Silviculture – The Dilemma

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Abstract

The existing forest management system, based on deriving short term economic value from forests, has generally served British Columbia well. However, due to greatly diminished merchantable forests, a tipping point has been reached. The new era will depend on managed forests and the current system is inadequate to support the future.

There are increasing needs for re-investment in forests to address existing problems. There are also several environmental and economic reasons to be optimistic about the prospects for growing trees on a portion of BC's forested land base. The dilemma is that neither the government nor the tenure holders are positioned to consider any significant investments in growing trees.

The primary limitations of the existing framework are the tenure and stumpage systems which are not conducive to good integrated silviculture and the lack of open, competitive markets for forest products.

Recommendations for change include new forms of area based licenses, development of fully competitive markets for wood products from forests, promotion of investments in silviculture by tenure holders and development of accounting and taxation policies which support forest management and manufacturing businesses.

British Columbia (BC) has been developed, in large part, by exploitation of natural resources, including large tracts of mature forests. While forest management has evolved to provide reasonably sustainable harvest levels, while protecting (or minimizing damage to) many key non-timber values and assuring reforestation of logged areas, the system is based on deriving short-term economic values from forests. The primary beneficiaries of this system have been corporations, who hold the harvesting rights, and the BC public, through jobs and stumpage/tax revenue used to fund infrastructure and government initiatives. While this system has shortcomings, overall it has served BC well.

However, a tipping point has been reached. The availability of merchantable forests has been greatly diminished by logging and natural disturbances. A new era, which will depend on

managed forests, has commenced and the inadequacies of the current system to support and promote this new period in forest management are now apparent.

As highlighted by Pat Bell (the previous Minister of Forests) soon after taking office: "The first (objective) is really maximizing the growth opportunity of our forests. For a long time we have given great thought to cutting trees down. Now it is time to give more thought to growing trees."

OPPORTUNITIES

There are many reasons to be optimistic about the long-term economic, social and environmental prospects for growing trees:

- Wood is an excellent material for buildings and other industrial uses and has less environmental impact than alternative products.
- Forests are natural and environmentally beneficial. In addition there is the potential to derive more tangible, direct economic benefits from non-timber values and services from managed forests.
- As a result of an imminent, substantial decrease in supply from most of the world's mature forests (from harvesting and conversions of forest land to other uses), the potential exists for higher prices for many wood products.
- High quality fiber from BC will command a premium. Our competitive niche is to produce and fully utilize high quality fiber grown on moderate length rotations (as we cannot compete with much higher growth rates in many other parts of the world).

As a result, it is likely that growing trees on a portion of BC's forested land base could become a viable business opportunity. Realizing these opportunities will require sizeable investments in forest management.

THE DILEMMA

There are increasing needs for re-investment in forests to address concerns over the fire hazard associated with the mountain pine beetle infestation, inadequate stocking of some previously harvested and naturally disturbed areas, and the poor health, resiliency and quality of some managed forests. Funds are also needed for updated inventories and research and development. Finally there are opportunities for viable incremental investments in treatments which grow trees and/or other ecosystem related products and services, faster and better.

On the other hand harvest levels are decreasing, resulting in reduced revenues to government. With Provincial revenues almost entirely directed to health care, education, infrastructure and other essential services, government is unlikely to be able to make the necessary or desired investments in forest management.

There are not enough incentives for licensees to invest in growing trees. Tenures are not appropriate and secure enough to assure a return on discretionary expenditures. The stumpage system promotes cost minimization of some of the key aspects of silviculture (instead of investment) and directs the majority of the future benefits achieved by investments to the government.

The crucial dilemma is that neither government, who owns the timber harvesting land base, nor licensees, who are responsible for many of the key aspects of forest management, are positioned to consider any significant investment in forest management. The opportunity to increase forest and non-forest product values to support a new era of forest management is not being realized. Within the existing framework of public/private roles and relationships, this dilemma is entrenched. It will not be resolved without structural change.

LIMITATIONS OF THE EXISTING FRAMEWORK

Silviculture is the term used for techniques of harvesting, regenerating, raising and tending managed forests. Ideally, it is a continuum of forest practices which are correlated to achieve desired objectives for timber and non-timber products and services. All key aspects of the forest management system affect silvicultural opportunities.

To make investments in growing trees viable, it is imperative to have forest and stand-level objectives, a plan to achieve these objectives, processes to minimize the risks of losses and accountability for the results. These components need to cover all aspects of stand development through to rotation.

Given site productivities and long time periods for stands to become merchantable in most of BC (relative to other areas in the world), even with increased real prices for wood products, silvicultural treatments face marginal economics, with little room for error. A forest management system that supports and promotes investments in integrated silviculture is essential. Unfortunately the current tenure and stumpage systems do not provide the necessary framework for maximizing the benefits from growing trees for several reasons.

Major tenure in BC consists of two principal categories of licenses, volume based and area based. Volume based licenses prevail, accounting for about 60% of the total harvest. The holders of these quotas have an incentive to harvest the best wood available in a geographic area first and, compared to area based tenure holders, can have little long term interest in the new forest, following logging and planting. As licensees are business competitors, volume based tenures together with the stumpage system, can lead to cost minimization of harvesting and reforestation activities and do not promote the best cohesive long term management for growing trees.

Most tenure holders are responsible for planning and executing harvesting and are required to reforest logged areas and tend the new forest until it is free to grow. At this point, responsibility for management reverts to the Crown until the trees are ready to harvest. Effectively, tenure holders are subcontractors to the government, responsible for development planning, harvesting and reforestation. In addition, the stumpage system does not promote investment in, or integration and optimization of, these activities towards preferred results in growing the next crop of trees. This separation of roles is not compatible with setting long term objectives, integrated plans to achieve objectives and accountability for the results of growing trees.

Secondly, tenure holders, who are responsible for the most important components of integrated silviculture (when and how to harvest and the species and densities used in reforestation), do not have enough of a vested interest in the long term success of their efforts and those of any subsequent silviculture treatments funded by the government.

A system that promotes growing trees should also include open, competitive markets for forest products. In addition to supporting maximization of value recovery from forests, market based pricing of the range of products that can be generated from the forest is critical to forecasts of future product values which can be used to create objectives and strategies for integrated silviculture programs. Open markets can also favor increased differentiation in log markets and better utilization of the whole tree.

Under the current system, the majority of timber supply is controlled by too few licensees, many of which have manufacturing facilities that are designed to produce commodities at minimum cost. This can result in partial utilization of portions of the timber supply profile or lost value by using logs in mills that don't generate the highest net benefit. Also, lack of available fiber supply has contributed to the slow development of significant bio-energy and value added manufacturing sectors in most of BC. Finally, this system has made it difficult to assess market prices for different products which can be produced from trees. Without a true understanding of absolute and relative values it is difficult to make and rationalize good investment decisions (even if all of the other risks and un-certainties can be taken care of).

PROPOSALS FOR CHANGE

1. New forms of tenure, consisting of long term, secure, area based licenses for core areas of the harvesting land base (areas that are likely to support continuous, economically viable forest-based operations). These tenures would:
    - be the platform for the development of regionally-based forest and stand level objectives for timber and non-timber products and services,
    - provide the basis for integrated planning and practices throughout the rotation,
    - be the basis for assessing accountability for the results of forest management,
    - include provisions for compensation to tenure holders for investments in improvements to forest land forgone by changes in land use or forest policy.

    This will require Crown rationalization of some existing tenures to provide space for new style tenures.
2. Development of fully competitive markets, so that the value of different products from managed forests can be realized by tenure holders and the public, and used for analysis of silvicultural investment opportunities by tenure holders. This likely requires separation of tenure from manufacturing facilities.
3. Promotion of viable investments in silviculture by tenure holders, or other third parties, by ensuring that investors receive the benefits arising from the investment. Payment of stumpage is not appropriate for this business model.
4. Development of accounting and taxation principles and policies which accommodate the unique characteristics of forest management and manufacturing enterprises.

To conclude, forest policies which promote increased productivity and value on designated crown lands should become an essential component of forest management in BC.