

SUSTAINABLE **FOREST**
MANAGEMENT NETWORK



RÉSEAU DE GESTION
DURABLE DES **FORÊTS**



Networks of Centres
of Excellence
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Design of Forest Tenure Institutions

The Challenges of Governing Forests

Ilan Vertinsky and Marty Luckert

THE SUSTAINABLE FOREST MANAGEMENT NETWORK

Established in 1995, the Sustainable Forest Management Network (SFM Network) is an incorporated, non-profit research organization based at the University of Alberta in Edmonton, Alberta, Canada.

The SFM Network's mission is to:

- Deliver an internationally-recognized, interdisciplinary program that undertakes relevant university-based research;
- Develop networks of researchers, industry, government, Aboriginal, and non-government organization partners;
- Offer innovative approaches to knowledge transfer; and
- Train scientists and advanced practitioners to meet the challenges of natural resource management.

The SFM Network receives about 60% of its \$7 million annual budget from the Networks of Centres of Excellence (NCE) Program, a Canadian initiative sponsored by the NSERC, SSHRC, and CIHR research granting councils. Other funding partners include the University of Alberta, governments, forest industries, Aboriginal groups, non-governmental organizations, and the BIOCAP Canada Foundation (through the Sustainable Forest Management Network/BIOCAP Canada Foundation Joint Venture Agreement).

KNOWLEDGE EXCHANGE AND TECHNOLOGY EXTENSION PROGRAM

The SFM Network completed approximately 334 research projects from 1995 – 2008. These projects enhanced the knowledge and understanding of many aspects of the boreal forest ecosystem, provided unique training opportunities for both graduate and undergraduate students and established a network of partnerships across Canada between researchers, government, forest companies and Aboriginal communities.

The SFM Network's research program was designed to contribute to the transition of the forestry sector from sustained yield forestry to sustainable forest management. Two key elements in this transition include:

- Development of strategies and tools to promote ecological, economic and social sustainability, and
- Transfer of knowledge and technology to inform policy makers and affect forest management practices.

In order to accomplish this transfer of knowledge, the research completed by the Network must be provided to the Network Partners in a variety of forms. The KETE Program is developing a series of tools to facilitate knowledge transfer to their Partners. The Partners' needs are highly variable, ranging from differences in institutional arrangements or corporate philosophies to the capacity to interpret and implement highly technical information. An assortment of strategies and tools is required to facilitate the exchange of information across scales and to a variety of audiences.

The KETE documents represent one element of the knowledge transfer process, and attempt to synthesize research results, from research conducted by the Network and elsewhere in Canada, into a SFM systems approach to assist foresters, planners and biologists with the development of alternative approaches to forest management planning and operational practices.

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Knowledge Exchange and Technology Extension Program (KETE)
Sustainable Forest Management Network

Design of Forest Tenure Institutions

The Challenges of Governing Forests

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Preface

There is an emerging consensus that the forest sector is in a severe crisis. Unlike crises in the past, this crisis is not a mere reflection of temporary circumstances, a manifestation of normal economic cycles or a result of policy failures that marginal adjustments can correct. This crisis presents a persistent threat with far reaching implications for the future of the forest sector in Canada. It has become clear that the sector faces challenges that are fundamental and complex, requiring the articulation of new visions for the forest and bold actions. Forest tenure, an important policy instrument, has been viewed both as part of the problem but also as a key to the solution.

The Sustainable Forest Management Network, recognizing the role that tenure systems may play in coping with the challenges that the forest sector faces, funded a major national study that explored the design of new tenure institutions. The study investigated both the theoretical and the practical design features of Crown Forest tenures, the consequences of changes to tenure systems and strategies for bringing about the desired changes and their implementation. This synthesis report is based on the various studies that were produced as part of the project. Its objective is to share with decision makers, inside and outside the forest sector, an analysis of current tenure systems. It provides some critical information about how the tenure systems are working, what options might respond effectively to the challenges the forest sector faces and the potential consequences of changes in the system.

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1.0 Introduction

Canada has about 402 million hectares of forest lands. 93% of these forest lands are publicly owned. 70% of the lands are under provincial jurisdiction while 16% are under federal or territorial control (CFS 2007). The governance of Crown lands is an important matter not only to Canadians but also to the global community. The global interest in Canadian forests stems from their ecological value for biodiversity, their role in the carbon cycle and their services as filters of water and air. Canadian forests constitute 10% of the world's forest cover and 30% of the world's boreal forest (CFS 2007) so there is an intense international interest in how Canadian forests are governed. Indeed this interest has been manifested in the past via direct attempts to influence the governance of Canadian forests by international NGOs through boycotts, lobbying and other means of social action.

Nationally the value of the forests is also manifested in many other dimensions. In 2007 Canada's forest sector supported directly or indirectly 800,000 jobs, about 5% of total employment in Canada. In addition to employment benefits they contributed to Canada's balance of payments, constituting close to 10% of Canada's merchandise exports and 3% of the country's gross domestic products (CFS 2007).

Forests are important both economically and socially in Canada. 324 communities rely on the forest industry for their economic sustainability. 80% of Aboriginal communities live in forested areas and 17,000 Aboriginal people are employed directly or indirectly by the forest products industry (CFS 2007). The multiple benefits produced by the forest for diverse stakeholder groups with different interests, values and aspirations and the social, economic and ecological importance of these benefits make the design of governance systems for forests a very complex task.

What is a governance system?

There are many characterizations of governance but for our purpose we adopted the following: "Governance is a process using institutions and structures of authority to allocate resources, coordinate and control activities and assign responsibilities and entitlements" (Bell 2003). A governance system sets the rules that shape the process of governance. A forest governance system determines among other issues:

- who owns forests (e.g. the crown, First Nations, or other private persons and companies);
- who has the authority to determine how forests are managed? (e.g. governments, markets);
- who has the actual responsibility for forest management? (e.g. government agencies, private companies);
- what are the constraints on decisions and who can impose and enforce them? (codes of forest practices, manuals, guidelines or contractual stipulations); and
- who is entitled to benefits derived from or contingent on forest activities and ownership and who must pay for the obligations that result from such activities? (e.g. government, First Nations, tenure holders, and communities).

The governance of Crown lands is an important matter not only to Canadians but also to the global community.

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Tenure systems were designed to attract investment and create economic activities and employment in forest regions.

The complexity of forest governance systems has increased over time. Initially governments had simple objectives. Tenure systems were designed to attract investment and create economic activities and employment in forest regions. Forests were also regarded as a source of public finance to support a variety of public services and programs outside forest communities. The tenure system was generally confined to timber and typically referred to the “collection of legislation, regulation, contractual agreements, permits and government policies that define and constrain a person’s right to harvest the province’s timber” (BC MoF 1997).

‘Sustained yield’, ‘processing requirements’ and ‘even flow’ were the key ingredients introduced to create the incentives to achieve the investment, development, and employment objectives. Ownership of the Crown forest was not a contested issue (at least from the perspective of the Crown). The Crown transferred certain rights to harvest specific areas and/or volumes of timber from broader areas in return for some obligations that these tenure holders accepted. Sustained yield was the prevailing paradigm in forestry seeking preservation of forest benefits for the long run. Processing requirements (e.g. requiring timber to be processed locally as a condition of granting tenure) were introduced to attract investment, create jobs and stimulate economic development. ‘Even-flow’ constraints (imposing a minimum and maximum annual and periodic deviation from the allowable cut) were introduced to maintain employment stability. Under the prevailing conditions of the time, the system worked quite well and achieved its objectives in many locations. Tenure arrangements functioned as powerful tools of public policy. By creating a system of rights and obligations provincial governments guided the behaviour of private enterprises holding tenure toward desirable public goals (Haley, *et al.* 2006).

Forest Tenure Systems in Canada

Forest tenure systems are arrangements through which provincial governments in Canada delegate responsibility for the management of public forest lands (Crown forest lands) to other entities (e.g. private individuals, private companies, and communities). These arrangements involve rights granted to these entities (tenure holders) to harvest a certain volume of timber from specific geographical areas over a specific time horizon (tenure duration). They also specify the obligations that tenure holders are required to undertake. These obligations typically involve payment of stumpage and/or other fees and the acceptance of certain responsibilities for forest management (e.g. planning, silvicultural treatments, reforestation and conservation requirements). The obligations also include conditions and constraints under which these forest management activities take place, as well as other conditions associated with the use of the harvested timber (e.g. a requirement to provide local processing facilities) (Luckert 2010).

Shifts in public attitudes and growing awareness of the importance of forest non-timber values, specifically environmental values, led to a paradigm shift in forest management in the mid ‘70s and ‘80s and the introduction of the concept of integrated resource management and the modification of tenure obligations to



protect these values. Great uncertainty with respect to the environmental state of the forest resulted in the introduction of obligations to follow prescribed practices designed to protect environmental values. Governments were under increasing pressure to continuously adjust the tenure system to meet shifting public demands, industry pressures and new scientific information about forest ecology. In response, the tendency of governments was to introduce marginal changes to the existing tenure systems.

The result is tenure systems that are more complex and less transparent. The introduction of new rules resulted in rapidly increasing costs. The complex system of incentives became less predictable and often resulted in unanticipated counter-productive behaviour of tenure holders. Provincial Crown systems were failing to fully realize the environmental, economic and social objectives they were designed to achieve. Attempts to achieve one objective often resulted in losses to other objectives. Periodic reforms were attempted, however they did not prevent (and perhaps could not prevent) the current crisis.

The objective of this paper is to distill the lessons learned from past experiences, provide analysis of the current challenges that forest governance systems face, and articulate options that might improve the systems and help them respond to the current and future challenges facing the forest sector.

2.0 The demand for tenure reform: the context

Arguably, increasing unemployment, the shutdown of productive facilities, and mounting losses in and threats to the forest industry, currently command the attention of policy makers. This is occurring particularly in provinces where the forest sector contributes significantly to employment, and to the provincial and regional economies. The economic crisis in the forest industry started before the current financial crisis and the collapse of the housing industry in the United States in 2008. In 2007, direct employment in the Canadian forest industry had already fallen by 9.1% when compared to 2006 (CFS 2008). From April 2007 to April 2008, approximately 16,400 additional jobs were lost in the industry. Operating profits in 2007 were the lowest since 1992 and the return on capital was the lowest since 1993.

As such, the current financial crisis and the deepening global recession are having disastrous impacts on the employment and financial performance of the forest sector. The economic crisis threatens the social sustainability of approximately 300 rural communities which are economically dependent on the forest. Tenure arrangements that were sometimes effective at creating and ensuring stable employment and stable communities, are failing to achieve their social objectives. The hope is that changes in forest tenure policies may offer new sources of employment and diversification in the economic bases of these communities.

The willingness of governments to provide the industry with financial assistance has been severely limited by the 2006 softwood lumber agreement with the U.S. (Nelson *et al.* 2008). There is an increasing realization that temporary relief cannot resolve that which is fundamentally a structural problem. Forest tenure is arguably the most important policy instrument available to governments, creating both

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incentives and disincentives for investment and innovation that are vital to the renewal of the forest sector. Thus tenure systems are being viewed as a possible cause of some of the problems and their reforms are seen as potentially offering a solution. Consequently, a number of provinces are in the process of reviewing their tenure systems.

In addition to problems regarding competitiveness, the forest sector faces a number of other problems. These include the conservation of the forest resource base and the maintenance of the healthy forest ecosystems that provide a myriad of social goods and services. In 2006, an estimated 86,000 hectares of Canadian forest were converted to other land uses (primarily farm lands), while only 9000 hectares of trees were planted in non-forested areas (mainly agricultural lands) (CFS 2008:24). The ecological services the forest provides are threatened as this loss of productive forest takes place. While the effects of insects (e.g. mountain pine beetle), disease, fire and other natural disturbances dwarf the impacts of harvesting, the consequences of commercial management activities affect forest resources and the environment close to communities and thus assume a special social importance. There is a growing perception that forest management practices do not offer the level of protection for forests that society desires.

There is a conflict between the growing pressure on governments and the industry to cut costs by reducing the level of investment in environmental protection and the society's deepening commitment to environmental sustainability. This presents additional challenges to the design of forest tenure institutions. The UN Commission on the Environment and Development in its 1987 report "Our Common Future" reconciled concerns for the environment and conservation with aspirations associated with economic growth by introducing a new policy paradigm, that of sustainable growth. This paradigm embraces economic growth that takes place in an environmentally and socially responsible way. The Canadian Forest Innovation Council (2004) in its report "Model of Sustainability" saw sustainability as "a journey and not a destination of zero environmental impact and unlimited economic growth". This dynamic interpretation presents a difficult challenge to the complex and rather static tenure systems currently in place (Luckert 2010). A fluid concept of sustainability requires continuous improvement and adjustment in the forest management system to reflect shifting social values regarding trade-offs between social, economic and environmental sustainability.

The challenges posed above are closely related to another one – the demands by various non-government and non-industry stakeholders in the forests for an increased voice in their management (Linguist and Wellstead 2001). In particular, Aboriginal peoples and forest-based communities seek a greater voice in governing the forest and accessing its benefits. Demands of Aboriginal peoples for greater control and a greater share of benefits of forest lands which were part of their traditional territories have been partially recognized by the courts in Canada, increasing the uncertainties with regards to rights and obligations of some tenure holders. The existing tenure system could be affected even more fundamentally as the very basis of government ownership and the ability of provincial governments to regulate certain "Crown" forest lands is being challenged.

The design of tenure systems is challenged by the demands of various non-government, non-industry stakeholders and Aboriginal peoples for an increased voice in forest management.



A sequence of court decisions has already increased constraints on government. For example, the decision of the Supreme Court of British Columbia in the 1997 Delgamuukw case entrenched the principle that there is always a duty of consultation. While the court allowed the provincial government to infringe on 'Aboriginal title', it established a tougher standard for such infringement and allowed such infringement only after adequate consultation and compensation (Ross and Smith 2002). The decision of the Supreme Court of British Columbia in 2004 with respect to the Haida case established that the government must consult and accommodate First Nations interests even if the Aboriginal title has not been proven. A 2007 court decision in the Tsilqot'in case has significantly increased uncertainty as to the force and effect of the *BC Forest Act* in areas where occupation, exclusivity and continuity of First Nations have been proven. Judge Vickers agreed in his decision that there was a proven title to 40% of the area claimed by the Tsilqot'in Nation but declined to officially award title to the land since in their claim, the Tsilqot'in Nation did not allow for partial award. The implications of the rulings are that there is uncertainty about the authority of provincial governments to authorize resource extraction on claimed lands and that forest planning regimes may infringe aboriginal rights and title to the lands (Tollefson 2008).

Disputes about Aboriginal rights are especially difficult to resolve when land claims treaties are not settled. Uncertainty with respect to Aboriginal titles is not limited to situations with unresolved land claims. Uncertainty with respect to Aboriginal titles exists in many cases even when land claims have been settled – many signed treaties did not extinguish all the rights of Aboriginal peoples on their traditional lands. Further, there are often ongoing issues about the interpretation and implementation of treaties. For example, the Little Red River Cree Nation in Alberta (LRRCN) signed Treaty 8 in 1899 on the understanding that it would share its land resources with settlers in a way that would not undermine Cree traditional uses of forest resources and their relationship with the forest. The LRRCN claim that the Crown has consistently failed to honor its commitments under the treaty (Stevenson and Perrault 2008).

Many Aboriginal leaders regard access to timber (e.g. awards of tenure) as only interim steps in settling land claims or fulfilling existing treaties. A final resolution of disputes needs to address the issue of title and the more difficult issue of jurisdiction (or self government) over traditional lands (Bombay 2008). Indeed, "most federal, provincial and territorial agencies now recognize that no major natural resource developments or conservation decisions can be made in Canada's forests without significant Aboriginal support" (Stevenson and Perreault, 2008:10). A key challenge with respect to the redesign of forest tenure systems is to forge agreements with Aboriginal peoples about the governance of traditional lands which respect their rights while allowing sustainable management of the forest until all issues of ownership and rights are resolved through treaties and/or court actions.

An example of successful interim solution is the 2002 Agreement Respecting New Relationship between the Cree nation and the government of Quebec. This agreement resolved many legal disputes the Cree had with the province. The agreement, known as "La Paix des Braves", established rules for forestry operations on Cree lands – many of which are based on Cree culture and knowledge. It has

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been suggested that the most innovative feature of the agreement is the definition of the role of Cree tallymen as managers of traditional trap lines (which have become the key forest management unit for forestry operations on Cree lands units) (Stevenson and Perrault 2008:60).

Other communities in the forest also demand a greater voice and access to benefits through political channels. It is argued that communities most impacted by changes in their immediate forest environment should have more control over that environment. They are more likely to provide better stewardship as they have more intimate knowledge of their environment and stronger incentives to preserve or even enhance it. Communities, arguably, are also likely to manage their environments in a more holistic fashion with a longer term orientation. It is also argued that preferred access to local resources may help diversify local economies and provide a basis for community sustainability (Luckert 1999). Reconciling increasing pressures for decentralization of forest governance, concerns about global objectives and local capacity for management of forest resources are issues that must be addressed by future tenure systems.

Increased globalization, scientific advances and rapid technological progress are changing the context in which forests are governed. Globalization has increased international interdependencies and has led to more uncertainty in economic environments and increases in global competition. Canadian forest product firms are now in competition in all of their foreign markets (as well as in some Canadian markets) with low cost producers that have access to vast supplies of wood and relatively inexpensive labour. To cope with increasing competition, the industry will be required to restructure so as to exploit economies of scale or differentiate their products. This will require tenure systems which facilitate innovation and a restructuring of the industry.

Rapid technological progress is shifting the values of different forest products and fiber attributes. To obtain the highest value for society from its forests, the tenure system must adapt quickly to both changes in technologies and shifts in social values (including changes in consumption patterns). Some of the most valuable uses of the forest will involve new skills and knowledge, requiring the entry of new players. Tenure systems of the future must accommodate such changes in organization, technologies, products and players. The high level of change anticipated will increase uncertainty and risk. Mitigation of the increases in risk can be accomplished largely by maintaining diversity in the biological and economic systems. Accommodations to new and changing economic and social realities must be accomplished while fulfilling the aspirations of Aboriginal and other forest dependent communities and ensuring environmental sustainability.

Ensuring environmental sustainability and maintenance of the health of Canada's forests are perhaps the most difficult challenges that tenure systems face as a consequence of climate change. Climate change may require major adaptation in forest practices and the patterns of production of forest benefits. The uncertainties

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involved require adaptive management systems that respond sensitively to new scientific information. Governing in the uncertain and highly dynamic environments of the future will require a diverse, rapidly adaptive system which encourages learning and innovation and accommodates change.

3.0 Redesign of Crown forests tenure systems in Canada

3.1 Design Framework

This section articulates a tenure design framework (i.e. the attributes that define the relevant dimensions of possible changes in the system). We explore the possible impacts of these characteristics on the various aspects of performance by which we evaluate the tenure system (i.e. their ability to meet the challenges described previously). The design framework must consider the overarching governance principles that influence the design and operations of forest tenure systems as well as the specific characteristics that directly affect the behaviour of stakeholders (in particular tenure holders), the costs they bear and the benefits they receive.

3.2 Governance Characteristics

There is uncertainty with respect to governance of Crown forests through forest tenure systems as a result of court decisions regarding the rights of Aboriginal peoples in areas of what were presumed to be Crown forests. To ensure the legitimacy of tenure systems (at least as a transitory measure until the ownership rights to specific lands are determined through future court decisions or through negotiation of treaties), meaningful involvement of Aboriginal peoples in the design and operations of tenure systems and accommodation of their rights is required. The degree and form of such involvement may depend on the technical capacity of the particular First Nation to be involved in various decision processes and the extent of conflicting claims over the specific areas it claims. More generally, the redesign of new tenure systems and the decisions made within tenure systems should reflect the growing public demand to move away from the close and somewhat exclusive government and forest industry relationships to a broader involvement of stakeholders in decision making concerning public lands (Howlett and Rayner 2001). Such a shift from central hierarchical decision-making to one involving stakeholders' network decision-making can also have a geographical dimension. This empowers those who live closer and are more affected by the conditions of the forest (i.e. geographical decentralization of decision making) (Luckert 2010).

Another dimension of governance concerns the basis of decision-making. The historical evolution of tenure systems saw a shift in emphasis from economic to environmental to social values (Haley and Nelson 2007). The present challenges to the sector require a holistic approach which integrates social, economic and

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A shift in governance may see newly created markets for social benefits of the forest and the incorporation of private certification systems.

environmental concerns in defining sustainable forest management. While social values and efficiency considerations are an important part of such a concept, incorporation of science in planning (ecosystem-based management) is inevitable. Efficiency concerns may suggest decentralization of operational decision-making through an increased emphasis on markets and the introduction of economic instruments to replace, when possible, command and control systems (Pearse 1998, Stanbury and Vertinsky 1998). Such a shift in governance may see newly created markets for social benefits of the forest (Weber and Adamowicz 2002) including non-use benefits associated with conservation areas and biodiversity protection. The shift may also include the incorporation of private certification systems as complements to government regulatory systems to ensure environmental sustainability (Luckert 2010).

3.3 Tenure Characteristics

The governance principles described above provide a framework for the design of tenure systems that specify the processes that regulate the assignment of rights and obligations of tenure holders. Haley and Luckert (1990), following concepts put forth by Scott and Johnson (1983) developed a classification system that identifies the most important design features that distinguish tenure systems. This system was extended as part of a Sustainable Forest Management Network tenure project that provided a more complete identification of obligations (e.g. stumpage fees), constraints (e.g. forest practices requirements), and profiles that characterize different tenure systems. It is described in Luckert *et al.* (2010).

We use this framework to characterize the existing state of major tenure systems in Canada and explore whether there is a compelling case to consider changing them. We also use the framework to examine what needs to be changed and what the likely benefits would be from alternative approaches. The classification system is based on the idea that tenure systems can be characterized in terms of the rights they bestow on tenure holders, the obligations that tenure holders assume as well as any constraints imposed on them that attenuate the rights they receive. The classification system also identifies the types of processes associated with the allocation of rights and the determination of obligations. The benchmark is full control and exclusive access to the benefit of the resource without any obligations (unfettered ownership). Note that such unfettered ownership does not exist in Canada even on private forest lands.

3.3.1 Characterization of rights

Allocation of rights specifies how tenures are awarded and the scope of rights granted. Rights can be allocated in a competitive bidding process, on the basis of an administrative decision that includes some objective criteria, on the basis of discretion, or on some mixture of allocation methods. Competitive bidding (as in BC) is designed to increase economic efficiency. An allocation on the basis of



multiple criteria (as in Ontario) allows the government to explicitly promote social objectives such as creation of employment or greater care of the environment. Allocation in a non-competitive way based on discretion provides maximum flexibility to the government to pursue any objective it may wish but lacks transparency.

The scope of rights is defined in terms of their:

- **comprehensiveness** (right to what resources and what benefits are given),
- **allotment type** (whether the tenure is area- or volume-based),
- **exclusiveness** (who may be excluded from enjoying a given property right),
- **transferability** (can these rights be transferred and what conditions are imposed on these transfers),
- **duration and renewability** (the period of time for which these rights can be exercised and under what conditions can they be renewed or replaced with a similar rights), and
- **security** (what is the confidence that the rights will not be attenuated or cancelled and what compensation will be received if such events occur).

Rights awarded by the Crown are generally exclusive but narrowly defined (focus on timber). Rights to various products from the same land can be granted to separate entities (e.g. rights to harvest softwoods versus hardwoods, rights to minerals, gas and oil, rights to recreation usages). The problem with overlapping tenures is the possibility of uncoordinated interference and waste in infrastructure development (e.g. building separate and uncoordinated networks of access roads) (Luckert 1993). A more comprehensive tenure may increase efficiency in deriving multiple benefits from the forest as the tenure holder has the incentives to coordinate the management of all the resources available and consider trade-offs that exploitation of some resources impose on the exploitation of others.

However, granting comprehensive tenure to one entity may not necessarily lead to full utilization of all resources as this entity may not have the expertise to exploit some benefits or may not pay attention to opportunities outside its dominant business (e.g. if rights to forest resources were granted to oil and gas companies). In such cases, awarding tenure rights for different resources to separate entities can be desirable. Furthermore, private entities are likely to neglect socially valuable forest resources for which there are no markets (e.g. environmental benefits, wildlife). In such cases, there is a compelling argument for the government to retain the rights to these resources.

Rights awarded by the Crown are generally exclusive but narrowly defined and can overlap the same area of land.

Most forest land tenures in Canada allot rights for harvesting a particular forest area. Only in British Columbia are there large forested areas where the rights to harvest are defined in forest licenses as *volumes* of timber to be cut annually (or periodically) from broadly defined regions. *Area-based* tenure may provide incentives for tenure holders to accumulate knowledge of their operational land base, while *volume-based* tenure holders have few incentives to invest in such knowledge as they may never return to the areas they harvest and manage. However, volume-based tenures may give the government more control in directing harvest, as has been the case in British Columbia in response to mountain pine beetle infestations.

Most tenures in Canada are transferable with ministerial permission. In British Columbia, all tenures with the exception of community forest agreements are transferable and generally divisible. The government can stop transfers of some tenures if such transfers are likely to unduly restrict competition in log or forest products markets. Transferability may provide more incentives to invest in forest lands as improvements to these lands will be reflected in the price tenure holders can obtain if they chose to sell their tenure holdings to other entities. Without the ability to transfer (sell) tenure rights, improvements may be difficult to realize. Transferability can also improve efficiency as inefficient producers may be more willing to sell their tenure rights to more efficient producers who will be able to derive higher benefits from these rights.

Most of the large Crown forest tenures in Canada are given with terms ranging between 20 to 25 years (potentially motivated by the need to secure capital to invest in processing plants). Most intermediate and smaller tenures have shorter terms, in the majority of cases, less than 5 years. Most of the major tenures are renewable (normally 5 years before the end of the term) after a performance review. The longer the term in which tenure rights and tenure renewability can be exercised, all other factors being constant, the higher their value and the greater the incentives for tenure holders to invest in the areas they manage. However, this is more likely to result in investments in processing facilities and not silviculture (Luckert and Haley 1993, Arnot 2007). There is empirical evidence that the incentives of tenure holders to invest in forest activities are very low (Rodrigues *et al.* 1998).

The value of the tenure agreements depends on the confidence that tenure holders have that tenure rights conferred will not be abrogated or significantly attenuated. In most provinces, governments have the right to change tenures to meet changing policy objectives, inventory information, and new scientific and professional knowledge. The sense of security is affected by the judgments of tenure holders of the propensity of the government to introduce changes that will adversely affect them (Arnot 2007). These perceptions may be based on past experiences, ideologies of governments, general economic conditions and public attitudes.

Transferability may provide more incentive to invest in forest lands as improvements to these lands will be reflected in the price tenure holders can obtain if they chose to sell their tenures to other entities.

The longer the term in which tenure rights and tenure renewability can be exercised, the higher their value and the greater the incentive for tenure holders to invest in the areas they manage.



An important factor that increases the sense of security is the existence of statutory provisions to compensate tenure holders for losses associated with cancellation or modifications of tenures held. Even if other considerations of tenures allow it, without security or the promise of compensation, the willingness of tenure holders to invest or conduct their forestry activities at standards that exceed the minimums stipulated by regulation is likely to be very low. Compensation is generally limited to significant “taking” of rights in order to provide flexibility to governments to adjust policies without accruing unreasonable costs. Businesses must bear normal levels of regulatory risks as they do accept normal levels of business risks.

3.3.2 Obligations and constraints

In return for the rights for harvesting, tenure holders accept certain obligations and various restrictions on their operations. Fiscal obligations associated with tenure arrangements receive significant attention from tenure holders (typically complaining that they are too high) and competitors and sometimes their governments (complaining that they are too low). These obligations include a variety of charges but the most prominent ones are stumpage fees. Stumpage fees are direct charges on the volume of logs harvested. Stumpage fees have a significant impact on the profitability of forestry activities as they often represent a large portion of the delivered wood cost to the processing plant (Pricewaterhouse Coopers and International WOOD Markets Research Inc. 2003).

The methods used to determine and collect stumpage fees play an important role in shaping the behaviour of tenure holders. In particular, low stumpage fees send signals to firms to indicate that wood is not worth much, and can lead to reduced incentives to invest in silviculture and in wood saving technologies for processing plants (Luckert and Haley 1990, Luckert and Bernard 1993). Arrangements to determine fees vary among and within some provinces. In most provinces, stumpage rates are set periodically by governments in schedules based on appraisals, negotiations or arbitrary decisions. Some schedules are changed to reflect market conditions, usually inaccurately and with a significant time lag. Appraisals may be based on engineering and accounting assessments of costs, profit and risk allowances or on data from presumed competitive markets adjusted to the specific conditions associated with a particular sale. For example, market based appraisal systems are used in the coastal region of BC and in New Brunswick. If the price samples used are not representative of local conditions and/or appropriate adjustments are not made, the price system would be distorted – leading to inefficiencies.

Since long-term tenure holders have forest management responsibilities, there is a need to estimate the costs involved in fulfilling these obligations and reduce the fees paid. The problem lies in obtaining reliable cost information and in determining the appropriate profit and risk allowances (not an easy task). If log market information is not available, appraisals can be based on end-product price information. Stumpage fees often vary by the type of end product produced. Such pricing does not necessarily reflect the best values that can be obtained from timber and reduces the incentives for processors to direct a log to uses where the best value can be obtained. Furthermore, some schedules are determined by governments on the basis of revenue needs or social and political considerations.

There is an increased sense of security when there are statutory provisions to compensate tenure holders for losses associated with cancellation or modifications of tenures.

The methods used to determine and collect stumpage fees play an important role in the behaviour of tenure holders.

A competitive auction system can remedy many of these problems, but only British Columbia uses competitive auctions to sell a significant proportion of its harvest. To create competitive markets, it is necessary however, to have a sufficient number of buyers and sellers, and buyers and sellers must have adequate access to information. It is also important to prevent large competitors from dominating the market and engaging in predatory behaviour (i.e. buying larger quantities than optimal, driving prices up and driving smaller, weaker competitors out of the market). In systems where stumpage fees are based on prices obtained from bid systems, large companies may also attempt to manipulate stumpage fees by reducing the quantities they bid, thereby reducing the amounts they pay for stumpage on their tenures.

Since Crown tenure systems were conceived initially with the idea of fostering economic development, tenure arrangements typically required holders, as a condition of acquiring timber harvesting rights to own and operate wood processing facilities (mill appurtenancy requirement). Most provinces in Canada, except for British Columbia, have some type of appurtenancy requirements for their major industrial forest tenures. Alberta, Quebec, New Brunswick and Newfoundland also have such requirements for mid-sized tenures. Appurtenancy requirements reduce the opportunities of tenure holders to direct harvested trees to their optimal use. By directing timber to specific mills, these requirements restrict new entrants from gaining access to timber. These requirements also prevent the rationalization of production by directing wood supply from a wide area to central, large processing plants to achieve economies of scale. In the short-term, appurtenancy requirements may conserve employment in particular locations but in the long-term, these requirements may be a source of great inefficiencies that prevent the sector as a whole from maintaining its competitive position in global markets.

Tenure holders must also satisfy a variety of constraints imposed on their operations. These operational controls are imposed to ensure that tenure holders, through their operations, meet a variety of publically sanctioned objectives. These requirements have grown over the years and have become very complex. Typically such requirements include reforestation, other silviculture requirements and adherence to set standards of forest practices designed to protect the forest environment and forest health. Management requirements also specify planning and reporting processes. Harvest related requirements set utilization standards (i.e. regulate size and quantities of trees that must be harvested and removed from the site), control logging methods and dictate the size and patterns of clear cuts. Generally, any binding constraint on forest operations is likely to reduce the short-term profitability of that operation (Boyd and Hyde 1989).

All provinces have harvesting requirements that control the maximum rate of harvesting on Crown lands under licenses that specify 'annual allowable cuts'. Some provinces require a minimum level of cut in addition to the maximum, presumably an attempt to 'even the flow' of production and thus maintain employment and revenue. Some flexibility is provided by allowing annual

Most provinces in Canada have some type of appurtenancy requirements for their major industrial forest tenures.

Tenure holders must also satisfy a variety of constraints imposed on their operations to meet a variety of publically sanctioned objectives. These requirements have grown over the years and have become very complex.



deviations within specified periods. The province of British Columbia eliminated minimum cut requirements to allow firms “to better plan their wood operations and provide more opportunity to sell into good market conditions, returning more revenue and jobs to the province” (BC MoF 2004, 1).

All provinces control forest practices. Pearse (2001, 12) noted that “over the decades, regulations governing forest practices have multiplied, from basic fire precautions to detailed rules about road building, logging patterns, utilization standards, silviculture and reforestation”. Demands for environmental protection in the 1990s have led to the introduction of requirements for protecting wildlife, soils and riparian areas. Compliance with the various regulations has been extremely costly (van Kooten 1994, Haley 1996, Clarke 1997) and it is not clear if the desired results were obtained, nor whether the means to obtain the results were cost effective.

All provinces in Canada are committed to sustainable forest management. The approaches taken in the different provinces to achieve this objective vary to some degree. Most provinces (except BC) require tenure holders to develop strategic plans. The contents of these plans are guided by official planning manuals. In British Columbia, area-based tenure holders (Tree Farm Licenses) are also required to develop detailed strategic plans. All provinces require the preparation of detailed operational plans. These plans must be reviewed and approved by the governments. Regulation of forest practices is done through a complex mix of manuals, planning requirements and specific regulations. In practice, the planning manuals and planning requirements act like regulations as specified standards are incorporated in plans which bind tenure holders.

There are important differences in the degree to which the regulatory system in each province prescribes particular practices as opposed to setting standards for results. Enforcement of the regulations and plans vary among the provinces in their reliance on self-regulation (as in Alberta and Ontario) as opposed to more intensive use of government inspections (as in British Columbia and Quebec). Arguably a results-based regulatory system is more efficient than a command and control system that prescribes specific practices when the desired results can be clearly identified and performance can be inexpensively and accurately measured. A results-based system of regulation allows the tenure holder, who is acquainted with local conditions and its own capabilities, to try to optimize the selection of strategies to produce the desired outcomes. Unfortunately, in many cases, standards for results cannot be clearly defined and measurement of the results is uncertain. In such cases, the identification of specific strategies or constraints on actions may accrue lower transaction and enforcement costs. Such a strategy will depend less on trust and more on regulatory control.

The inherent difficulty in implementing effective, flexible result-based regulatory systems to guide forest practices is reflected in the reversals experienced in several provinces to a higher reliance on regulatory prescriptions (Golec and Luckert 2008). As opposed to a tight command and control regime, there is a delegation of authority to professional discretion (as in Alberta). However, studies have shown

Enforcement of forest management regulations and plans vary among the provinces in their reliance on self-regulation (as in Alberta and Ontario) as opposed to more intensive use of government inspections (as in British Columbia and Quebec).

An alternate regulatory approach is the use of certification by independent non-governmental certification organizations.

Greater diversity in tenure arrangements may be desirable to permit institutional customization to local conditions.

that professional foresters tend to have different values regarding sustainable forest management than a cross-section of the general public (McFarlane and Boxall 2000). As an alternative or complementary approach, certification by independent non-governmental certification organizations (e.g. Forest Stewardship Council, Sustainable Forest Initiative or Canadian Standards Association) could be used. The Forest Stewardship Council standard is generally the only certification scheme endorsed by environmental non-government organizations (Tan 2003, Alberta Wilderness Association *et al.* 2001). The issue then becomes which certification system should the government delegate authority to and whether that system will reflect public preferences. The diversity of views on what constitutes sustainable forest management, and the diversity of institutions that have been developed to reflect these different views makes harmonization of tenure policies with certification and criteria and indicators for forest management a difficult issue to resolve (Golec and Luckert 2008).

An important constraint on tenure rights is the barrier in most provinces on international and inter-provincial shipments and exports of unprocessed logs. Generally, international exports of logs from public lands require government permission, and in many cases inter-provincial trade is also restricted. Constraints imposed on exports of logs are designed to encourage local processing. However, they result in lower values of domestic timber thereby reducing the incentives for silviculture and to conserve wood in processing. Log export controls were used by the U.S. as one argument to impose controversial duties on Canadian exports (Nelson and Vertinsky 2005, Nelson *et al.* 2008).

3.3.3 Profiles of Canadian tenure systems: a critical view

Though there are about 40 major tenure types in Canada, each of which varies considerably in its details, the general features of the systems are similar. In most provinces, the majority of the timber rights are granted through one or two tenure arrangements. Eighty percent of the AAC in four provinces is allocated through one type of tenure (Haley 2008). Since there is a large variation within provinces in local aspirations, objectives, needs, the nature of the forests, and the economy, greater diversity in tenure arrangements may be desirable to permit institutional customization to local conditions. British Columbia has the most diverse tenure system and therefore provides a good example of how such diversity can be used to accommodate local aspirations and conditions.

Tenure systems in Canada are largely inflexible, imposing tight constraints on forestry practices and operations. There is a concern that tenure systems have contributed to the failure of the forest industry to maintain its position in the global market. Constraints in most systems prevent the entry of new actors and new products and largely restrict sectoral renewal and restructuring. The focus of many tenure systems was redistribution of wealth rather than wealth creation. The systems are highly centralized frustrating the aspirations of Aboriginal peoples and forest dependent communities to have a stronger voice in controlling the forest and a share in its benefits. The inflexibility and complexity of most tenure systems in Canada will make adjustment to climate change difficult (Williamson 2006) and make environmental protection more costly than perhaps necessary.



4.0 Design of tenure systems

A discussion paper issued by the Ministry of Forest and Range in British Columbia (2008) defined a design problem for tenure arrangements. It suggested that tenure arrangements do two basic things (1) they specify the division of labour between the Crown and the tenure holder and (2) they establish the rights, obligations, penalties, and inducements, that create the incentives for the tenure holder to act in a way that fulfills the objectives of the Crown. The assessment of these arrangements must be viewed in terms of the following criteria:

- (1) whether the functions that need to be performed to achieve the Crown's objectives are being performed by those best equipped to perform them, and
- (2) whether the incentives that are created serving to ensure that those non-governmental entities performing the functions are doing them in the best way to serve the public's interests.

The paper recognizes however, the difficulty that exists in accomplishing this design task for any sector. Difficulties emerge because:

- the Crown does not necessarily have a clear view of what the public wants (i.e. what are the objectives that best represent the public interest),
- there may be an unpredictable change over time in the mix of benefits the public expects from the forest,
- there may be an unpredictable change in the desired practices (e.g. technological change, changes in forest conditions, changes in market conditions), and
- there is incomplete knowledge about responses of participants in the system (e.g. tenure holders) to different incentives set by system designers.

The challenges outlined above point to several important additional tenure system design criteria including that:

- the system needs to be more responsive to public values and changes in these values,
- the system needs to be efficient in accomplishing its objectives (i.e. keep transaction and other non-productive costs to a necessary minimum),
- the system needs to be more responsive to variation in local conditions and to local stakeholder objectives and characteristics,

- the system must cope well with high levels of uncertainty and risks, and
- the system must be transparent, simple (as much as possible while discharging its complex tasks) and fair.

System transparency and simplicity are important to ensure that failures of incentives created to achieve certain expected behaviours can be identified and corrected and that signals sent by the system to participants are noticed and not misunderstood. Simplicity may also reduce uncertainty while simultaneously allowing agility in response to changing circumstances. Fairness is important to ensure support for the system by all participants (i.e. ensure the system's legitimacy).

With the above criteria and with current and future challenges that the tenure system is facing in mind, we start our exploration of design options. We first explore changes in attributes that keep the character of the system largely unchanged (Haley and Nelson 2007). We then explore some radical modifications that result in changes in governance structure as well as simultaneous alterations of numerous characteristics that are typical in the current systems of tenure arrangements in Canada.

4.1 Redesign of tenure systems without major changes to their basic governance structures

Our analysis of the main features of tenure systems in Canada revealed systems with a mix of complex and inflexible operational constraints on tenure holders. Many of these operational constraints, which were introduced to deal with specific problems or achieve certain social objectives, are failing to achieve their objectives while imposing high costs in terms of the competitiveness of the system. Therefore, if carefully considered, removal of some of the major operational constraints is likely to increase efficiency with little impact on objectives that they have failed to achieve anyway.

Allowing tenure holders to make free choices with respect to product mix, inputs mix, choices of technology, the allocation of capital and markets they choose to serve will increase efficiency and help improve competitiveness. In particular, the removal of mill appurtenancy requirements, minimum cut controls and log exports controls could help obtain the highest economic values of timber resources. The short-term social costs include increases in unemployment and closure of some processing facilities. However, without increases in efficiency even larger numbers of plants are likely to close down and the long-term employment in the sector will decline further; a process we are, likely already seeing. Such a process could lead to a smaller but more efficient industry that is allowed to sell more in good markets and reduce sales in poor markets and that can adjust its product mix to achieve higher values from the resource.

The removal of some of the major operational constraints is likely to increase efficiency with little impact on objectives that they have failed to achieve anyway.

The removal of mill appurtenancy requirements, minimum cut controls and log exports controls could help obtain the highest economic values of timber resources.



To encourage entrepreneurship, and innovation, consideration could be given to making tenure rights more divisible and transferable. The security of rights could be increased by introducing clearer and more comprehensive compensation policies if these rights are taken or seriously weakened. Since forest tenures in most provinces are almost fully allocated, the vesting of secure, tradable property rights could provide the incentives needed for small incumbents to transfer their rights and facilitate the entry of new participants. Inefficient incumbents are better off selling their rights to those who can get higher returns from the forest and thus are willing to pay more for the rights than their value to these incumbents. In order for the market for tenure rights to work, however, reliable and transparent information about inventories associated with tenure lands is necessary. Moreover, transfers of forest property rights could fail to achieve the desired results if it leads to greater concentration of the forest industry.

Regulation of forest practices under many of the existing command and control systems in Canada is inflexible and costly. A shift to result-based regulation (where feasible) and decentralized enforcement may increase both the efficiency and effectiveness of regulation. Allowing tenure holders more choices among means to achieve higher order environmental objectives requires, as we have noted earlier, a thorough understanding of ecosystems and means-ends relationships of interventions to the systems. Such understanding is limited at present but can be improved through adaptive management (Duinker and Trevisan 2003) and scientific research.

Even in the absence of such knowledge, policy tools that facilitate decentralization in the development of local prescriptions and enforcement are likely to reduce the costs of regulation. For example, the introduction of tradable land use rights can provide the means for some flexibility in complying with certain types of prescriptions. In this system (often called “cap and trade”) rights to utilize the resources are capped (i.e. an explicit threshold is set for the amount of the resource that can be used or disturbed). Tenure holders who set aside certain portions of their lands for conservation above the requirements can sell unused rights generated by over-compliance to other tenure holders. Buyers of tradable rights can then put these rights towards meeting their obligations to set aside land for conservation out of their tenure holding (Weber and Adamowicz 2002). More generally, cap and trade systems can satisfy environmental objectives while minimizing the costs of compliance (e.g. using lands with similar biodiversity values but of lower economic value for conservation instead of lands which are more suitable to commercial exploitation). Separate markets may need to be established for different ecosystem types and different environmental objectives.

Delegation of some regulatory functions to independent non-government environmental certification organizations has the advantage of possible value creation through “green product” differentiation and reduction of costs to the public purse. For example, governments may choose to cede some regulatory functions to certification organizations or their approved SFM certifiers. In such cases, the certification organizations set standards that the tenure holders must follow in order to receive accreditation. The certifiers have monitoring and

Policy tools that facilitate decentralization in the development of local prescriptions and enforcement are likely to reduce the costs of regulation.

enforcement functions relieving the government from the need to inspect the operations of certified tenure holders. The certification may add value to the products from the certified lands if consumers are willing to pay the “green premium” (e.g. Kruger 2010). Under such conditions, tenure holders may be willing to adopt higher levels of environmental stewardship than required by law, expecting to be rewarded through the market. Indeed, even if the government does not require firms to obtain certification, companies may be forced to obtain certification as part of their attempt to maintain social license to operate. For example, it is almost impossible to export forest products to the U.K. without obtaining FSC or an equivalent certification. This is because buyers’ organizations, consisting of most of the large retail stores and other large buyers of forest products in the U.K., are committed to buying only certified products.

A less attractive option of decentralization is one of self-regulation (i.e. delegation to professional certification of forest managers). In such cases, potential conflict between professional standards and loyalty to one’s employer or fear for one’s job may erode trust in the regulatory system.

In the spring of 2003, British Columbia introduced many of the above innovations in response to concerns about the declining competitiveness of the forest industry in the province (Niquidet *et al.* 2007). The results of these policy changes have been somewhat disappointing. The industry does not appear to be revitalized as the province forecasted. Visible changes in the strategic direction of incumbent forest companies are not obvious. Few entrepreneurial firms seem to have emerged. Instead, firms continue to be locked in to the production of commodities and in their old business models of maintaining competitiveness by continuous rationalization of production (closing inefficient plants and reducing their workforce) and cost reduction. Investment remains low. The resource base has shrunk and forest health has deteriorated with the mountain pine beetle infestation. One can reasonably expect that when the current crisis passes, there will be a period where a leaner industry will be able to return to a profitable path. However we have yet to see whether this re-emergence will proceed with a “business as usual” perspective. In short, we do not know yet whether the improvements introduced by the British Columbia reform are likely to shift the strategic direction of the sector to a sustainable economic, environmental and social path.

The following quote in Timmins Daily Press on the 18th of February, 2009 suggests that few believe that small changes in existing tenure systems and related forest policies in Ontario, and by implication, the other tenure systems in Canada, are likely to change the future of the sector. The Daily observed:

Given that more than 10,000 forestry jobs have been lost in Northern Ontario maybe Einstein’s wise counsel that ‘we cannot solve problems by using the same kind of thinking we used when we created them’ will finally be heard.

Our studies led us to a similar conclusion – the consideration of bold options for systemic change is needed to create new visions, culture and business models for managing the forests.

British Columbia has introduced many of the above innovations in response to concerns about the declining competitiveness of the forest industry in the province – with disappointing short term results.

The consideration of bold options for systematic change is needed to create new visions, culture and business models.



4.2 Bold options for change

Haley and Nelson (2007) and Nelson (2008) have explored experiences with bold reform of managing public forest lands in various jurisdictions, to assess whether new models of governing public lands can lead to more effective ways of achieving public objectives. They identified three approaches that may improve efficiency and competitiveness of public forest management. These approaches included **corporatization, privatization** and decentralization **augmented by devolution of government authority**.

Corporatization involves retaining public ownership of forest land but placing management of some of the public forests under the authority of a government run corporation (Crown corporation) or a separate government department charged with operating as a for-profit corporation – i.e. conducting its affairs on a commercial basis. In some jurisdictions, such departments are called “trading departments”. Germany, Australia, New Zealand and Sweden introduced such new governance forms to their public forests with some measure of success. In Sweden and in New Zealand, these reforms proved to be steps in the process of privatization.

An important factor in corporatization is the ability to separate the forests into zones according to use. Forest lands can be divided into areas that are used primarily for timber production and other areas where they are managed primarily for conservation and other public goods. In New Zealand and in most of the states of Australia (except Tasmania), the separation was natural. Corporatization (and later privatization) was focused on exotic plantations where timber values dominated. The management of indigenous forests, where conservation values are high, was often left under the management of traditional government departments. In other jurisdictions (e.g. the provinces of Canada) success of such restructuring of forest governance would best be preceded by careful land use zoning separating lands with dominant commercial uses from those with dominant environmental and other public goods values. The former would be good candidates for corporatization (or privatization) while the latter would be best run by traditional government departments.

The experiences in both New Zealand and in Australia showed improvements in the efficiency of operations achieved mainly through a reduction in employment, a reduction in the quality of timber sold (in some cases to match buyers willingness to pay) and increased prices. However, Haley and Nelson (2007) observed that corporatization has some important deficiencies. The financial discipline imposed by markets on private companies is lacking in corporatization and thus reduces the motivation of management to make hard decisions to increase efficiency. In New Zealand, complaints about undue political influence led to a government decision to privatize the corporation.

Privatization frequently refers to the complete transfer of ownership rights to the private sector. Though arguments for against the sale of Canada’s forests have been developed (e.g. Haley 1986, Haley and Nelson 2007, Kant 2010b) we suggest that

Three approaches have been identified that may improve the efficiency and competitiveness of public forest management – corporatization, privatization and decentralization.

An important factor in corporatization is the ability to separate the forests into zones according to use.

An interpretation of privatization that recognizes degrees of private control is useful.

Another governance alternative is regional decentralization where ownership and control of regional forests are transferred to regional boards and revenues from forestry operations are shared between different levels of government.

a more nuanced interpretation of privatization that recognizes degrees of private control is useful (Luckert and Vertinsky 2007). Thus privatization can relate to the timber on the land and not to the land itself and can vary in the time horizon that such rights can be exercised (e.g. rights to the timber in perpetuity as opposed to one or a specified number of rotations). The experiences in Australia and New Zealand confirmed that efficiency increased more with privatization than corporatization mainly due to sharper employment reductions and more effective marketing. However, there was no evidence of increased investment from the private sector or the emergence of entrepreneurial companies that the advocates of privatization had anticipated. Indeed, a focus on the financial aspect of plantation management led to a significant reduction in investment in reforestation and silviculture (Nelson and Vertinsky 2005, Nelson 2008).

Another governance alternative advocated by Haley and Nelson (2007) was regional decentralization where ownership and control of regional forests are transferred to regional boards and revenues from forestry operations are shared between different levels of government. The strategy is attractive because it removes the direct link between timber production management and the fiber demand of specific processing plants, a greater voice is given to stakeholders living near the forests and there is a more comprehensive scope of forest resources to be managed by the regional boards. This strategy is likely to work well in the context of the development of more competitive log markets. Furthermore, the uneven experiences with community tenures in British Columbia point to the importance of local management capacity in influencing the success of such decentralization (Ambus 2008).

Experiences with implementation of each of the three alternatives for tenure reform discussed above suggest that if implemented in Canada, they are likely to fail to meet some of the critical challenges Crown forest land tenure systems must address. Each of the systems however, incorporates some attractive design features that provide positive benefits. These include, increases in market discipline and increased reliance on market relations, zoning, separation of tree growing from tree processing and the establishment of competitive log markets, geographical decentralization and increases in tenure comprehensiveness. In the next section we explore a hybrid tenure system design that incorporates the above design features but is based on diversification of tenure and governance types and matches them to local conditions. We also explicitly identify the managerial approaches and policies that can be accommodated within the proposed institutional structure.



4.3 Hybrid strategy³

The first step in changing our policy perspective and the design of forest tenure systems is to broaden their scope. Forest tenure systems must be emancipated from a timber-centric view, a view that focuses on physical flows of timber to fill mill needs. The practical implications are clear:

- no more locking forest resources to specific uses;
- planning must be based on values not merely physical flows; and
- the need for increased comprehensiveness of tenure rights (and obligations) to other values of the forest.

An important step that would introduce the flexibility required for forest resources to achieve their highest value to society would be to “decouple” forests from processing plants. Forest management units could also be granted more comprehensive tenure rights to avoid inefficiencies and conflicts that are generated in systems where overlapping narrow tenure rights prevent issues that arise from the use of each resource to users of other forest resources. More comprehensive rights are also needed to address the discrepancy between the narrow rights conferred by forest tenures and the broad social objectives associated with sustainable forest management (Luckert and Boxall 2009).

Forest tenure systems have to accommodate not only environmental changes but changes in the scientific knowledge, technical know-how and values. The principles of adaptive management must be cornerstones in the “new forest management paradigm”. As the environment in which forest management institutions operate becomes more complex and uncertain, diversification of tenure systems can reduce risks and better match demands of varied stakeholders. Tenure systems should match the local characteristics of the managed forest and the aspirations of its direct stakeholders, while also meeting global social objectives.

In the future we see a mosaic of different tenure types across the wide spaces of the forest (one size does NOT fit all for forest tenures! See also Kant 2010a). The idea of zoning (i.e. dividing the forest into spatial units managed and regulated according to the characteristics of the forest to more effectively achieve global social goals) is an idea whose time has arrived. Indeed, we recommend the consideration of adding an ownership dimension to the zoning concept (at least with respect to the exploitation of certain forest resources for certain periods of time). Depending on the predominance of social objectives with respect to a particular forest land, a decision to increase private control can be made. Zones with few resources that are valued socially in locations without sensitive ecological systems (e.g. plantations) can have increased private control. Zones with overwhelming environmental or social values can be managed directly by governments or communities. By adding more flexibility, such a system could help accommodate the rights and aspirations of Aboriginal peoples, even before the settlement of ownership issues.

The principles of adaptive management must be cornerstones in the “new forest management paradigm”.

³ Based in part on Vertinsky, I. and M. Luckert. 2009. The Future of Forest Tenure Systems in Canada in *Tomorrow's Forests*, Sustainable Forest Management Network, Spring: 4-5.

Some zones with increased private control may be identified as plantation zones where intensive silvicultural activities (including the introduction of exotic or genetically modified, fast growing tree species) are encouraged. Such an approach could reduce the forest harvesting footprint, potentially increasing forest industry efficiency and promoting non-timber values (Anderson 2008). Having a variety of middle-sized land management companies (some may be owned by Aboriginal peoples and other local communities, others by regional forest boards or private owners) operating under a flexible, results-based regulatory system could increase the resilience of the system. Such variety would permit the market testing of alternative approaches to cope with a changing environment and survival of the best ones.

Irrespective of the type of tenure, governments have a role in ensuring that the environment is protected. While regulation is inevitable, it should be smart regulation (Gunningham and Sinclair 1999). There is a need to replace command and control regulation with newly designed economic instruments which ensure that individual management units working to advance their own objectives are provided with incentives that lead them to act in a socially desirable way. In the proposed system, governments have an important role in creating markets for a variety of currently non-tradable goods and services as well as creating markets for rights resulting from regulation aimed to ensure supply of certain public goods (e.g. cap and trade systems).

5.0 Getting from here to there: the challenges of implementation

Changing a governance system for the forest is a very politically intense process as it may change the benefits and costs that different stakeholders expect to derive from the forest. A significant change has distributional consequences. There are likely to be winners who will support and push for change and losers who are likely to oppose the change. There are others who will oppose changes as they are uncertain about the consequences or disagree with the claims made about the consequences of changes to the tenure system. Indeed, uncertainty about consequences or a lack of scientific knowledge may entrench the status quo even when the political economy is aligned to promote change. Organizational inertia, lack of consensus over priorities, short-term orientation, lack of leadership and political will also tend to reinforce the status quo.

Often crises trigger change by unhinging the system from its equilibrium. Strong leaders who articulate new visions during crises can empower and legitimize champions of change. For example, a severe economic crisis in New Zealand in the mid 1980s led a new labour government to adopt the radical vision of “new public management” articulated by Margaret Thatcher in the UK. This legitimized the implementation of comprehensive reforms of the management of public forest lands.

A crisis can trigger change by unhinging the system from its equilibrium.



Compensation and transition assistance serve to reduce the resistance of potential losers. As in British Columbia, the offer to compensate the incumbent tenure holders in the 2003 tenure reform proposal reduced their resistance to reallocation of tenure rights to a significant proportion of the AAC.

An important part of a change strategy relates to the pace of change. Resistance to innovation can be reduced through incremental changes. This is likely to be an effective strategy when the consequences of changes are not well understood. Experimental introduction of reforms through pilots may provide information, increase familiarity with new concepts, and legitimize changes. However, incremental slow change reduces the momentum of reform once it starts. A “big bang” strategy has the advantage of creating momentum for change. Improved knowledge, information and managerial capacity are important both to affect change but also to ensure that introduced reforms are competently executed.

There are several other conditions for successful implementation of the proposed reform. Increased private control, without a system that provides for the availability of transparent, reliable information about forests’ inventories, is not likely to result in entry of new types of land management companies and entrepreneurial renewal of the forest industry. Entry of new players may be prevented and allocation of resources may be distorted without the maintenance of competition both in input and output markets in the forest sector. Indeed, without regulations which maintain competition, diversification and decentralization may erode as market concentrations increase reducing the resilience of the system.

6.0 Conclusions

The challenges of sustainable forest management in a period of rapid change, discontinuities and great uncertainties, require institutional diversification, flexibility and integrative perspectives. In this paper, we have suggested that tenure systems in Canada are generally inflexible, complex, lack diversity and are highly focused on timber production and timber processing needs. Social and environmental considerations are introduced as constraints further reducing flexibility and increasing costs. The institutional structure inhibits entry of new players and, more generally, innovation.

We have suggested that a natural starting point for the required change may be the reduction of reliance on constraints and increased flexibility of tenure holders to make choices while ensuring incentive systems are in place to encourage internalization of public goods. Freeing the flow of fiber to best uses (e.g. elimination of appurtenancy requirements) and eliminating unproductive operational requirements are good initial steps in a tenure reform process. To deal with changing economic environments (e.g. increases in international competition and declines in the competitiveness of Canadian wood supply) and the anticipated significant but uncertain impacts of climate change, it is necessary to decentralize and diversify the entities which manage forest lands

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(e.g. by diversifying tenure types and preventing concentration of forest management entities) and to open the forest system to new players (e.g. by increasing privatization and the flexibility of trading rights, separating land management from processing and increasing tenure comprehensiveness).

While the role of government in operational decisions would be reduced, government would have an increased role in maintaining the institutional infrastructure, creating competitive markets for a broader range of forest products and services, maintaining competition, and ensuring transparency and accessibility of information required for efficient functioning of these markets. Government may also have an increased role in domains where markets fail (e.g. research and development and the provision of certain public goods).

Such bold reforms require the employment of appropriate implementation strategies. A key feature to such strategies is building a consensus among main stakeholders of the forest. Without participation of Aboriginal peoples in the design of new tenure systems and accommodation of their rights, such consensus is not likely to emerge. Implementation of change requires investment in the development of capacity to manage the change and capacity of stakeholders to function effectively within the changed system. Reforms are expensive but the alternative of “business as usual” may have a more significant cost.

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Reforms will require investment in the development of capacity to manage the change and capacity of stakeholders to function effectively within the changed system.



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A photograph of a forest with tall, thin trees and a path leading through them. The trees are mostly deciduous with light-colored bark, and there are some evergreens in the background. The path is a dirt road that curves through the forest.

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