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# Incremental Silviculture Strategy For British Columbia

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**Working Paper 2:**  
**Concepts of Strategy and Planning,**  
**Proposed Planning Framework**

PREPARED FOR

Forest Practices Branch,  
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Province of British Columbia

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**February 19, 1999**

Draft 3

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This document is one of seven working papers prepared as background to the preparation of an incremental silviculture strategy for British Columbia.

The working papers are individually subtitled as follows:

- *Working Paper 1: Project Information, References*
- *Working Paper 2: Concepts of Strategy and Planning, Proposed Planning Framework*
- *Working Paper 3: Government's Goals, Proposed Guiding Principles*
- *Working Paper 4: Proposed Log Quality Framework, Timber Supply and Demand*
- *Working Paper 5: Proposed Financial and Socio-economic Analysis Framework*
- *Working Paper 6: Summary of TSA Basic Data*
- *Working Paper 7: Review of TSA Issues and Planning Processes*

This working paper covers two topics:

## Concepts of Strategy and Planning

- introduces the subject of strategic planning, its history and what are now considered its failures;
- describes current concepts of strategy and planning;
- looks at recent attempts at strategic planning for incremental silviculture in British Columbia over the past two decades; and
- provides some conclusions with respect to incremental silviculture strategy and planning.

## Proposed Planning Framework

sets out a proposed planning framework for incremental silviculture in British Columbia with the following hierarchical structure:

- provincial strategy;
- regional strategy; and
- management unit strategy and planning.

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## 1 CONCEPTS OF STRATEGY AND PLANNING

### 1.1 Introduction

The material in this part is based largely on two sources:

- Henry Mintzberg's book, *The Rise and Fall of Strategic Planning*; and
- an article by Patrick Barwise, *Strategic Investment Decisions and Emergent Strategy*, in the Financial Post series titled *Mastering Management*.

Unless otherwise indicated, page references are to Mintzberg.

#### **Definitions**

Before entering into a review of strategy and planning there is a need to define the terms *plan*, *planning*, *strategy* and *strategic planning*. Mintzberg defines these as follows.

A *plan* is "a direction, a guide or course of action into the future, a path to get from here to there...." (23).

*Planning* is "... a formalized procedure to produce an articulated result, in the form of an integrated system of decisions." (12). To Mintzberg, the key characteristic of planning is its formalization, especially the decompositional nature of the process into a series of articulated steps, each to be carried out as specified in sequence.

A *strategy* is four things. It is:

1. a “**plan**, or something equivalent...” (23);
2. a “**pattern**, that is consistency in behaviour over time.” (23);
3. a “**position**, namely the determination of particular products in particular markets.” (27); and,
4. a “**perspective**, namely an organization’s way of doing things....” (27).

The term *strategic planning* is not so readily defined. Mintzberg first describes and discusses several planning models, mostly based on what he terms to be the “design school model.” This model is based on an analysis of strengths, weaknesses, opportunities and threats and is commonly referred to as the SWOT method. He then discusses three forms of what have been considered to be strategic planning. The first of these he calls conventional strategic planning. This consists of a hierarchical approach where: objectives drive strategies, strategies drive programs, and programs drive actions. Objectives, strategies and programs also drive the budget process, which is off to one side of the planning hierarchy. The second form of strategic planning Mintzberg describes is the two separate hierarchies of budgets and objectives, which he calls the performance control hierarchies. He states that this is “sometimes mistakenly given the name strategic planning” (84). The last form of strategic planning he describes is “capital budgeting, a system to handle the approval of major capital expenditures.” (87)

### ***General History of Strategic Planning***

Strategic planning came into vogue in the 1960’s. The most common form, known as the SWOT method, has a structured analytical methodology, typified by analyzing internal strengths and weakness against outside opportunities and threats. Following a SWOT analysis a strategy is devised which, when approved by top management, is then implemented by line managers.

Many other planning systems also emerged in the 1960s and ‘70s, all having some “strategic” content. Examples are the planning, programming and budgeting system (PPBS) most notably adopted by the United States government; management by objective (MBO); objectives, strategies and tactics (OST) notably adopted by Texas Instruments; gap analysis; strategic business units (SBU); and first in-first out (FIFO) most notably used by General Electric.

By the 1980’s, however, strategic planning had fallen from vogue. Many of the above systems were abandoned by their leading proponents (the next section covers reasons why). The management fashion of the late 1980’s and early 1990’s became operational orientation or control in the form of systems such as total quality management (TQM), re-engineering, quality circles, etc.

### ***The Failures of Traditional Strategic Planning***

Mintzberg and Barwise each make the case that virtually all of the planning systems initiated over the past several decades have been abandoned, at least insofar as strategic planning is concerned. This has sent academics and management researchers searching for the cause. What they found is summed up by Barwise (1997):

This research spans at least 30 years and covers managers from foremen right up to chief executives, in several countries and many industries. There can be no serious doubt to-

day that the way managers spend their time differs radically from the assumptions of the textbook model of top-down analysis, planning, implementation and control as clear separate activities.

The following sections look at this and some of the other problems encountered in traditional strategic planning.

### .. Limitations of 'Hard' Information

One of the causes for the failure of strategic planning Mintzberg found was that hard information provided by formal management systems has the following limitations:

1. Hard information is often limited in scope, lacking richness and often failing to encompass important noneconomic and non-quantitative factors. (259)
2. Much hard information is too aggregated for effective use in strategy making. (261)
3. Much hard information arrives too late to be of use in strategy making. (263)
4. Finally, a surprising amount of hard information is unreliable. (264)

To overcome these limitations he found that "... managers of every sort rely primarily on oral forms of communication, on the order of about 80 percent of their time...." (1994:258)

### .. Failure of Forecasting

Mintzberg finds that a fundamental fallacy of strategic planning is the belief that the future can be forecast. He cites several studies which found forecasts to be "notoriously inaccurate." Apart from the basic fact that the future cannot be known, forecasting cannot possibly predict one-time events, or discontinuities, such as "...technological innovations, price increases, shifts in consumer attitudes, government legislation..." (231) He finds simple extrapolation of current trends to have been accurate only in periods of stability, such as that enjoyed in the 1960's. "To produce an accurate forecast under conditions of stability, the forecaster has merely to conclude that the future will be just like the past." (236) However, in times of instability extrapolation is not longer useful. "An environment may be stable for years, even decades, and then suddenly go all to hell; then planners have to stop extrapolating." (238)

Another approach is that of scenario building. Mintzberg finds the two problems with this approach are first, deciding how many scenarios to build, and second, what to do once several scenarios have been built. (248-249) He concludes, "All things considered, the probabilities of getting everything right in scenario building do not seem to be high...." (251)

Michael Hammer, originator of the concepts of 'reengineering' and 'process centering,' reaches similar conclusions. He states, "Perhaps the most startling notion that arises from process-centered planning is the suggestion that long-range forecasting is a waste of time." Further, he states "*In our age of relentless change, however, it is becoming increasingly clear that the best strategy is not one that tries to divine the future but one that responds rapidly to the present.*" (1996:203 - emphasis added)

### .. Fallacy of Detachment From Operations

Another of Mintzberg's fundamental fallacies of strategic planning is that of detachment of strategic management from operating management. He claims that:

Effective strategists are not people who abstract themselves from the daily detail but quite the opposite: they are the ones who *immerse* themselves in it, while being able to extract the *strategic messages* from it. Perceiving the forest from the trees is not the right metaphor at all, therefore, because opportunities tend to be hidden under the leaves. (256)

It is not the planners but the line managers who are in touch with soft information, as they have “personal access to the sources of the information – the customers, the factories, the government officials. In general it is the line managers who have that access, by virtue of their formal authority.” (267)

### **Fallacy of Formalization**

Mintzberg claims another fallacy of planning to be that the strategy formation process can be formalized, that is, that innovation can be institutionalized.

Creativity, by its very nature, creates categories, or rearranges established ones. That is why formal planning can neither provide creativity nor deal with it when it emerges by other means. And that is why the entrepreneurial types fought the systems at [Texas Instruments] and [General Electric], why innovation was never institutionalized.

Indeed, the imperative “be creative” or “think boldly” reflects exactly the same problem: creativity becomes an isolated step, another box on a chart. Imagine managers sitting around a table having to “think boldly.” What better way to suppress it! If we have learned anything at all about creativity, it is that it cannot happen in isolation or on schedule, let alone on demand (any more than can strategy formation, the best of it being just a form of creativity in any event). (299-300)

### **Failure of Implementation**

The last major reason cited by researchers for the failure of strategic planning has been the failure of implementation.

Mintzberg describes this as “...the great divide in planning: how to cross from performance controls on one side to action plans on the other, or vice versa – how to link general objectives and/or budgets to tangible strategies and/ or programs.” (80)

Hammer also concludes that a fundamental flaw of strategic planning was a disregard for implementation and a lack of action plans (1996:193-4).

## **1.2 Current Concepts**

From the preceding section it is clear that there is a widespread belief amongst researchers and academics that ‘traditional’ strategic planning has failed. This section introduces some of the current concepts regarding strategy making, strategic programming and planning systems in general.

## How Strategies are Formed

Mintzberg holds that strategy is *formed* rather than *formulated*, because strategies “can form without being formulated.” (26). He finds that “The real world inevitably involves some thinking ahead of time as well as some adaptation en route.” (24) Thus arises his concept of *emergent strategy*. Barwise summarizes Mintzberg’s view as:

Some intended (i.e. planned) strategy is not realized. The part that is realized is called deliberate strategy. Much realized strategy emerges from events that were not part of the intended strategy. This is called emergent strategy. Realized strategy is a varying combination of deliberate and emergent.

Mintzberg states,

...few, if any, strategies can be purely deliberate, and few can be purely emergent. One suggests no learning, the other, no control. All real-world strategies need to mix these in some way – to attempt to control without stopping the learning process. Organizations, for example, often pursue what may be called *umbrella* strategies: the broad outlines are deliberate while the details are allowed to emerge within them. (25)

Mintzberg finds “...that ‘strategic planning’ cannot be synonymous with strategy formation...” (29) and indeed that “Ultimately, the term ‘strategic planning’ has proved to be an oxymoron.” (321) This is because planning is about analysis, breaking things down into their constituent elements, while strategy is about synthesis, bringing elements together.

Barwise supports Mintzberg’s conclusions, stating “...few today believe that these [traditional techniques of strategy analysis] can really be used by a small group of people at the top of a large, complex corporation to develop detailed strategies and plans for everyone else to implement.” He goes on to state, “In a fast-changing environment, successful strategies tend to emerge from a series of decisions, often initiated by mid-level managers close to markets and technologies. There may well be no detailed written strategy at all...” He suggests that *strategic investment decisions*, or SIDs, “have a central role in emergent strategy.”<sup>1</sup>

Barwise also reinforces Mintzberg’s contention that a strategy is a “pattern – consistency in a stream of actions over time. This pattern can only be seen after the event and may be either intended or unintended.”

## Soft Analysis

Mintzberg feels there is a place for both ‘hard’ and ‘soft’ analysis.

Soft analysis suggests an approach in which it is more important to pose the right question than to find the precise answer, to incorporate an appreciation for soft data alongside the necessary analysis of hard data. Judgment takes the place alongside formal procedures, and a mutual understanding is allowed to develop between staff planner and line manager, as analysis becomes “a continuing dialogue rather than a one-shot service” (Whitehead, 1967:57). Soft analysis forgets about optimization, accepts the absence of

<sup>1</sup> The concept of SIDS is not pursued further. Linking strategy to budgets is not a part of the project terms of reference.

sharply defined goals, downplays elegance in technique. .... It depends on people comfortable with numbers but not obsessed with them, capable analytic types who also have intuitive skills and are not shy about using them, people from a range of backgrounds who can open up issues instead of closing them down prematurely. (332)

## **Strategic Programming**

Mintzberg redefines what most would traditionally consider to be ‘planning’ as ‘strategic programming.’ He describes the role, process, and conditions for strategic programming as follows:

### **Role**

“Organizations engage in formal planning, not to create strategies but to program the strategies they already have, that is, to elaborate and operationalize their consequences formally. ... Thus, strategy is not the consequence of planning but the opposite: its starting point. Planning helps to translate intended strategies into realized ones, by taking the first step that can lead to effective implementation. We present this not as our first role for planning but as the only one.” (333)

### **Process**

Strategic programming has three steps: “the codification of given strategy, including its clarification and articulation; the elaboration of that strategy into substrategies, ad hoc programs, and action plans of various kinds; and the conversion of those substrategies, programs, and plans into routine budgets and objectives.” (336)

### **Conditions For**

Strategic programming is best applied under certain conditions (346-349). These are:

- a stable environment; and
- a simple organization, with
  - tightly coupled operations (for example, an assembly line of a hundred workers producing barber chairs), and
  - elaborated structure, that is, an organization that itself can be decomposed – into a system of subunits and these into positions at different levels, and ultimately into specific tasks, over which can be laid the action plans.

Facilitating conditions for strategic programming are:

- capital intensity;
- large size;
- a mature industry; and
- external control (i.e., an external influencer with the power and intent to control an organization from the outside).

## **The Roles of Plans**

Plans, according to Mintzberg, serve two roles: as communications media and as control devices. “These ‘roles’ for plans are, of course, ‘reasons’ for planning.” (352) “Plans, as they emerge from strategic programming as programs, schedules, budgets, and so on, can be prime media to communicate not just strategic intentions but also what each individual in the organization must do to realize them ....” (352)

The following quotes from Mintzberg are relevant to the role of plans as control mechanisms:

“The substantive purpose of strategic programming is to exercise deliberate control – to predetermine behavior, by dictating what people must do to realize a given intended strategy.” (354)

...there exists a whole set of games played around the exercise of planning itself as a device for control: investors who expect planning from companies going to public financial markets, governments that demand it of the public hospitals they fund, and so on. (356)

Add a feed back loop at the end of the planning cycle to assess the results of the plans, and strategic programming becomes strategic control. (357)

However, Mintzberg finds there is more to strategic control than just a simple feedback loop. This is because of the effect of emergent strategy.

Thus we characterize strategic control as a two-step process. The first requires the tracking of realized strategies, as patterns in streams of actions, to consider the deliberate realization of intended strategies as well as the emergence of unintended ones. The second step then considers, in a more traditional control manner, how effective for the organization were the strategies that were actually realized. (359)

## **The Roles of Planners**

Mintzberg contends that planners have three roles: finders of strategy, analysts and catalysts.

### **Finders of Strategy**

An organization’s strategy may come down from above or form from below. To quote Mintzberg, “The popular view in strategic management...is that such strategies come straight from senior management, which offers them to the planners as sets of full-blown intentions all ready for programming. The evidence of all the careful research, however, is that strategies are not always forthcoming on silver platters, ready to be operationalized.” (364) “Important clues might also be found at their own doorsteps, hidden in experiments taking place in obscure corners of their own organizations, provided they are prepared to dig deep for them.” (365)

### **Analysts**

The second role for planners, in Mintzberg’s view, is that of analysts. “Every one of the intense probes into what planners actually do suggests that the effective ones spend a good deal of time, not so much doing or even encouraging planning, as carrying out analyses of specific issues to be fed into the strategy making process on an ad hoc basis.” (367)

*Mintzberg stresses that analyses must be ad hoc to be effective.* “To draw on our earlier conclusions, regularity in the planning process can interfere with strategic thinking, breeding a lethargy that can cause managers to miss important discontinuities. In contrast, ad hoc analytical inputs can stimulate reflection and so breed responsiveness.” (369) In his view, such reports must be timely, preferring the “quick and dirty” to those having elegant techniques and requiring long start-up times and data that are not readily available.

There are “three types of strategic analysis – environmental (external) studies, organizational (internal) studies, and strategy scrutinizing studies (the latter concerned with decisional choice after the intended strategies have been conceived).” (373) With regard to external studies, Mintzberg states,

While we have not been optimistic about the harder techniques of forecasting, we do believe that some of the softer ones, such as scenario building, may be of use, especially when conducted by astute analysts in a descriptive way, by which we mean not to predict, but simply to interpret and clarify for managers what seems to be going on out there. Much as planners can study and interpret patterns in the organization’s own behaviour to identify its emergent strategies, so too can they study and interpret patterns in the external environment to identify possible strategic opportunities and threats (including, as already noted, the patterns in competitors’ actions in order to identify their strategies). (375)

Mintzberg finds that internal strategic analysis is useful because “...while organizations may have to fall back on the intuitive mind for synthesis, certain kinds of analysis may be better done, or at least aided, by the systematic efforts of nonmanagers.” (376) Mintzberg stresses that all managers have a “mental map” in their heads and that an important role of planners can be to help managers better understand this map or to change their mental models.

...every manager models in his or her head all kinds of phenomena with which he or she must deal (for example, the response of the factory to customer pressures, or the flow of decisions through the organization’s structure). We find ... that some of these can be articulated clearly and easily while others remain locked deep in the mind’s subconscious. Planners who wish to propose alternate, more formal models or conceptual theories to managers must be aware of these informal models, and consider their strengths (such as their ability to draw on privileged tacit knowledge) alongside their weaknesses (such as being based on a narrow range of experience). (377-378)

Scrutinization is the process of assessing the viability of strategies. As “strategies can appear at all kinds of odd times.... Some strategies may be developed by managers on a speculative basis, others borrowed from competitors, still others uncovered as emerging patterns in the tracking of the organization’s own action streams. Each strategy has to be considered on its own merits and in its own time, as well as compared to others.” (379) “A clear intended strategy emanating from the executive suite on schedule should no more be automatically accepted as good than should a vague emergent one growing peripherally in the depths of the organization be automatically dismissed as bad.” (380)

### **Catalysts**

Mintzberg believes that planners “should be promoting, not necessarily formalized procedure to produce articulated result so much as future thinking in its broadest sense.” (381) He supports the “notion of play”, quoting another source which describes this as “The planning group’s task in play

is not to confront executives directly, but to create a triangular relationship between the planners, the executives, and the future. Sometimes the planner will interact with the future, in such a way that the executive sees that future differently. Sometimes the planner will interact with the executives, to help them disentangle inhibiting power relationships. But the planners' long-term mandate is to improve the interaction between the executives and the future." (382-383)

It is in this context that Mintzberg reintroduces the role of formalization, which he describes earlier in his book as one of planning's fallacies. "In the messy world of management, things can fall between the cracks. Agenda items can be forgotten, deadlines can be missed, hard data can be overlooked. ... Part of the catalyst role, therefore, can be to introduce some degree of formalization to avoid these problems, but only enough to avoid impeding the natural flow of the process itself. Formalization can pertain to time, to location, to participation, to agenda, and to information, as well as, but with only the greatest of care, to process itself." (384)

With respect to the idea of a strategy retreat, Mintzberg contends that "There is no special time or place to make strategy. But organizations ripe for change sometimes find such retreats critical for the crystallization of the necessary consensus." (385)

### ***Different Organizations Have Different Planning Needs***

Mintzberg describes seven different forms of organization and then considers within each the "various postures that planning, plans and planners might take under different circumstances." (397) Unfortunately, although one of these is termed the "political" organization, the description of the role of planning and planners is not well developed. Suffice to say that it is important to recognize that the roles must be suited to the organization.

## **1.3 Past Strategic Planning for Incremental Silviculture in BC.**

Over the past decade, the Ministry of Forests has made several attempts at developing a silviculture strategy. None have resulted in an adopted plan. Briefly, these attempts were:

- |  |  |
|--|--|
| <b>1987 Silviculture Review</b>                    | The Minister of Forests called for a silviculture review to determine, among other things, how well the province was allocating its funding for silviculture. As part of the review a strategic planning framework was proposed (Price Waterhouse, 1987). Before the review was completed, however, the government initiated major policy changes, the most important of which was the shifting of the responsibility for basic silviculture to the private sector. Because of the policy changes the review was considered no longer necessary and was abandoned. |
| <b>1990 - 1991 Towards a Silviculture Strategy</b> | In an attempt to develop a silviculture strategy, the Ministry of Forests issued two discussion papers on the topic. This first paper  |

suggested a strategic goal of doubling the provincial mean annual increment from 2.5 to 5.0 cubic metres/ha/year by the year 2020 (BC MoF 1990a:3). The paper posed many related questions and requested responses from all interested parties. The second discussion paper summarized the responses received and proposed the strategic goal: "To enhance the productivity of timber and other natural resources of Crown forests through the application of appropriate silviculture treatments." (BC MoF 1991a:2) This "goal" was never formally adopted and has had no impact as an incremental silviculture strategy.

#### **1996 Internal MOF Initiative**

The Ministry of Forests made an internal proposal in 1996 to undertake the development of an incremental silviculture strategy. This proposal did not receive the necessary ministry executive support and has not proceeded.

Clearly, formal strategic planning processes for incremental silviculture have met with little success over the past eleven years. However, as this paper will show later, this does not mean that strategies have not existed, simply that they have gone largely undocumented.

## **1.4 Conclusions With Respect to Incremental Silviculture**

The preceding review of strategic planning leads to the following conclusions with respect to incremental silviculture strategy and planning in British Columbia.

#### **Do We Need a Strategy?**

1. Management literature indicates that in all likelihood a strategy for incremental silviculture already exists. The question therefore, is not so much 'Do we need a strategy?' as 'What is the strategy?' Implicit and explicit government goals and strategies can be determined by analyzing the pattern of decisions and actions taken by government(s).
2. Following from the previous point, a traditional process of strategic planning, that is, attempting to get government approval following an in-depth analysis process, is not appropriate. Government forms strategy based on a variety of factors such as the ideology of the party in power, public sentiment, the ability of government to pay, re-election strategy, etc. Changes in strategy occur when politically appropriate. They are not likely to occur in response to or at the culmination of a formalized strategic planning process.

#### **Strategic Programming**

3. Strategic programming has three steps: the documentation of given strategy; elaboration of the strategy into substrategies, programs and action plans; and the conversion of these into routine budgets and objectives.

4. Incremental silviculture in British Columbia is an ideal candidate for strategic programming. The sole difficulty may be the confusion over an elaborated structure, given the tripartite roles of the forest industry, the Ministry of Forests and Forest Renewal BC in the delivery structure.<sup>2</sup>
5. Once existing strategy is 'found', it can be programmed to ensure its implementation. A series of sub-strategies will be required, first at provincial and then at regional levels. Such sub-strategies should be oriented to establishing the desired *patterns* of activities.
6. The combination of an umbrella government strategy and provincial level ministry/FRBC sub-strategies will guide management unit level strategies. Strategic programs and plans should be initiated at the management unit level.

#### Analysis and Forecasting

7. A series of ad hoc strategic analyses would be useful to assist in informed decision-making and may influence both deliberate and emergent strategy. It is appropriate for the ministry to maintain a certain level of preparedness in order to respond to a government wanting to initiate change. The ministry should also be a chief supplier of strategic information to government and should provide feedback and analysis to government on its goals and strategies.
8. Forecasts are only useful in stable environments.
9. The development and analysis of a number of possible future scenarios may offer a slightly better chance than forecasting of 'getting it right.' This may be useful as an ad hoc strategic analysis project.

#### Roles of Operational Managers

10. Emergent strategy often comes in the form of a series of incremental decisions by operational/line managers. Emergent strategy therefore will often (but not always) come from field operations and tend to first be displayed in management unit strategies.

#### Strategic Control

11. One of the values of a plan and planning process is the measure of control and structure that it provides for programming and budgeting (a joint MOF/FRBC function).
12. The feedback loop and evaluation of strategy effectiveness will ultimately be measured (with respect to the timber resource) as increased value over time. Value is a factor of both quantity and quality. Ultimately, therefore, there must be effective means of capturing the result, both through allowable harvest levels, as well as capturing the value return following harvest (through stumpage) and manufacture (through taxation).<sup>3</sup>

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<sup>2</sup> See "Strategic Programming - Conditions For," page 6, for a definition of an 'elaborated structure'.

<sup>3</sup> This matter is not pursued further as it is beyond the terms of reference for this project.

## 2 A PROPOSED PLANNING FRAMEWORK

### 2.1 Introduction & Overview

The proposed planning framework has three basic elements: goals, strategies and plans.

*Goals* are strategies at the highest level. They are usually umbrella strategies established by government.

*Strategies* and *sub-strategies* are formulated to attain the goals. While strategies may come from either government or the ministry, substrategies are usually of ministry origin. Goals and strategies are largely top-down in nature, but they are founded in and respond to information coming from lower levels.

*Plans* state the concrete actions to achieve the goals and strategies. Detailed planning is most appropriate at the management unit level. Regional and provincial plans are largely amalgamations of management unit plans. (Given the tripartite structure associated with the planning and delivery of incremental silviculture on Crown forest land (i.e., MOF, FRBC, and the forest industry) the preparation and adoption of incremental silviculture plans are not exclusively a ministry domain.)

The overall planning framework is iterative-hierarchical. The ministry (in consultation with others) first develops an initial provincial level strategy. It then adapts this strategy to the forest regions. The provincial and regional strategies then guide the development of a first set of management unit strategies.

After the ministry has developed management unit strategies, it sums them to regional and provincial levels and compares the sums with the initial strategies. In this way, as the realities at the management unit level become more understood through planning at that level, they in turn will influence regional and provincial strategies. If necessary, the ministry makes adjustments so that all strategies are synchronized.

In theory, the ministry would undertake as many iterations of this process as necessary. In practice, it will take a long time just to develop an initial set of strategies across all levels. Consequently, there is likely to be a looser association and linkage between planning levels than the above process would indicate.

The planning framework to follow is intended to function in concert with the financial and socio-economic analysis framework contained in Working Paper 5.

## 2.2 Provincial Strategy

### Overview

This report concludes earlier that British Columbia likely already has a strategy for incremental silviculture (see “1.4 Conclusions With Respect to Incremental Silviculture,” page 10). Furthermore, it concludes that undertaking a formal strategic planning process for incremental silviculture is inappropriate. Given these findings, the proposed role of the Ministry of Forests at the provincial level is to:

1. “find” and document existing government strategy;
2. “scrutinize” the strategy, providing feedback to government on its appropriateness and effectiveness;
3. “program” the strategy by developing any necessary additional strategies and sub-strategies, including the guiding principles underlying the strategy;
4. undertake stakeholder and environmental reviews as appropriate;
5. undertake ad hoc strategic analyses to assist government in future strategy formation;
6. scan for emergent strategy, updating the documented strategy as necessary; and
7. collate, assess and monitor regional strategies and plans.

The following sections expand upon how this role should be undertaken.

### Roles

#### Finding and Documenting Existing Strategy

The methodology for finding and documenting existing government strategy can be simple or complex.

In the simple method, the ministry can determine implicit and explicit government strategies by analyzing the pattern of decisions and actions taken by government. Governments will sometimes make explicit statements of strategy. At other times strategy will be implicit through the nature of the decisions taken.<sup>4</sup> Once a number of decisions are made on the same or like matters, a pattern will emerge. At the root of this pattern is the implicit strategy. The methodology for analysis is relatively simple – gather all related government announcements and decisions and look for the patterns in them.

According to Brumelle et al, a more complex method of finding government strategy is to use formal mechanisms “to help participants develop hierarchies of objectives that satisfy the desirable properties [i.e. complete, operational, decomposable, nonredundant, and minimal]. ... Methods for bringing hidden assumptions into view that may not be explicitly recognized can also be of use in identifying objectives. Exercises that ask panel members to rank alternative silvicultural invest-

<sup>4</sup> Brumelle et al (1991:836) state, “Using past choices to infer important objectives is based on the economic concept of revealed preference, namely that people reveal their true preferences through their actions. A careful examination of past silvicultural investment choices which were accepted or rejected sometimes reveals objectives that go unstated in the public forum.”

ment opportunities can serve this purpose when they include a panel discussion of the reasons underlying the rankings.” Prospective panel members include “...members of the provincial government (Premier, Cabinet, other politicians, policy makers, bureaucrats, and technical analysts), members of forest industry associations, members of private forest product firms, citizen groups, environmental groups, labour groups, and university-based silvicultural research groups such as FEPA....” (1991:836-7)

Brumelle et al conclude, “Using written documents to identify objectives can be useful when decision makers are unwilling or unable to reveal their decision-making objectives. However, such documents usually reveal objectives at only the highest level of decision making and they do not include important objectives that may be part of hidden agendas. Casual empiricism and inferring objectives from past choices also tend to identify only the most important objectives and are not systematic enough to identify the entire goal hierarchy.” For full analysis Brumelle et al recommend “using panels for identifying hierarchies of objectives.” (1991:837)

To conclude this discussion, the simple research method rather than the formal panel method is recommended. The interest here lies in establishing only the highest level strategies, which Brumelle et al concede can largely be found through research. Also, Mintzberg found formalized approaches to pose many difficulties and to have generally failed.

Because there is some latitude in the manner in which the ministry documents government strategy, it is best that it be done in the form of an umbrella strategy. This allows more flexibility to incorporate emergent strategy, allows the ministry and FRBC the latitude to develop appropriate sub-strategies, and is more robust because it can accommodate a wide spectrum of possible futures.

### **.. Scrutinizing Strategy**

While government may unilaterally choose a course of action (for example, the 1987 decision to make basic silviculture the responsibility of forest companies, or the 1994 decision on introducing a forest practices code) it generally looks to the ministry for implementation. At this point, the ministry has a role in scrutinizing the strategy, using its expertise to provide feedback to government on how the strategy may best be expressed and implemented.

### **.. Programming Sub-strategies**

One of the most important roles of the ministry in terms of provincial level strategy is the development of the necessary additional strategies and sub-strategies to implement government’s goals. These should be oriented to establishing the desired *patterns* of activities.

For example, from the guiding principles and from the actions of government, it is evident that government has a goal of sustainable use of the forest resource. Strategies and sub-strategies, together with a working framework to further refine this goal are required.

### **.. Strategic Analyses**

A series of ad hoc strategic analyses would assist in informed decision-making and may influence both deliberate and emergent strategy. It is appropriate for the ministry to maintain a certain level of preparedness in order to respond to a government wanting to initiate change. Examples of possible strategic analyses include:

1. forecasting future timber supply and demand;

2. an in-depth look at trends in timber supply in British Columbia;
3. opportunities studies;
4. strategic conferences; or
5. international/competitor studies.

### **.. Capturing Emergent Strategy**

As was found earlier, strategies often “emerge” through a series of decisions or incremental actions. Furthermore, they are as likely to come from below as they are from above. The ministry should periodically scan the patterns and actions of government, industry, and of itself to identify and document emerging strategies.

### **.. Collating, Assessing and Monitoring**

In addition to developing necessary strategies and sub-strategies, strategic programming at the provincial level includes preparing plans and programs. The ministry would largely develop these from below, however, by adding up the plans of the six regions, which are in turn themselves the sum of their management unit plans. (This may be a joint MOF / FRBC function.)

### **.. Conducting Stakeholder and Environmental Reviews**

There are many potential stakeholders in an incremental silviculture strategy. The largest and most obvious of these are FRBC and the forest industry, whom the ministry should definitely consult with prior to final adoption of a strategy. Environmental groups, First Nations organizations, and other resource users such as ranchers, trappers, big game outfitters, etc. are also stakeholders, but possibly more so at the management unit level where definitive plans are formed. Nevertheless, the ministry should consider the need for broader consultation at the provincial level than just FRBC and the forest industry.

A large incremental silviculture program can have substantial environmental impacts. For example, implementation of a large scale forest fertilization program consisting of multiple fertilization treatments over extensive areas could have environmental implications well beyond that of just improving tree growth. These may warrant ministry examination through a high level environmental assessment. If a large scale fertilization program proves unacceptable, the ministry may have to find other means of achieving the strategy or may have to change the strategy.

## ***Executive Approval***

Executive approval of the documented strategy, as well as of sub-strategies, is the final step of the provincial level strategy process. The focus of executive approval is how well the strategy fulfills the ministry’s regulatory mandates to “encourage maximum productivity of the forest and range resources in the Province” and “manage, protect and conserve the forest and range resources of the Crown, having regard to the immediate and long term economic and social benefits they may confer on the Province.” (British Columbia, 1996c)

The executive is not called upon to approve the goals, which are the domain of government, but rather that the goals have been appropriately captured and documented. It is the ministry executive that, by virtue of its line authority and interaction with government ministers and cabinet, has

the best “feel” for intended government goals and the suitability of ministry strategies towards achieving them.

In a similar vein, the ministry executive may not be called upon to singularly approve the plans and programs to achieve the strategies. This is because the majority of incremental silviculture funding is now through FRBC. Ministry executive, however, may review the appropriateness of plans and programs towards achieving the strategy.

## 2.3 Regional Strategy

### Overview

The role of the forest regions in the development of regional strategy is to:

1. adapt provincial strategy to the region, including developing any necessary additional sub-strategies;
2. undertake stakeholder and environmental reviews as appropriate;
3. undertake ad hoc regional strategic analyses;
4. provide assistance to districts in the preparation of management unit strategies; and
5. collate, assess and monitor management unit strategies and plans.

The following subsections expand upon how regions would undertake this proposed role.

### Roles

#### **Adapting Provincial Strategy to the Region**

An important role of regions is to provide guidance on how the provincial strategy is best implemented within the region. Regions have the necessary specialized knowledge about treatment costs, operational factors, growth and yield, markets, distance to markets, social acceptance of certain forms of treatments, etc., within the region.

The process of adapting the provincial strategy to the region is not a sophisticated one. It is simply a matter of evaluating the provincial strategy, applying the knowledge of regional factors and giving appropriate guidance or direction.

#### **Undertake Stakeholder and Environmental Reviews**

Certain stakeholder and environmental reviews may be more appropriate at the regional level than the provincial level. A particular issue may exist only in one region, or certain issues might be better addressed through a regionalized approach, as opposed to a broad provincial overview.

### **Regional Strategic Analyses**

Similar to that at the provincial level, regions have a role in undertaking ad hoc strategic analyses to assist government in the development of future strategy and to assist in the adaptation of provincial strategy to the region.

### **Provide Assistance to Districts**

Some forest districts may not have the staff capability to undertake the necessary management unit analysis and planning. In such cases, the region may provide assistance or undertake the entire task on behalf of the district manager.

### **Collate, Assess and Monitor**

Strategic programming takes place primarily at the management unit level. Regions have a role to collate, assess and monitor management unit strategies and plans. Usually this role is fulfilled through the planning and budgeting process which is now, in large part, undertaken by FRBC. Inspection and monitoring is also addressed through the ministry quality assurance program. Therefore, this report does not further detail this aspect of the incremental silviculture planning process.

## ***Regional Management Approval***

Additional sub-substrategies at the regional level should have regional management approval. As at the executive level, it is regional management which has the line responsibility as well as the access to local politicians, local governments, ministry executive, and forest industry associations. Therefore, they are in the best position to account for soft factors which may not be available to regional planners.

## **2.4 Management Unit Strategy and Planning**

### ***Introduction and Overview***

The development of a management unit strategy is an extensive process summarized in Figure 1.

Management unit strategies are critical to an incremental silviculture strategy. The Chief Forester emphasizes this in his presentation *The Truth is Out There* (Pedersen, 1997). Without definitive strategies there will be no focus to silvicultural efforts nor confirmation of the attainability of the provincial strategy. The largest impediments to furtherance of an incremental silviculture strategy for British Columbia are the lack of modelling tools, the lack of experienced planning personnel in remote districts, and the absence of funding for the development of management unit strategies.

The following process and procedures are oriented to development of incremental silviculture strategies in TSA's. They assume the Ministry of Forests will lead the process, in cooperation with key stakeholders such as forest licensees and FRBC. It is possible, however, that the ministry could equally exercise its regulatory mandate by requiring licensees and/or FRBC to develop a strategy for its approval. This may be appropriate, for instance, where there are innovative forest

practices agreements, for which no special considerations are made below. Were the ministry to adopt this alternate approach, it could recommend the following process as the standard or preferred methodology.

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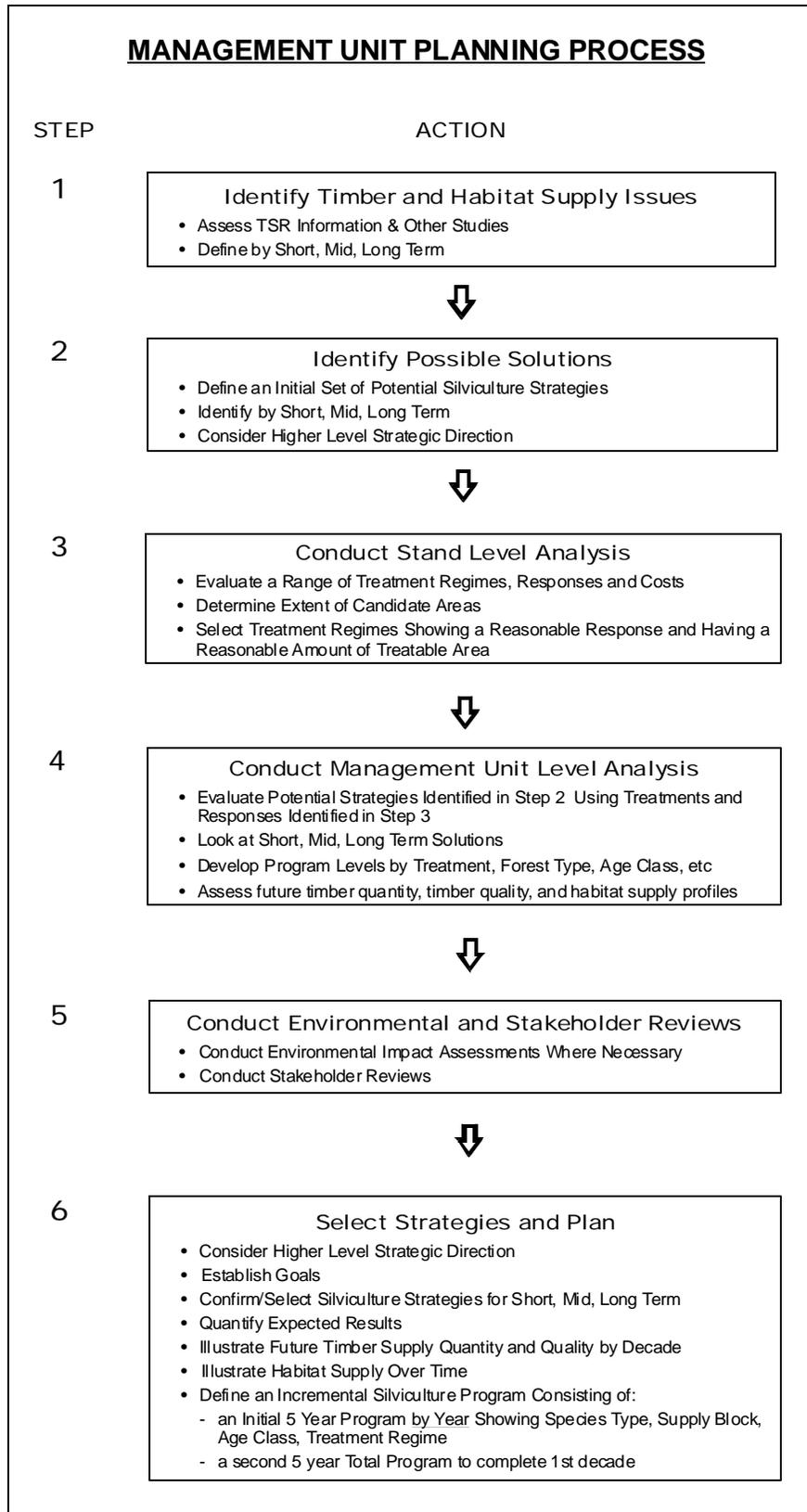


Figure 1. Proposed Management Unit Planning Process

While in some areas forest companies and the Ministry of Forests are already doing so, on the whole more attention needs to be directed to the role of silvicultural systems and incremental silviculture in forest habitat management. Management unit modeling systems must be capable of defining landscapes and of tracking habitat classes over time within them.

The following sections expand upon each step in Figure 1 from a Ministry of Forests planning perspective. Extracts from the Arrowsmith TSA section of *Working Paper 7: Review of Issues and Planning Processes*<sup>5</sup> are used to illustrate the process. Because processes for modelling habitat supply are not well-developed, details in this regard are lacking in the description of some of the steps. Landscape level planning, although not directly addressed, is implicit throughout the management unit planning process.

### **Step 1: Identify Timber and Habitat Supply Issues**

The first step in the process is to identify the issues affecting timber supply and habitat management.

#### **Timber Supply Issues**

For timber supply, the primary source of information is the Timber Supply Review reports for each management unit. Of importance are not only the issues, but also the sensitivity of an individual management unit's timber supply to each issue. Following are the issues each timber supply review commonly addresses.

1. harvest forecast
2. age class structure
3. forest cover constraints
4. NSR
5. quality (indirectly)
6. older forests
7. minimum harvest ages
8. silvicultural systems
9. estimates of existing and regenerated stand timber volumes

Following the review of individual issues, planners should prepare a summary statement of timber supply issues. This summary should separately address the short,<sup>6</sup> mid,<sup>7</sup> and long term.<sup>8</sup> The following summary from the Arrowsmith TSA is an example.

<sup>5</sup> The South Island Forest District which has responsibility for the Arrowsmith TSA, has since developed a more comprehensive interim incremental silviculture strategy, using Working Paper 7 as the starting point. The quotes for the Arrowsmith used here, although now outdated, still serve the intended illustration purpose.

<sup>6</sup> The **Short term** is the next 20 years.

<sup>7</sup> The **Mid term** is the period of transition between the short and long terms, and will vary by management unit. It starts 21 years from now (after the end of the short term), and ends as long as 150 years from now (generally the longest time before the long term is reached). If the long term is achieved before 21 years from now, there is no mid term.

### Short Term

A lack of available older stands makes the short term harvest level highly sensitive to green-up ages and/or forest cover constraints. The fact that short term volumes must also come from poorer sites exacerbates the problem. This is because harvesting a given volume of timber from them requires a greater area than from better sites having higher volumes per hectare.

The 2<sup>nd</sup> decade harvest is limited by reversion of timber licences into the TSA. These constitute 5% of the long term THLB. These areas do not contribute volume under the AAC when harvested, but, when reverted, add to the area not greened up, thereby affecting adjacency.

### Mid Term

Although there is a good distribution of younger age classes, there is a mid term shortfall in harvest levels before rising to the long term harvest level. A number of factors cause this. There is a shortage of stands currently aged 81 to 140 years. Existing immature stands aged 21+ are considered unmanaged, therefore having lower yields per hectare. This is reflected by applying VDYP yields. In contrast, regenerated stands are considered to be fully managed, thus having higher yields as reflected through the application of TIPSYP yields.

The timber supply shortage in decades 10 to 15 is also affected by:

- forest cover constraints in the visual quality zones;
- there being insufficient 2<sup>nd</sup> growth timber in the IRM and modification visual quality zones; and
- the fact that at this time approximately one-half of the THLB is of poor site quality where stands have relatively old minimum harvest ages and low volumes/ha.

### Long Term

The long term is sensitive to changes in green-up ages and in long term yields. The sensitivity to changes in regenerated volumes is virtually on a 1:1 ratio; for every 1% increase or decrease in regenerated volumes there is a corresponding 1% increase or decrease in the LTHL.

Long term yields in Douglas-fir are affected by root rot. Approximately 37% of the TSA is comprised of stands having this as the primary species and for which yields have been reduced an additional 12% to account for losses to root rot. (This reduction has been implemented by increasing the TIPSYP OAF2 factor from the normal 5% to 16.9%.)

### Future

Future factors to be considered in determining an incremental silviculture program include:

- further reductions in land base resulting from implementation of the Vancouver Island Land Use Plan;
- the implementation of biodiversity and old growth plans, particularly affecting the eastern portion of the TSA which has very little current old growth.

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<sup>8</sup> The **Long term** begins when timber supplies are forecast to reach the steady long term harvest level, and will vary by management unit. The long term usually commences 51 to 151 years from now.

## Habitat Supply Issues

Although in some cases managing habitat for individual species cannot be ignored, the fundamental concept of habitat management is not single species orientation; rather, the focus is on maintaining a mosaic of habitats across a landscape to enable plant and animal populations to survive in an integrated way. In the absence of adequate habitat data, forest cover data is often used as a surrogate measure. For example, in Idaho, Boise Cascade defines thirteen growth stages in forest structure and tracks changes in these through time. These growth stages are integrated with habitat types to define landscape management units. An ecosystem diversity matrix enables projection of what habitat changes can be expected to occur over time.<sup>9</sup>

There are at least two private domain, computer-based, management unit level models available in BC capable of modeling habitat supply. However, the Ministry of Forests has currently no (or at best very limited) capability in this area. Rather than attempting to develop a methodology here, this is an area recommended for further development.

### ***Step 2: Identify Possible Solutions***

Once the issues are identified the next step is to hypothesize possible solutions. Planners should seek solutions for each of the short, mid and long term issues.

In developing potential solutions, the provincial and regional strategies and substrategies are a prime consideration. It is also advisable to consult key stakeholders at this stage, the most obvious of whom are members of the local forest industry and representatives of Forest Renewal BC.

Step 2 culminates with the setting of potential objectives. Figure 2 is an example of potential objectives for the Arrowsmith TSA.

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<sup>9</sup> Information is from the consultant's notes taken at a conference, *Forest Management Into the Next Century - What Will Make It Work*, Spokane, Washington, November 19 -21, 1997.

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Response Time Frame	Objective/Action	Anticipated Result
◆ Short Term	<ol style="list-style-type: none"> <li>1. Implement more alternative silvicultural systems to overcome adjacency constraints.</li> <li>2. Reduce green-up ages by 5 years by:                             <ul style="list-style-type: none"> <li>• reducing time to regeneration;</li> <li>• using A class seed or better;</li> <li>• using large planting stock;</li> <li>• fertilizing regenerated stands where efficacy is proven.</li> </ul> </li> </ol>	Maintain post TSR AAC into 2 <sup>nd</sup> decade.
◆ Mid Term	<ol style="list-style-type: none"> <li>1. Increase regenerated stand yields 20% and reduce minimum harvest ages by:                             <ul style="list-style-type: none"> <li>• continuing short term program for regenerated stands;</li> <li>• practicing root rot management in Fdc.</li> </ul> </li> <li>2. CT and fertilize older existing immature stands in VQ zones to lift yields from VDYP to TIPSYP levels and to reduce minimum harvest ages.</li> </ol>	Increase harvest: <ol style="list-style-type: none"> <li>1. 12% from increased yields of regenerated stands;</li> <li>2. 10% from reduced min harvest ages.</li> </ol>
◆ Long Term	<ol style="list-style-type: none"> <li>1. Increase regenerated stand yields as above plus implement a void management program to reduce TIPSYP OAF 1 by 5%.</li> </ol>	Increase LTHL by 20%.

Figure 2. Example of Potential Solutions for Timber Supply Issues, Arrowsmith TSA

### Step 3: Conduct Stand Level Analysis of Potential Treatments

The purpose of this step is to identify those treatments or treatment regimes that are appropriate to achieving the solutions identified in the previous step. Viable solutions must show a reasonable response to treatment, and have a reasonable amount of treatable area at reasonable cost. In some forest regions, some or all of this step may be done at the regional level.

#### Analysis of Potential Treatment Regimes

The number of potential treatment regimes is enormous. However local experience and professional judgment can help narrow this to a reasonable initial set for consideration.

Following are just a few examples of treatment regimes that planners are likely to consider. Regimes will vary in accordance with timber species, site productivity, stand density at the time a regime begins (which may be part way through the life of a stand) and biogeoclimatic factors. Also, looking ahead, it is sensible to eliminate at this stage those possible treatments where planners already know there are few candidate areas.

##### Single Treatment Regimes

- Spacing

- Fertilization
- Pruning
- Commercial Thinning
- Backlog Reforestation

#### Combination Treatment Regimes

- Spacing / Fertilization
- Spacing / Pruning / Fertilization
- Commercial Thinning / Fertilization
- Spacing / Commercial Thinning / Fertilization

#### Complex Treatment Regimes

- Multiple Fertilization
- Spacing / 2X Fertilization / Commercial Thin / 2X Fertilization / Final Harvest
- Multiple Lift Pruning / 2X Fertilization / Long Rotation Management

Growth and yield models can aid treatment regime analysis along with associated financial analysis tools, if available. The latest version of WINTIPSY incorporates a financial analysis module and is readily available to Ministry of Forests personnel. However, these tools are not reliable in all circumstances. Where necessary, planners must use professional judgment in the analysis process. Comparison of growth and yield responses produced by other models may be useful. The draft *Stand Density Management Guidebook* (BC MOF, 1997f) contains a comprehensive listing of available models.

With respect to financial analysis, planners must be careful not to eliminate potential treatments or treatment regimes too early in the planning process on the basis of stand level financial analysis. A particular treatment regime, although indicating a negative net present value at the stand level, may be positive at the management unit level due to benefits gained at that level. Furthermore, government strategy often incorporates many 'soft' factors that existing guidelines for financial analysis do not acknowledge. This is discussed in detail in *Working Paper 5: Proposed Financial and Socio-economic Analysis Framework*.

The end result of this step is the selection of a set of valid treatments or treatment regimes that:

1. may potentially address the timber supply issues;
2. indicate a reasonable response at reasonable cost; and
3. are in keeping with provincial and regional strategies.

Planners must be careful to avoid ruling out such potential treatment regimes too early in the process.

### Analysis of Potential Area Available for Treatment

Once planners determine potential treatment regimes, the next step is to determine the extent of candidate stands by querying forest inventory databases. Only those regimes having a reasonable amount of treatable area need be modeled at the management unit level.

The end result of this step will be a set of treatment regimes (together with yield tables) selected for modeling at the management unit level.

#### **Step 4: Conduct Management Unit Level Analysis**

The terms of reference for this project limit its scope to considering the potential of incremental silviculture to affect future timber harvest volumes and quality. This is because the ministry considers this a first step, with the likelihood that it can expand future planning processes to include landscape level habitat management issues. The following processes, therefore, are limited to the defined scope of this project. As noted earlier, processes and models for predicting and analyzing habitat supply are required.

#### **Potential Effects of Incremental Silviculture on Harvest Forecasts**

Incremental silviculture may affect the harvest forecast of a management unit by:

1. freeing standing timber that is otherwise unavailable due to adjacency constraints;
2. freeing standing timber for harvest that is otherwise unavailable due to green-up constraints;
3. shifting harvest from one time period to another;
4. rearranging the schedule of harvests in a fashion that optimizes harvesting and manufacturing processes; and
5. increasing future harvest volumes by increasing the merchantable yield of managed stands.

These and a hypothetical 6<sup>th</sup> effect, the 'allowable cut effect' are discussed in detail in *Working Paper 4: Proposed Log Quality Framework, Timber Supply and Demand*.

It is these effects, then, that are tested by modeling different potential programs of incremental silviculture at the management unit level.

#### **Timber Quality Assessment**

In addition to analyzing the effect of silviculture treatments on harvest volumes, management unit analysis should also assess the effects on the quality of the future resource. To facilitate this evaluation, a quality classification system and a Year 2000 benchmark are proposed in *Working Paper 4: Proposed Log Quality Framework, Timber Supply and Demand*. Figure 3 below is a hypothetical example of a fibre supply profile over time.

Planners will have to deal with current data limitations through assumptions until better information is available (particularly with respect to growth and yield).

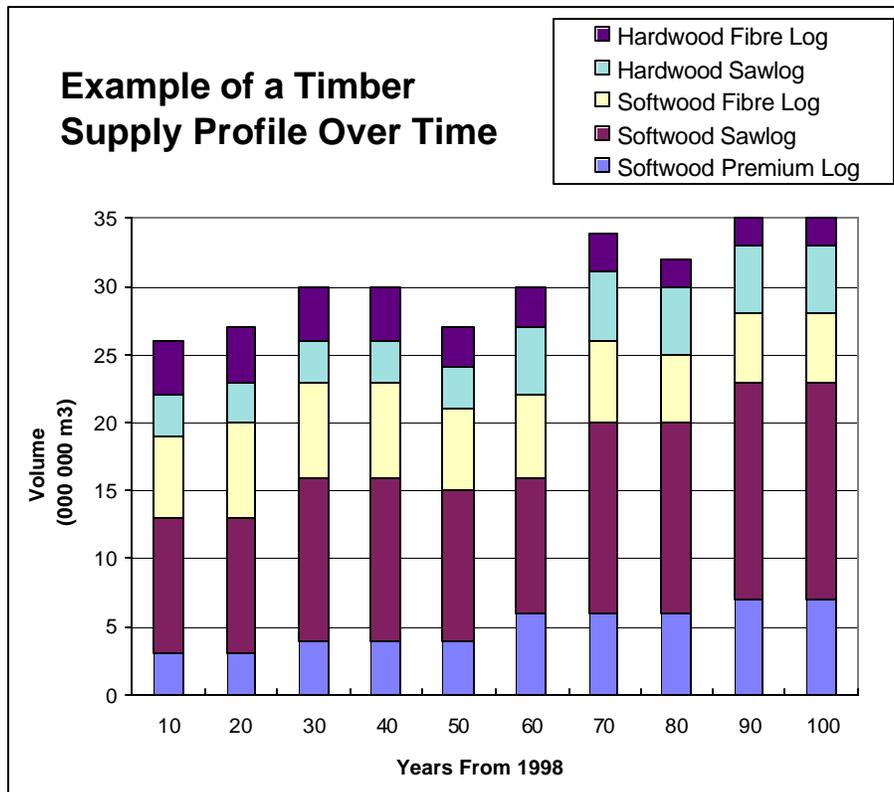


Figure 3. Example of a Fibre Supply Profile Over Time.

*This example illustrates over time: (1) a generally increasing total harvest level; (2) a reduction in the relative proportion of softwood fibre in favour of sawlogs and premium logs; and (3) a transition from hardwood fibre logs to hardwood sawlogs.*

## Modeling and Evaluating the Effects of Incremental Silviculture at the Management Unit Level

Even when a silviculture treatment or treatment regime shows a negative net present value through stand level financial analysis, the result may be positive at the management unit level.

The ministry does not have well-developed procedures and tools available internally for evaluating management unit level effects of incremental silviculture programs. Further work is desirable in this area.<sup>10</sup> In the meantime, ministry planners may borrow methodologies from other studies. There are several consulting firms in the province that have the capability to undertake such work.

Comprehensive listings of available forest estate models are available in the draft *Stand Density Management Guidebook* (BC MOF, 1997e) and *Incorporating Partial Cutting into Growth and Yield and Forest Estate Models: a Review of the Literature* (Marshall and LeMay, 1995:Appendix 1). Currently, the most widely available internal Ministry of Forests model for conducting management unit level analyses is FSSIM. However, this model only provides output

<sup>10</sup> It is not within the scope of this project to develop such procedures. See *Working Paper 5: Proposed Financial and Socio-economic Analysis Framework* for further discussion.

of future harvest levels. It does not produce timber quality class information (see "Timber Quality Assessment," below, and *Working Paper 4: Proposed Log Quality Framework, Timber Supply and Demand* for a proposed log quality classification). A new model that includes quality should be a priority.

### **Forming Strategic Conclusions Regarding Treatable Stands, Responses, Costs and Effects on Timber and Habitat Supply**

The outcome of step 4 will be a series of potential programs which will hopefully be capable of addressing the timber and habitat supply issues.

Planners should document a specific program of treatments by decade that yields the result. Example: "In order to close the age class gaps in TSA 'A': 5 000 ha of age class X with Y leading species must be spaced in decade 1, 6 000 in decade 2, etc." Another example: "In order to achieve and maintain a 10% "premium" log profile commencing decade 8, the following program by decade is required..."

### ***Step 5: Conducting Environmental and Stakeholder Reviews***

#### **Environmental Review**

An environmental review may be necessary depending upon the type and extent of incremental silviculture activities that the ministry may ultimately support as part of a recommended strategy. For example, a highly intensive program of pre-commercial thinning, commercial thinning and multiple fertilizations can have significant potential effects on forest habitat and water quality. Ministry of Environment specialists will be able to advise if an environmental review is necessary. The purpose of a review would be to document potential impacts and identify means by which the ministry (or other delivery agents) may eliminate, reduce, and/or mitigate them.

#### **Stakeholder Review**

Following completion of an environmental review (if required), ministry planners should summarize the results of all the incremental silviculture analyses and make this information available to stakeholders for review and comment. Information included would be:

- the current harvest forecast;
- potential strategies to improve the future value and volume of timber supply;
- if necessary, potential strategies to improve future habitat supply;
- the results of modeling exercises, including forecasts of changes to timber supply, timber quality, and habitat supply;
- environmental considerations;
- a recommended strategy and program for incremental silviculture.

Districts should send the information to all known interested parties. As well, districts should consider placing advertisements in local papers informing the public that a strategy is under consideration and how to obtain additional information.

### **Step 6: Selection of a Strategy and Plan**

Concluding the process is the selection of a management unit strategy and plan that ideally will address the timber and habitat supply issues and be in keeping with provincial and regional strategy. The plan will now confirm the strategy in a fashion similar to that of the proposed solutions shown in Figure 2, page 23. Planners should append further information on the treatment regimes and program that will achieve the strategy.

Examples of goal statements are:

- Quantity:** Maintain the current harvest level of 400 000 m<sup>3</sup> in the short and long term.  
Manage the mid term shortfall so that harvest levels do not go below 340 000 m<sup>3</sup>.
- Quality:** Increase the proportion of premium logs from the current 10% to 15% by the year 2050.

Finally, attainment of the desired strategy requires programming. Planners must break down the treatment regimes into annual programs. This may be a cooperative activity with FRBC and forest industry stakeholders.

Table 1 shows a suggested format for laying out an incremental silviculture program. Years 2 to 5 may require additional rows, similar to those shown for year 1. Ultimately, the program may reach a steady state level far out in the future. However, there is little value in showing information beyond the first 10 years, as the program will no doubt change to reflect future changes in issues, knowledge, land base, etc.

If the ideal program does not match currently available funding, there are two choices.

1. Scale back the strategy and plans to being within the “ballpark” of currently available funding.
2. Maintain the strategy, but break the plan into the two components of “funded” and “unfunded.” Pursue increases in funding as opportunities arise.

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Year	Target Stands/ Species	Target Age Class	Area by Type of Treatment (ha)			
			Rehab Backlog NSR <sup>11</sup>	Space	Prune	Fertilize
1						
1						
1						
Subtot Yr 1						
2						
3						
4						
5						
Subtot Yr 1 - 5						
6 - 10						
Total Yr 1 - 10						

Table 1. Strategic Program Format for a Management Unit

**Approvals**

Following stakeholder review and public consultation (if any), management unit strategies should have district manager approval. In giving approval, the district manager should consider:

- the commensurability of the strategy with provincial and regional strategies;
- potential environmental impacts and how these have been addressed;
- expressed stakeholder concerns and how these have been addressed;
- whether the strategy is realistically attainable, given currently available funding;<sup>12</sup> and
- the effect of the strategy on innovative forest practices agreements, if any.

The ministry should also consider pursuing approval of management unit incremental silviculture strategies as “higher level plans” under the Forest Practices Code.

<sup>11</sup> For brevity, the individual activities in a backlog reforestation program are omitted here.

<sup>12</sup> If it appears there is insufficient funding available in the first 5 years to accomplish the specified activities, a revision of the strategy may be appropriate.