set in cubic metres and over the past 50 years the process leading their determination has become increasingly sophisticated and detailed. The amount of information that must be collected and analysed requires significant expenditures of human and financial resources. Often the type of data that is required gives rise to differences of opinion over interpretation and implications for the allowable cut determination.

One of the objectives of area-based allowable annual cut trials is to test the efficacy of the concept of regulating harvest levels by area and to introduce, where possible, more simplified approaches to information requirements, analysis, and allowable cut determination while maintaining sound forest stewardship and establishing public confidence and understanding.

2. Organization of Report

Section 3 describes the objective and accompanying principles that have guided the development of the recommendations contained in this report.

Section 4 discusses the recommended information needs and timber supply analysis requirements which will allow the chief forester to determine an area-based allowable annual cut and meet the requirements of the *Forest Act* and the chief forester's stewardship responsibilities.

The information is organized, more or less, in the order in which it is compiled or used in the allowable cut determination process: forest inventory (section 4.1); analysis inputs and assumptions (section 4.2); and post-analysis reporting (section 4.3).

Section 5 contains some concluding observations.

In preparing this document, consultations took place with staff from the Timber Supply, Resource Tenures and Engineering, and Research Branches of the Ministry of Forests and with staff from the TFL licensees involved, Riverside Forest Products Ltd. and Canadian Forest Products Ltd.

3.0 Objective and Principles

The principal objective guiding the development of the recommendations in this report is *to maintain the credibility and rigour of the AAC determination process while simplifying the requirements for information and analysis that support area-based allowable annual cut determination.*

The following principles have guided the review and recommendations:

1. Rely as much as possible on observed rather than derived attributes.

2. Use supporting evidence of licensee performance wherever possible.

3. Reduce dependence on growth and yield data.

4. Strive for allowable annual cut determinations which are more easily understood by the public.

5. Ensure information needs are similar for tree farm licences, timber supply areas, and woodlots.

An important prerequisite of principle 4 is that area-based harvest levels should be projected and allowable annual cuts determined and regulated based on *total area encompassed by harvest activity* whether clearcut or selectively harvested, as opposed to an abstraction such as clearcut equivalent. This is assumed throughout this report and will be further discussed under the sections below dealing with partial harvesting.

The fifth principle is not meant to imply that the quantity and complexity of information requirements for woodlots be similar to tree farm licences and timber supply areas. Woodlots are smaller and have simpler management requirements and the information needs supporting the determination of woodlot allowable annual cuts should follow suit. What is important is that there is consistency in the type of information required and the manner in which it is used.

Simplification

Establishment and regulation of harvest levels through area-based allowable annual cuts offers the potential to simplify approaches compared to more traditional volume-based approaches. Areas where procedures may be simplified or information requirements reduced or even eliminated include:

- yield estimates for existing and regenerated stands (and the justifications, approvals, etc. which must accompany such information from licensees);
- growth and yield for partial harvesting systems and estimates of volumes removed and retained;
- estimates of decay, waste, and breakage for existing stands;
- adjustments for volumes for managed stands to account for endemic naturally caused losses and operational conditions (so-called 'operational adjustments');
- stand volume reductions to account for such factors as stand-level biodiversity, wildlife tree retention, or unmerchantable species;
- volume adjustments for inventory audits or vegetation resources inventory;
- utilization standards;
- volume or value gains due to intensive silviculture or tree improvement;
- volume of unsalvaged losses;
- alternate harvest flows;
- regulation of cut control;
- separating "on-quota" and "off-quota" volumes;
- reconciling the volume harvest in 20-year operational plans.

4. Recommended Information

4.1 Forest Inventory Information

Most information in the forest inventory is based on observations of stand or polygon attributes such as:

- species
- age
- height
- crown closure
- biogeoclimatic ecological classification (BEC)

These describe physical, biological, and ecological features. They are subject to measurement error, but when measured properly, they are usually difficult to dispute.

These variables are also useful for categorizing stands in terms of merchantability, productivity, and management requirements. As such, they can be used to stratify the forest and assist in formulating timber supply analysis inputs and assumptions.

Opportunities for simplifying

Observed inventory variables can provide a more solid basis for many of the inputs and assumptions used to support allowable annual cut determination. Wherever possible these attributes should be used in place of derived attributes (such as site index, projected volumes or diameters, etc.).

4.2 Analysis Inputs and Assumptions

Some analysis inputs and assumptions are based on current licensee performance or are already area-based and therefore require little or no procedural change to use in support of area-based allowable annual cuts. Examples include:

- areas of existing and future roads, trails, and landings
- forest cover requirements
- harvesting restrictions for visually sensitive areas
- objectives for biological diversity
- regeneration delay

The derivation of other analysis inputs, however, can involve a great deal of technical complexity. As well, the associated timber supply modelling assumptions and methods can be quite elaborate. Following is a discussion of some of these inputs, assumptions, and modelling approaches, and the opportunities for reducing complexity:

1. Timber harvesting land base

This is the net operable land base on which licensees are expected to operate. The timber harvesting land base describes timber that is currently merchantable and acceptable to harvest.

Current Practice

Currently the derivation of the timber harvesting land base is founded on a combination of factors including:

- geographic location of stands
- operability mapping
- filtering based on observed inventory attributes which indicate stand quality or suitability (for example, species, age-height combination, terrain, identified environmentally sensitive areas, etc.)
- filtering based on derived variables (for example low site index, minimum volume thresholds, etc.)
- evidence of licensee performance

Opportunities for simplifying

- Base as much filtering as possible on observed inventory attributes such as age, height, crown closure, location, terrain attributes, etc.
- Identify the management issue more directly rather than use site index cut-offs for filtering stands. For example, use the biogeoclimatic ecological classification (BEC) system for filtering out what are really areas presenting management difficulties rather than growth and yield difficulties[1].
- Use supporting evidence of licensee performance.

[1] Currently, in deriving the timber harvesting land base, areas of low site productivity are removed based on site index. The undocumented rationale for removing these sites is that low site index correlates with management difficulty, such as problems establishing a regenerated crop due to limited water availability or poor soil fertility; inability to grow a merchantable stand in a reasonable amount of time because of short growing season; etc. Hence, site index (a derived variable) is being used as a proxy for physical features which might be more appropriately identified through observed attributes such as those provided through the vegetation resources inventory or the biogeoclimatic ecological classification system (BEC).

These opportunities for simplifying move the derivation of the timber harvesting land base from an exercise heavily based on derived variables.

2. Minimum harvestable ages

The only harvest age which is provided as a modelling input to the timber supply analysis process is *minimum harvestable age*, and this is specified only as a lower limit. The minimum harvestable age is often defined as the *earliest* age at which a forest stand is expected to reach a merchantable condition and is not necessarily the preferred harvest age at which volume or value might be maximized – harvesting may be forced to occur at this age due to other requirements, such as stable harvest flow. In many forests, harvests are currently occurring in older stands, hence minimum harvestable ages might be viewed as a projection of harvesting behaviour in the future. On the other hand, due to operational considerations such as requirements for non-timber forest values or economics, licensees in many management units are currently harvesting in younger stands which are at lower age limits.

Minimum harvestable ages are to be distinguished from the traditional concept of *rotation age*. In the timber supply analysis process supporting allowable annual cut determination in B.C., rotation age is not an explicit input, but rather an outcome or a realization of the analysis process and is ultimately a result of a number of conflicting factors, such as harvest level objectives, current forest age-class distribution, green-up period, forest cover requirements (such as for visual quality and biodiversity), etc.

For area-based allowable annual cuts, minimum harvestable age is still an important variable for defining a merchantable stand. Nevertheless, for some units, the maximum even-flow area harvest level is insensitive to the choice of minimum harvestable age.

Current practice

Determination of minimum harvestable ages is largely a technical exercise based on growth and yield criteria, and often includes the maximization of the long-term volume harvest as an objective. Criteria which are used to determine minimum harvestable age include:

- minimum projected volume per hectare
- minimum projected average stand diameter

- a tolerance limit around the projected age of culmination of mean annual increment (for example, the age at which at least 95% of maximum mean annual increment is achieved).
- local priorities, knowledge, and experience

Opportunities to simplify

Opportunities for shifting the determination of minimum harvestable ages from a predominantly technical exercise include:

- Use more qualitative criteria, such as local priorities, knowledge and experience, public objectives, etc.
- Base minimum harvestable ages on demonstrated harvesting activity.
- Rely on a more policy-based approach (for example, assigning a minimum harvestable age of 70 on the coast and 90 for the interior) – much in the way that the green-up height requirement has a policy basis.)
- Develop 'rules of thumb', for example, 50 years for coastal Douglas-fir on high productivity sites; 60 years on lower productivity sites.

3. Green-up period

Green-up period is the time it takes regenerated stands to reach a minimum height (frequently 3 metres). Green-up period will still be an important variable in projecting area harvest levels because it affects the timing of the harvest of stands adjacent to those recently regenerated. Nevertheless, for some units, the maximum even-flow area harvest level is insensitive to the choice of green-up period.

Current Practice

Estimates of green-up period are currently derived using site index relations for each site, combined into a weighted average for each analysis unit. (As noted above, the actual critical green-up height – for example the 3-metre threshold – is a more policy than a technically based requirement. Yet the estimation of the time to reach this policy-based threshold has become a dominantly technical exercise.)

Opportunities for simplifying

- Use judgement; local knowledge.
- Develop 'rules of thumb'.

- Base green-up period on existing evidence of height growth of regenerated stands (see, for example the study *Age to Green-up Height: Using Regeneration Survey Data by Region, Species, and Site Index*[2]).

4. Partial harvesting

One of the more controversial aspects of area-based allowable annual cut determination is how partial harvesting silviculture systems are to be treated.

Prior to offering some alternatives, it is useful to keep in perspective the area harvested under partial harvesting systems in B.C. During the fiscal year 2000-2001 approximately 14 percent of the total area harvested was done using partial harvesting. Of this, just over 1 percent of the total area harvested was due to commercial thinning.

When considering any kind of harvesting, including partial harvesting, the key distinction to be made is whether the management objective is to produce an *even-age* or *uneven-age* stand:

- Even-age management involves a "final" or "regeneration harvest at some point in the stand rotation. Harvesting activities or silviculture systems which are consistent with even-age stand management include:

    - clearcutting
    - overstory removal
    - salvage harvesting
    - shelterwood system
    - seed tree system
    - commercial thinning
    - precommercial thinning (juvenile spacing)

- Uneven-age management involves repeated, continuous partial harvests (such as individual tree selection) over time to produce a stand which contains trees of a range of stand age classes from recently regenerated to mature. Harvesting to produce an uneven-age stand might be thought of as making low-utilization clear-cuts of short rotation. Harvesting activities which are consistent with uneven-age management include:

    - selection system
    - group selection system

[2] B.C. Ministry of Forests, Victoria, B.C., 109p, 2000. This report may be found at www.for.gov.bc.ca/research/spwg/publist

Current Practice

Currently, timber volume harvest projections and volume harvest regulation include all commercial harvest volumes – whether partial or clearcut; whether for even-age or uneven-age management. This requires detailed growth and yield information, (some of which is unavailable for the myriad of silviculture systems being employed) and complex timber supply modelling approaches.

All harvested volumes are scaled and tallied for cut control.

Opportunities for simplifying

- In general, project area harvest levels and determine and regulate area-based allowable annual cuts according to the *total area encompassed by harvest activity*, whether clearcut or partially harvested. Where any selection harvesting is planned for a management unit, the projected even-flow area harvest level (and likely allowable cut) will be higher than if only clearcutting is to take place – all other assumptions being the same. This is because of the more frequent harvest entries which take place in managing uneven-age systems. This offsets what might otherwise be a disincentive to conduct partial harvesting activities. Assumptions made in the projection of harvest levels need to match operational activities to allow licensees the incentive and flexibility to capture the full value from partial harvesting.

- For even-age systems: Project and regulate area harvests according to the regeneration harvest only (or other significant harvest which occurs once in a rotation). Other partial harvests need not be projected nor recorded for cut-control purposes. For example, a commercial thinning would not count as an area-based harvest for the purposes of cut control. This policy might be viewed as an incentive to encourage licensees to employ partial harvesting systems for capturing expected mortality, small-scale salvage, management of visual quality, etc. *However, licensees will need to provide assurance to government and the public that they will not abuse such a policy* and alleviate the fear that they will high-grade in the name of commercial thinning or partial harvesting, simply because the harvest is not recorded for cut control purposes.

- For uneven-age systems: The total area encompassed by harvest activity in each of the periodic selection harvests is that which is projected in timber supply analyses and considered in allowable annual cut determinations and is the area recorded for cut control purposes. One of the advantages of area-based methods over current volume-based methods is that to project the area harvest for selection systems, the only important variable is the harvest

interval, or return period. Neither the amount of volume to be removed, nor the growth and yield of the stand need be known in any detail, as is the case in making volume projections. The return period will be based on the desired age-class structure of the uneven-aged stand and this will also dictate which trees (or stand age-classes) are to be removed for each entry. (see "Return period for uneven-age management" below for further discussion.)

While there might be a continuum of selection systems employed in a unit (with prescribed return periods covering a range of years), practical analysis will group such systems into categories, much in the way that current volume-based analyses aggregate stands by other attributes. For example, those analyses group stands into broad site-index categories like good/medium- and poor-productivity sites, in the interests of making the analytical problem simpler.

- Avoid area-equivalent formulae which require measuring the volume or basal area harvested and converting it to an area harvested. Such approaches can require as much measurement effort as scaling and have the added complication of having to determine a conversion factor (which will likely be a continual subject of debate). Moreover, they obscure the magnitude of actual area harvested and jeopardize the public's acceptance of area-based harvest regulation.

5. Partial harvesting and 'partitioning' area allowable annual cuts

Related to the discussion above of partial harvesting, there is the question of whether or not the chief forester should partition an area-based allowable annual cut according to clear-cut and partial harvesting components.

Current Practice

While the *Forest Act* outlines how the allowable annual cut may be attributed to different types of timber or terrain, there is currently no standard policy governing when and how partitions are to be defined. The chief forester reviews and treats every partition individually, based on its own merits. Partitions are not subject to any standard policy, and this allows the chief forester maximum flexibility.

Many however insist that an area-based allowable annual cut must be partitioned by partial- and clear-cut components

Opportunities for simplifying

- Do not require mandatory partitions of area-based allowable annual cuts by silviculture system.
- Consistent with current procedures, area harvest projections should show the contribution of harvests from even- and uneven-age stands, as well as from other critical management types. Also, consistent with current procedures, licensees should demonstrate their ability to meet the assumptions made in their projections – either through evidence of past performance or through supporting justification.
- The chief forester can review licensee performance upon re-determination and confirm, amend, or partition the allowable cut depending on the circumstances

6. Salvaged and unsalvaged losses

Volume harvest projections supporting allowable cut determination are net of so-called *unsalvalged* or *non-recovered* losses. That is, projections have been reduced for the volume of losses from natural agents that *are not* expected to be salvaged. Thus, the projections include losses which *are* expected to be salvaged.

Currently, two types of losses are recognized by Forest Practices and Timber Supply Branches:

a. Endemic, single-tree losses scattered throughout a stand due to slowly developing mortality or due to growth-loss agents such as defoliators or weevils.

b. Catastrophic, concentrated damage due to rapidly developing agents such as bark beetles, wildfire, or blowdown. These losses are supposed to result in a change in the forest cover label where the extent of area affected exceeds a minimum threshold.

Current practice

- For endemic losses:
    - for existing stands, losses are assumed to be already incorporated in yield estimates
    - for regenerated stands, estimates of expected volume losses (so-called operational adjustments, or “OAFs”) are developed and

managed stand yield estimates are adjusted and employed in projecting volume harvest levels.

- For catastrophic losses:

- the area of expected losses are estimated and converted to volume using an average m^3 per hectare factor. Volume losses are then subtracted from volume timber harvest projections.

Opportunities for simplifying

- For endemic losses: Ignore the losses in area harvest level projections and area allowable annual cut determinations. Also, do not measure area harvested (or scale volumes) for cut control purposes.
- For catastrophic losses: Make area estimates of losses and subtract them from area harvest projections. There is no need to derive a volume conversion factor for translating area losses to volume losses, as before. Measure area encompassed by salvage operations for cut control purposes.

7. Return period for uneven-age management

This is the *minimum* period which must elapse between successive selection harvests such that a continuous yield of timber can be maintained indefinitely. (see above discussion under “Partial harvesting). Return period is similar in concept to the minimum harvest age used for projecting harvests from clearcut silviculture systems.

In theory, a desired age-class structure is defined for the uneven-aged stand. This helps establish the frequency of re-entry and the trees (or stand age-class) which are to be extracted in each harvest entry.

Current practice

Determination of the return period is largely based on experience and local knowledge, due to the lack of growth and yield information for selectively harvested stands.

Opportunities for simplifying

There are no major opportunities for simplifying. In fact there will likely be a tendency to introduce more technical complexity if growth and yield information becomes available.

8. Harvest flow policy

Harvest flow and sustainability of harvest levels is one of the most controversial forest management topics in B.C. One of the underlying principles of proposed area-based harvest regulation policy for the province is that allowable annual cuts be determined based on even-flow projections of area harvest. This is more in tune with the public's understanding of sustainability.

Current practice

Volume harvest levels are projected according to a harvest flow policy which may show harvest level fluctuations over time. In particular, gradual declines from existing volume harvest levels are permitted. Projected harvest levels are also allowed to fall below the maximum long-term even-flow harvest level temporarily, if necessary, to ensure no major disruptions in the short term and a stable harvest flow in the long term[3].

For B.C. this policy of allowing declining volume harvest levels has lead to widespread criticism. The public has trouble understanding how a declining volume harvest can be termed "sustainable".

Opportunities for simplifying

Project and determine area harvest levels and determine area-based allowable cuts using an even-flow policy only. Even-flow harvest levels are easy to model and easy to understand. It also eliminates the need for dozens and possibly hundreds of model 'runs' necessary for determining an acceptable harvest schedule.

Determining an allowable annual cut based on maximum even-flow harvest level projections raises two public communications questions[4]:

- *How credible will it be if the chief forester determines a new and different allowable annual cut after having determined one five years previously, based on the premise of a constant, maximum even-flow harvest level?*

[3] Deriving an acceptable harvest projection under this harvest-flow policy can be a difficult and time-consuming modelling task. This must be repeated for all harvest projections – including the so-called "base case" as well as sensitivity analyses and other scenarios – which are conducted in a typical timber supply analysis supporting an allowable annual cut determination for a tree farm licence or timber supply area.

[4] This discussion benefited from conversations with Ron Norman, public communications specialist and former communications advisor to the chief forester of B.C.

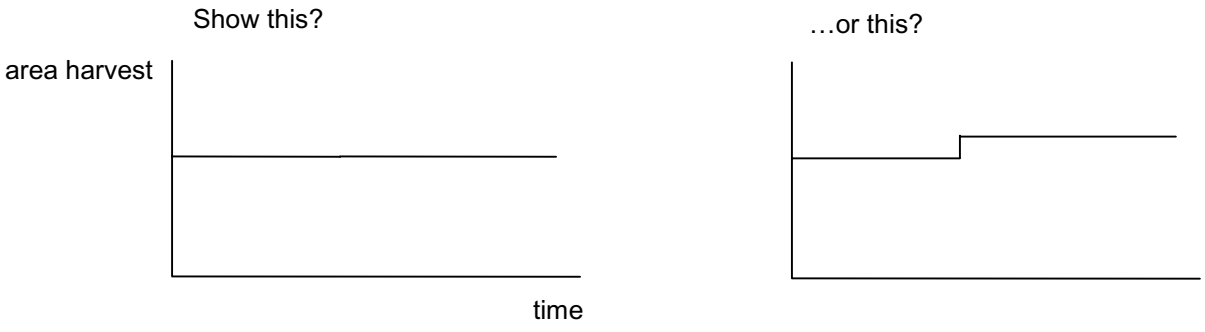
As long the timber supply analysis report and the rationale accompanying the determination make it clear that there is uncertainty in information, the public will be more accepting that new information can lead to a different allowable cut. Indeed, an obvious example is that the allowable annual cut should decline when there is the removal of productive forest land for a park.

This concept will be bolstered by the presence of sensitivity analysis – still necessary for determining area-based allowable annual cuts – which would accompany any timber supply modelling exercise and which would show how the maximum even-flow harvest level (and possibly the allowable cut) changes with different information. Finally, the clearly stated policy of periodically re-determining the allowable cut – again, still necessary for area-based allowable annual cuts – should make it clear to the public that there are good reasons for information and objectives to change and that this might warrant a change in the allowable cut.

- *Should the projection of area harvests show an increase in harvest level if one is possible?*

  Analyses projecting area harvest levels which have been conducted to date have demonstrated that one of the most important factors affecting the maximum even-flow projection is the current forest age-class distribution. With some units, an age-class gap can result in a lower even-flow harvest level. With time, the age-class distribution becomes more regulated and gaps are filled and the forest can support a higher even-flow level.

  In such situations, should the maximum even-flow policy be superceded by an increasing flow policy? The following graphs illustrate the choices:



(<u>Note</u>: *With either approach, the projected initial harvest level does not change*)

The increasing flow option can be viewed as one which fully discloses the future. However, it also introduces more complexity into the timber supply modelling process and might be viewed as creating an expectation or a public promise that more area will be harvested in the future. The lower initial harvest level might also lead to the erroneous conclusion that harvests have fallen below the long-term level because of past mismanagement when, in fact, this transition is quite logical given the current natural state of the forest.

With periodic re-planning and re-determination, the increase in harvest level can be realized (assuming nothing else changes), regardless of whether or not it is projected today.

The simplest approach is to only model and illustrate even-flow projections. The possibility of a future increase in the even-flow harvest level can and should be discussed in the reporting which accompanies the timber supply analysis and allowable annual cut determination.

4.3 Post analysis reporting

1. Analysis outputs

Analysis outputs are diagnostics which reveal the underlying features of harvest level projections.

Current practice

Current timber supply analysis reports illustrate the following quantities projected over time:

- volume harvest levels
- average m^3 per hectare harvested
- total and merchantable growing stock (in m^3)
- area harvest
- average harvest age
- age-class distribution
- harvest sub-flows (projected harvest of components of the total harvest, such as by silviculture system)

Sensitivity analysis of uncertainties in information and the impact on timber supply is also standard in timber supply analyses.

Opportunities for simplifying

Omit the volume diagnostics:

- volume harvest levels
- average m^3 per hectare harvested
- growing stock

Sensitivity analysis is still a key component of an analysis of area harvest levels as it is for any modelling exercise.

2. Historical information

This includes information about recent management practices and licensee performance (say, over the last few years). Such information is used as evidence to support the assumptions and recommendations made by licensees.

Current practice

Supporting Information is currently required to justify licensee assumptions, such as:

- regeneration delay
- silviculture regimes and history of stand management (for justification of use of managed stand yield estimates for regenerated areas)
- changes to operability
- volume harvest in parts of the forest profile

Opportunities for simplifying

Much of this information will still be desired both by licensees and the chief forester. However:

- the amount of supporting information surrounding the use of managed stand yield estimates can be reduced or eliminated
- good records (ISIS or MLSIS or licensee information systems) may be easy to extract and summarize and save the Ministry of Forests and licensees a great deal of effort if used wisely (for example, records showing time to reach green-up height may save a great deal of analytical time and cost necessary for deriving green-up period length through the use of site index relations.)

5. Closing Comments

This report describes a number of areas where it will be possible to reduce the complexity of allowable annual cut determination using an area-based approach.

Recent changes to the Forest Act (section 151.3) permit trials for the purpose of testing area-based allowable annual cuts. It is presumed that at some future date an evaluation will be required to determine the success of the trials, including the efficacy of area-based allowable annual cuts, the need to modify procedures, and ultimately the future application of the approach.

The Ministry of Forests and licensees conducting trials will need to establish baseline criteria against which the success of trials will be assessed.

In doing so, it is important to avoid criteria that discourage participation in a trial. For example, requiring a volume-based analysis to accompany the area-based analysis for the purpose of evaluating the implications of an area-based allowable annual cut would detract from potential reduction in the burden of information and staff support which licensees presently must provide for allowable cut determination. Similarly, using other volume-based criteria to evaluate the success of trials is counter-productive.

On the other hand, there are some broad topic areas where criteria might be developed to assess efficacy of area-based allowable annual cuts:

Government and licensee costs

Administrative costs incurred throughout the entire allowable annual cut determination process (data collection, analysis, staff support – both for government and industry) could be relatively easy to monitor and would provide an overall assessment in the areas where area-based allowable annual cuts are expected to offer advantages.

Indices of public acceptance (local and global) and government and industry satisfaction

These are qualitative criteria and admittedly difficult to establish and assess, but they are potentially important consequences of area-based allowable annual cuts.

Streamlining of Section 8 of the *Forest Act*

The desirability of, and consequences of, streamlining Section 8 might be another criterion by which area-based allowable annual cuts could be assessed.

The chief forester's determination is not a purely formula-based process. Section 8 of the *Forest Act* requires that the chief forester consider a range of factors. These include composition of the forest; regeneration delay; silviculture treatments; non-timber values; the rate of timber production which may be sustained; expected rates of growth; infestations; salvage; decay, waste, and breakage; timber utilization; short and long-term implications of alternate rates of harvest; requirements of processing plants, etc.

The chief forester also receives advice from the Minister of Forests on the social and economic objectives of the Crown.

With area-based allowable annual cuts, such factors as rate of timber production, rates of growth; utilization; decay, waste, and breakage may become less relevant; and requirements of processing plants, and the economic and social objectives of the Crown may need to be rethought.

Additionally, one of the central themes of area-based AAC is an even flow policy. Not only should this show benefits in terms of reducing timber supply modelling costs, but short and long-term implications of alternate rates of harvest may become a consideration which should be de-emphasized, if not removed, in Section 8.

Value

The contribution that area-based allowable annual cuts could make to enhancing the flexibility to maximize value instead of solely volume, while difficult to assess, may also be an important consideration.

Finally, licensees and government will also need to determine how they will actually carry out a trial. This will include revising internal procedures and processes dealing with tenure administration, information collection, analysis, and reporting. An important element will be to ensure that activities cease, where they are no longer relevant.