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Alternative Tenure Approaches to Achieve Sustainable Forest Management: Lessons for Canada

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Knowledge Exchange and Technology Extension Program (KETE)
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Executive Summary

The motivation for considering new tenure policies in Canada comes from critiques of existing government tenure arrangements that are felt to fall short in several key dimensions: they fail to recognize environmental values adequately; do not incorporate non-timber values in operations and management; do not take sufficiently into account Aboriginal and community concerns; and do not provide the proper incentives for investment (either in the resource or in processing the resource). In response to these perceived failings a number of ideas for tenure reform have been suggested. These range from incremental approaches that involve modifying different features of existing systems (such as changes in tenure agreements) to proposals that consist of more radical or transformative changes in tenure systems themselves (such as a redistribution of ownership from the public sector to the private sector).

This paper describes a series of "experiments" where new policies have been introduced in response to complaints about existing forest management systems. An investigation of these "experiments" in tenure change can offer insight into the question of how to design new tenure policies that better help achieve SFM objectives, both by illustrating to what extent the desired outcomes were achieved and what factors influenced whether or not these policies were successful.

Seven different types of experiments are examined, all focusing on public forestland, most taking place in Canada but several of them taking place in other countries, including the United States, Australia, and New Zealand. In the discussion of each experiment three key questions are asked:

- What motivated the change?
- What changes were made?
- What were the consequences of the change (including any unintended outcomes)?

From the review of the different experiments, several key insights into designing new tenure policies emerge, not only in what kind of implementation issues might arise but also in what kind of factors determine whether or not policy change will be successful.

First, pilots — programs that by design restrict the scope of changes to either a small set of participants or a small area — are a popular way to test changes to existing systems. Pilots appear to be a politically acceptable way to explore changes within limited areas that do not require a substantial modification of the existing institutional structure. However, it appears that ideas that promote more radical change or ideas have difficulty in becoming pilot programs. It is also not clear how the experience gained from such pilots can be translated into more broad policy changes. For example, formal assessments of the pilot by governments are rare. This makes it difficult to generalize the results from such experiments and identify how existing policies should be more broadly changed.

Second, the full consequences of many of the experiments are not known, due to the lack of any kind of formal evaluation. The experiments do reveal not only the concerns different stakeholders have around different types of policy change but also some of the tensions and tradeoffs that exist between policy alternatives. This offers insight into designing polices that will help surmount the difficulties associated with implementing policy changes.

One of the major difficulties is the uncertainty associated with the change, whether it is around the distributional impacts or whether or not environmental outcomes will be achieved. This even affects the willingness of existing authorities to cede greater authority to local forest managers over the perceived political risk associated with failure. More explicit acknowledgement of these concerns in designing the policies might ease the implementation of new polices, as would a more systematic evaluation that would provide the information to address many of the questions and concerns that were posed prior to the changes.

Given these uncertainties, it is worth noting that some of the more dire consequences that were anticipated prior to the policy changes did not materialize in the experiments examined in this paper. Where policies failed, it was simply that they did not achieve the desired goals. Even where policies did not have a lasting impact, there was still a short-term benefit in learning about what factors determine the effectiveness of policies and how to incorporate that into the design of future tenure policies. In the cases where the policies are ongoing, it was clear that creating the space for "experiments" also allowed for some unexpected innovation — a key ingredient in adapting forest management policies for the future.

Finally, it is apparent that the effectiveness of any policy changes depends not only on what might be politically feasible but also the economic environment within which firms operate. If the policy changes are not economically sustainable then the effects of any such changes may be short-lived or limited. This is true whether the change is incremental or transformational. Therefore, while the motivation for changes to existing forest management approaches is usually a combination of public dissatisfaction with both environmental and economic outcomes, the economic feasibility of the selected policy or changes is critically important in determining whether or not it will reach a satisfactory outcome. In those experiments reviewed where the policies introduced through pilot programs have failed to fully achieve their desired goals, a common denominator was that there were no economic incentives (either market conditions were lacking or stakeholders perceived carrying out policies to be more costly than the benefits they receive). Changes to tenure need to incorporate both the political and economic feasibility of the proposed policies if policy change is to be successful.

Table of Contents

1.0 Introduction

New tenure policies are being considered in Canada

The motivation for considering new tenure policies in Canada comes from critiques of existing government tenure arrangements that are felt to fall short in several key dimensions: they fail to recognize environmental values adequately; do not incorporate non-timber values in operations and management; do not take sufficiently into account Aboriginal and community concerns; and do not provide the proper incentives for investment (either in the resource or in processing the resource). In response to these perceived failings a number of ideas for tenure reform have been suggested. These range from incremental approaches that involve modifying different features of existing systems (such as changes in tenure agreements) to proposals that consist of more radical or transformative changes in tenure systems themselves (such as a redistribution of ownership from the public sector to the private sector). Haley and Nelson (2007) offer an overview of these approaches and recommend more substantive changes to meet sustainable forest management (SFM) objectives.

Various tenure experiments can offer some insight for future tenure design

This paper describes a series of "experiments" where new policies have been introduced in response to complaints about existing forest management systems. An investigation of these "experiments" in tenure change can offer insight into the question of how to design new tenure policies that better help achieve SFM objectives. It can illustrate to what extent the desired outcomes were achieved (where such information is available), and what factors influenced whether or not these policies were successful. As well, the experiments offer the opportunity to examine the challenges of implementation by describing the concerns expressed about the policy changes and to what extent there are other outcomes (either positive or negative).

The paper concludes with a discussion of what insights are offered by these changes to the existing tenure systems in Canada.

Table 1 lists the experiments examined in this paper, all of which took place on public lands, mainly in Canada but elsewhere as well.[2] The experiments are classified by the type of change and the particular aspect of SFM it addressed or issue it was meant to resolve.

[2] The paper draws upon research conducted as part of the larger project investigating tenure systems in Canada. The author can be contacted at Harry.Nelson@ubc.ca or further information may be requested from Ilan Vertinsky at Ilan.Vertinsky@sauder.ubc.ca. This research was carried out in 2006 and as such the information presented and the conclusions that are drawn are based upon what was available at the time. In some case more recent reports or studies may be available that can offer additional guidance.

Table 1. Experiments Discussed in the Report

Experiment	Location	Type of Change	Objectives
Forest stewardship contracts	United States	Incremental—modification of regulations	Achieve environmental values in a more cost-effective manner
Innovative Forest Practices Agreements	British Columbia, Canada	Incremental—modification of regulations	Encourage greater investment in the timber resource
BC pilots	British Columbia, Canada	Incremental—modification of regulations	Achieve environmental values in a more cost-effective manner
Community forest tenures	Canada	Incremental—diversify tenure allocation	Incorporate social and environmental objectives through direct participation
Expanding Aboriginal participation	Canada	Incremental—diversify tenure allocation	Incorporate social and environmental objectives through direct participation
Corporatization	International	Incremental—organizational change	Manage public timber resources more efficiently
Privatization	New Zealand; Australia	Transformational change	Create incentives for private sector to invest in both the resource and processing industry

Classifying Different Types of Changes

The experiments in this paper fall into one of two categories: **incremental change** and **transformational change** (which is defined here as a fundamental change in the roles and responsibilities of major stakeholders). In terms of incremental change three approaches are described: (1) modifying the regulatory system; (2) diversifying tenure allocations; and (3) restructuring government agencies. This type of change is more common as it is relatively easier to implement. Transformational change is likely to elicit opposition from stakeholders over the distributional impacts and the potential uncertainty transformational change can create.

Changes can be described as "incremental" or "transformational"

Each of the incremental changes can encompass a variety of different approaches that differ in terms of policy mechanisms as well as policy objectives. Modification of regulations may move from the traditional "command and control" approach directly regulating firm behavior to the use of targeted incentives or market instruments. These incentives may either involve rewarding certain behavior or actions through some kind of benefit (such as a subsidy) or penalizing such behavior (such as a tax). Alternatively the incentives may be linked to a specific outcome rather than tying it to firm behavior. A second approach to achieving

Targeted incentives and re-organization within existing systems are examples of incremental change

different outcomes is to allow greater latitude to forest managers to make their own decisions over what values they want to trade off and what objectives they set (although they are ultimately constrained within the framework of existing tenure systems). Diversifying tenure allocations involves incorporating tenure holders that are not necessarily forest product companies but other entities that may have different objectives in terms of forest management. The third type of incremental change involves organizational change within the government. This may involve the development of new organizational forms (i.e. corporatization) or the development of intermediaries to link agents (i.e. where a new government agency may be introduced to encourage cooperation across sectors or responsibilities are distributed across different agencies). These changes are all incremental in that the government retains ownership and control around major forest management decisions and objectives.

Transformational change is defined as a substantial change in the distribution of rights and responsibilities

Transformational change takes place when there is a substantial change in the distribution of rights and responsibilities held by different parties. In the context of public ownership of forest resources, one way in which this can occur is transferring ownership or control from the public to the private sector. In the Canadian system, the emphasis is on the allocation of timber through long-term leases and reliance on prescriptive regulation. As such, another way in which such a change could occur would be through the withdrawal of government from a direct role in managing different aspects of the resource, relying instead on developing new markets for non-market goods (such as environmental services) or expanding the role of existing markets. The use of markets is considered to involve more transformational change as markets shift the focus of control of firm behavior away from the historic regulated government-industry relationship (in the context of Canadian forest policy) to one involving new actors and rules.[3]

There are few examples of transformational change as they can be politically contentious

Given the difficulty involved in making transformational types of changes it is not surprising that there are few forestry-related examples. Transferring ownership or control of public institutions or the responsibility for government services to private sector entities is likely to elicit opposition. The transfer of public resources, especially around forests, can evoke even stronger reactions. The introduction of markets is also likely to be politically contentious. Uncertainty over market outcomes, the degree to which reliance on markets may erode or reduce government discretion, and normative beliefs about the appropriate role for markets in terms of forestry can all help increase resistance to such a change from all stakeholders, including civil servants within government, industry and the public. Indeed, an example of such a change (the development of markets for environmental services) consists of an approach that is generally agreed to be worth pursuing but has yet to be implemented in a meaningful way (Binkley 2005, Brand 2002).

The discussion of each experimental tenure change is organized into three parts:

1) a description of the experiment;
2) a review of any political concerns or implementation issues that arose in the process of carrying out the experiment; and
3) an analysis of the outcome of the different experiments, including any unforeseen or unintended consequences.

[3] It is noted, however, that government policy continues to play a key role in shaping how these markets develop (especially where new ones are contemplated) as well as how smoothly they operate.

In many of the experiments reviewed, there was no formal evaluation of whether or not they achieved their objectives and as such, the conclusions that are drawn rely on secondary information.[4]

2.0 Modifying Existing Regulations

Three examples were selected in which existing regulatory systems were either modified or incentives were provided that were targeted towards particular outcomes. The first involves efforts by the United States Forest Service (USFS) to find alternatives to its existing approach to timber management in meeting environmental and social objectives.[5] The subsequent two examples involve attempts in British Columbia to explore the use of incentives, first to foster investment in the forest resource, and secondly, to incorporate them into the regulatory scheme.

2.1 Stewardship Contracting

Stewardship contracting was an effort to simultaneously satisfy several different objectives. These included achieving forest management objectives more efficiently at a lower cost while also providing for greater local economic benefits and increasing public participation in meeting those objectives.

The US Forest Service historically has had two mechanisms through which it manages timber harvesting in National Forests. The first is the traditional timber sale where the USFS contracts a logging company to harvest trees to some predetermined prescription, with the proceeds of the sale going into the general fund of the US Treasury. The other mechanism was through standard contracting processes where the government would secure bids to perform specified tasks with the lowest cost bidder winning the right to work, and the payments made from appropriations provided through the legislative budgeting process. As budgets started to shrink, the USFS felt it was falling behind in maintaining healthy forests and started exploring new ways in which it could meet its objectives.

Stewardship contracts were designed to increase efficiency, provide greater local economic benefit and increase public participation

The USFS also wanted to help local communities play a greater role in forest management and realize more of the economic benefits. The procurement process tended to favor larger contracts. The lower procurement costs, combined with the lowest cost requirement, put smaller local companies at a disadvantage when bidding on projects. The model favoured large, mobile companies that could send in employees to do the work and then move on to the next project in another forest. This created no local jobs, nor did it facilitate any community input into the process.

The idea behind stewardship contracting was then two-fold. First, change the contracting procedure so that it was no longer emphasized the lowest cost bidder (instead the best value bidder based in part on the expertise that local companies could bring to the work). Second, utilize some of the harvest to offset the costs of the contract so that more work could be done with existing budgets. The government also hoped that such a program involving local communities and focusing on improving environmental outcomes might reduce the likelihood that a timber-harvesting plan might be appealed (Salant 2002).

[4] As noted earlier in footnote 2, this research was carried out in 2006. Additional studies and reports on these different exercises may now be available that may extend or modify some of the conclusions presented in the analysis.

[5] This section is based on a paper prepared by Craig Mayberry.

The first pilot program, encompassing 28 contracts, started in 1998

Stewardship contracting was legislated by the United States Congress in 1998. The requirements were for an initial pilot consisting of 28 contracts. In 2003 legislation was passed making the program more permanent and removing its designation as a pilot.[6] Stewardship contracts can be used to meet the following land management objectives:[7]

- Road and trail maintenance or obliteration;
- Enhancement or protection of soil, wildlife habitat, fisheries and other resource value;
- Setting prescribed fires to improve forest health;
- Watershed restoration and maintenance;
- Restoration and maintenance of wildlife and fish habitat;
- Noxious and exotic weed control and the reintroduction of native plants; and
- Non-commercial harvesting of trees to promote healthy forest stands or to achieve other non-commercial objectives.

The original legislation establishing the pilots provided for the following changes in the procurement process:

The pilot consisted of changes that were made to the traditional contract procurement process

- ***Exchange of goods for services*** — under the traditional procurement process the proceeds of timber sales would go to the Treasury while contracts were paid for through the appropriations process. Under the pilots, these two processes could be combined and the contract could specify that the timber harvested could offset the cost of other services being provided. This allowed the USFS to contract out more with the same appropriations budget by moving revenue, that used to go to the Treasury, to offset work being done.

- ***Receipt retention*** — receipt retention takes the exchange for goods and services concept even further and allows for instances where the revenue from timber harvest exceeds the cost of the contract can be used at the discretion of the USFS. If a contract for road building cost $10,000, and in the process they harvested $20,000 worth of trees, the additional $10,000 would go back to the USFS and could be used within the same region for other projects.

- ***Best-value contracting*** — this changed the traditional procurement processes such that local companies with a working knowledge of the forest could effectively compete for contracts. Evaluation criteria now included; past performance, technical proposal, price, local economic benefit, use of by-product, and schedule.

- ***Less than full and open competitive contracting*** — for smaller contracts under $10,000, the USFS no longer had to go through the traditional procurement process. They could contact firms and solicit bids from local companies that before would not be considered.

- ***End-results contracting*** — the government would outline the end results after the work had been completed. The contractor could spell out how this was to be done in order to facilitate lower costs and innovation. The contractor is still required to outline what is being done and the USFS still has to approve all plans.

[6] The legislation extended the program for 10 years as well as broadening it to include the BLM (American Lands Alliance 2004).

[7] Public Law 105-277, Section 101(e) Division A, Section 347.

- ***Non-Department of Agriculture administered contracts*** — this option allows employees of companies outside the Department of Agriculture to prepare and administer timber sales.

An additional change was made to the program permitting multi-year contracts (the maximum term of contracts was extended from 5 years to 10 years). This change was made in hopes that the longer-term nature of the contracts would allow smaller and local companies to play a greater role due by lowering the risk and uncertainty.

The legislation also required multi-party monitoring of the pilots and annual reports to be completed for each of the participating regions. This multi-party monitoring involves local, regional, and national interest groups evaluating the local pilot while an NGO, the Pinchot Institute, provides the national oversight. The Pinchot Institute has worked with various regional and local groups to provide more effective local oversight.

Multi-party monitoring of the pilot for each participating region is required

Legislation passed in 2003 made two changes to stewardship contracting. First, the phrase "non-commercial" in regards to both harvesting and the type of land management objectives was removed, allowing for commercial activities within the scope of the program. Second, pilot-specific scrutiny was dropped, with monitoring to take place at the program level (American Lands Alliance 2004).

Implementation

The changes faced criticism from several fronts including environmental groups. The idea of stewardship contracts was resisted by some ENGO's that felt that former checks and balances that were in place to make timber harvests more difficult were abandoned and that stewardship contracts simply provided a means to increase timber harvests without appearing to do so publicly. Other concerns included whether it provided an incentive for local foresters to increase harvests and a perceived reduction in accountability. The loss of accountability stems from specific concerns about how the program would be implemented to more general concerns that the program was leading to a fundamental change in who would be making the decisions over how to manage public forests. The more specific concern was that previously, USFS employees had marked which trees could be cut and this would now be the responsibility of the contractor (who had to meet the specified prescription). There was a fear that the contractors would place more emphasis on financial returns than environmental outcomes in their decision-making process, thereby either not fulfilling the environmental objectives or, in the worst case, harvesting timber that was previously restricted for environmental reasons.

Reduced accountability is a concern of stewardship contracting

A more general concern had to do with whether or not the overall system, by giving the local USFS manager more freedom to enter into contracts, combined with the perceived incentives to harvest more, meant that effective management of the public forests was being privatized. Concern was also expressed that timber receipts and costs could no longer be tracked as easily, making it more difficult to ascertain whether or not increased harvesting was taking place (Salant 2002, Defenders of Wildlife).

The move to make stewardship contracting semi-permanent, combined with the other changes described above, met with criticism. A number of ENGO's felt that stewardship contracting had become permanent without adequate public debate about the validity of the concept or even understanding how well the pilots had worked (American Lands Alliance 2004, Green Scissors 2003, American Forests 2005).

Lack of training and low internal support are challenges to implementation of stewardship contracting

The USFS faced several challenges in terms of implementation. Much of the initial criticism focused on the lack of training, both within the Forest Service and with companies wanting to bid on contracts. This delayed the issuance of new contracts. There has also been uneven support within the USFS, with some regions moving quickly, while other areas have been slow to react. Finally, not all contracting companies were initially aware of the option to use stewardship contracting, further reducing the potential uptake.

Part of the issue involving training is that many of the processes are very new and no one has been sure how to effectively work with the changes. Each pilot project has had to start from scratch to figure out how to implement stewardship contracting. In some cases, public input has occurred rather late in the process, which has created problems that are then addressed through litigation. Employee turnover in the USFS is another challenge. As people switch jobs, projects that were well along must now be spearheaded by different individuals, which can create delays as re-evaluations are performed.

Stewardship contracting requires companies to have more than just timber harvesting skills

Early on firms expressed concern that the budgeting process did not necessarily match up with the objectives of the long-term contracts. Indeed this was one of the reasons for the subsequent extension of the term of the contracts from 5 years to 10 years. Companies also needed to acquire new skills — previously they had specialized in either timber harvesting or other particular types of contracts. Stewardship contracting requires companies to handle both timber harvesting and other services. This requires a significant change for businesses that are unfamiliar with how the other half does their pricing and management. The requirement that all USFS contractors be bonded creates a significant hurdle for small companies that do not have the resources or the financial justification to purchase the necessary bonding insurance. These challenges have minimized the use of stewardship contracting by local companies. In many cases when the USFS advertises stewardship contracts there are few bidders — in some cases there are none.

Another challenge is finding more effective ways to incorporate stewardship contracting into existing organizational processes

Finally, a number of stakeholders have complained about the inconsistent support of the USFS. Not all local leaders understand, nor support the concept of stewardship contracting. The newness of the process means there is considerable upfront work to implement it. With resource constraints already a problem, taking on the burden of stewardship contracting has been more than some USFS personnel can handle. The use of stewardship contracting also has not permeated the internal reward system. These challenges can lead to long delays, which can then lead to changes in requirements.

The stewardship contracting process was designed to reduce the cost of implementation, but this has yet to be realized. One suggestion to rectify this has been to come up with standardized contracts. Contracts currently in use do not cover stewardship contracting so additional time and energy must be used to develop new contracts.

Outcomes

There were a number of economic and social benefits expected from implementing stewardship contracts, including increased efficiency and community participation. It was also hoped that this would help create new markets for smaller-diameter timber (of which the USFS has extensive stands with forest health issues that it is trying to manage). The initial pilots have shown some progress in achieving these goals. Results have been mixed and it is thought that this may be an implementation issue rather than a fundamental problem with the program.

Reports state that two of the biggest benefits of the stewardship contracts have been greater public interaction and the use of local labor. An assessment of various pilots in the Pacific Northwest showed that local hires accounted for nearly all of the people employed. However, both results are somewhat qualified. While the Inland Northwest Regional Monitoring team conducted an in-depth analysis of this issue and reported a high degree of local employment, more generally the use of local labor has been hindered by the factors discussed in the implementation issues.

Stewardship contracts have led to greater public interaction and increased use of local labour

In regard to public input, participation has increased but collaboration is still a difficult issue. An evaluation of the program noted that "many pilot projects" have struggled with collaboration and that "Agency personnel often avoid truly collaborative processes instead preferring scoping exercises" (National Monitoring and Evaluation Team 2005). Conservation groups have complained of being allowed to provide input too late in the process, but some of this was due to other restrictions or projects being underway before they became stewardship contracts.

One of the early criticisms of stewardship contracting was that it would create incentives for the USFS to overharvest timber to pay for maintenance. It appears that sufficient controls remain in place to prevent over-harvesting of trees as none of the three monitoring teams have reported this as an issue. ENGO's continue to express concern about a reduction in accountability due to private contractors taking on more decision-making authority and a reduction in the amount of information available to the public that would permit them to monitor activities. In the traditional system, revenue and spending were accounted for separately and it was easy to understand how much was being spent. With an exchange for goods and services it is possible that some of the spending is covered in the revenue offset, making it more difficult to track all of the costs. In addition, the amount of timber harvest, a common metric used for ENGO's to monitor performance, is also now partially included as an offset to spending, making it more difficult to obtain the information (American Wildlands 2004, Green Scissors 2003).[8] Perhaps as a consequence of this fear stewardship contracts still face a high level of appeals with approximately two-thirds appealed annually on average (National Monitoring and Evaluation Team 2005).

A decrease in accountability continues to be a concern due to insufficient public information

[8] Not all ENGO's are opposed to the program — some groups support the idea and feel that there is long-term potential in its approach (American Forests 2005).

2.2 Innovative Forest Practices Agreements in BC

IFPAs provide a mechanism where firms can invest in resources and realize a return through increased timber harvests

Provincial governments in Canada are often interested in creating a set of incentives that will encourage firms to increase their investment in the forest resource (beyond that which they are mandated to do) in order to increase timber yields. Examples of firms carrying out such work voluntarily under existing forest management frameworks are rare with firms treating silviculture as a cost to be minimized. Any increased expenditures on silviculture are usually associated with available government funding (either federal or provincial) and are usually tied to a specific objective (i.e. treating insufficiently restocked stands). The Innovative Forest Practices Agreements (IFPAs) in BC depart from this more traditional fund-driven program approach. These agreements provide a mechanism where firms can invest in resources in a number of different ways and realize a return on that investment through increases in timber harvests. In developing the agreements, the provincial government also had a secondary objective; it was hoping to move towards more collaborative area-based planning by licensees that currently held volume-based licenses within timber management units in the province.[9]

In BC in a 1996 amendment to the Forest Act the provincial government established provisions for firms that held volume based licenses to voluntarily enter into negotiated agreements with the Ministry of Forests called Innovative Forest Practices Agreements.[10] IFPAs were initiated at a time when the forest industry was experiencing significant financial losses, and the government proposed IFPAs as a way to stimulate investment in the resource within the industry. IFPAs would also test new approaches to forest management by providing licensees an opportunity to gain additional allowable annual cut (AAC) by:

1) conducting innovative forestry practices on defined management areas in timber supply areas (TSAs), and
2) maintaining and enhancing employment in forest management, processing and other related operations.

IFPAs defined what type of activities could be considered innovative

Eligible categories of forestry practices considered innovative were defined by the legislation and included:

1) enhanced silviculture treatments to free growing stands;
2) enhanced silviculture treatments to stands that have not yet reached free growing;
3) generating more accurate inventory and growth and yield information;
4) activities that increase the amount of productive forest;
5) alternative harvesting methods and silviculture systems; and
6) harvesting uneconomic timber.

[9] British Columbia is somewhat anomalous as the majority of its timber on Crown land is harvested under volume-based agreements (Forest Licenses) rather than area-based agreements as is the case elsewhere in Canada. Volume-based agreements have been extensively criticized, as they offer no incentives for any kind of longer-term management of an area that they harvest, as there is no assurance that the company will be returning to that site.

[10] This and the following section on the BC pilots are based in part on research carried out by Susan Lee.

Implementation

There do not appear to have been any public or community concerns regarding this approach. The views that were expressed had more to do with whether or not increases in AAC would reduce opportunities for other licensees or First Nations within an area (MOF 2003, MOF 2005a).[11] There was some minor concern expressed about how to monitor the effectiveness of the program and to find a cost-effective way to do so (MOF 2000). This may reflect the fact that all stakeholders generally supported the objectives of the program in terms of enhancing investment in silviculture.

Outcomes

8 IFPAs were initially created

There were eight IFPAs established: five in the Southern Interior, two in the Northern Interior, and one on the Coast (BC MoF 2005b). The Southern Interior pilot areas consisted of Adams Lake, Arrow, Lignum, Merritt, and Okanagan. Adams Lake and Lignum are single licensee IFPA pilot areas, while Merritt, Arrow and Okanagan IFPA pilot areas involve multiple licensees who work together through formal groups (Ministry of Forests 2001). The two IFPA pilot areas located within northern BC were the Morice-Lakes IFPA and Vanderhoof IFPA and also involve multiple licensees. The Coast IFPA area in Hope is a single licensee pilot. Not all IFPAs have received an AAC increase nor did those that received their increase receive the full amount proposed. As of 2006, Merritt, Vanderhoof, Adams Lake and the Okanagan were the only ones to receive an increase.

Recently, addressing the mountain pine beetle infestation has overtaken the efforts of the IFPAs in some areas

More recently, addressing the volumes created by the mountain pine beetle infestation have overtaken efforts of the IFPAs in place such as Morice, postponing any AAC increases due to the IFPA.

Improving inventories and growth and yield information was the approach used by companies to increase their timber supply

The approaches used by the forest companies to demonstrate an increase in their timber supply focused largely on improving their growth and yield data and quality of their inventory information. The companies largely utilized public funds to carry out the work. It is estimated that a total of $45 million from the Forest Renewal British Columbia (FRBC) program and an additional $11 million from the Forest Investment Account (FRBC's successor) was utilized for this purpose.

IFPAs helped build collaborative arrangements between different licensees but did not lead to a broad range of innovative activities

One of the principal benefits of the program has been the new collaborative arrangements forged between different licensees who previously resisted attempts to encourage cooperation.[12] When FRBC was restructured and the funds were no longer available, participating licensees strongly advocated for the continuation of the IFPA program. They felt the IFPA agreements were useful in allowing firms to find ways to mitigate reductions in AAC and to explore new partnership arrangements not only between different licensees working in the same area but also with other stakeholders (IFPA Provincial Working Group 2001). At the same time, government officials were disappointed as they felt that the program had not met its main objective. Firms chose to do only inventory and modeling work and had not conducted any other kinds of activities. There is also now a concern that

[11] However several IFPAs have included local First Nation groups in part to address these concerns.

[12] One goal of government has been to find ways to encourage volume-based licensees to work together in an initiative called Defined Forest Area Management (DFAM) whereby licensees in the same area would develop plans, management strategies, and carry out inventory work jointly. By this measure the agreements appear to have been effective based on interviews with some of the participants.

government is reluctant to follow through on a commitment to make the AAC increases permanent (Stuwix News 2006).[13]

2.3 Results-Based Forest Practices BC Pilots

Results-based pilots were to reduce regulatory burdens and focus on results rather than rules

Both provincial governments and forest companies are concerned about the cost-effectiveness of the traditional regulatory approach, which relies heavily on prescription. Governments are interested in seeking alternative approaches that might provide better outcomes at a potentially lower cost.[14] In BC this question took on added urgency following the introduction of the Forest Practices Code (FPC) with its highly prescriptive approach and industry complaints over the costs and stringency of meeting the Code. In response, the BC government developed Part 10.1 of the Code, titled "Pilot Projects to Improve the Regulatory Framework for Forest Practices". The main purpose of the pilot projects was to test results-based forestry and explore new ways to regulate and enforce BC forest practices (Findlay 2001). The pilots were to explore opportunities for innovation and potential efficiency gains with cost savings for both industry and government.

In the short run, the objectives were to reduce both the regulatory burden and government oversight, and test forest management practices that focus on results rather than rules. In the long term the objective was to examine whether BC was ready to move to a more performance-based code (Canadian Forest Products et. al 2001). Indeed Part 10.1 of the FPC stipulates that these objectives be similar across the pilot projects while allowing the licensees the flexibility to determine how to meet these objectives. As BC's forest tenures are so diverse, the pilots were to be tested on a variety of tenure sizes throughout the province. A limit of ten percent of all allowable cuts however, was enforced so as to prevent pilots from being concentrated in one region.

Implementation

3 pilots proceeded

Six pilot projects were proposed of which three proceeded representing different regions in the province: Stillwater on Vancouver Island, Riverside, in the Okanagan, and Fort St. John, in northeast BC. The remaining pilots did not due to a change in the provincial government from NDP to Liberal and the implementation of the Forest Range and Practices Act (FRPA), which was meant to replace the FPC with a more performance-based code. Some applicants felt that FRPA provided sufficient flexibility relative to the FPC and, after examining the benefits and the costs of continuing with the pilots, decided there was little value to maintaining the operation of the pilots. Those that continued with the pilot projects had several reasons. First, some felt that it provided additional flexibility that was not found in FRPA and it remained worthwhile to continue operating the pilot project. Others had made commitments to their shareholders and their public advisory group to certify their forests through CSA certification, requiring them to continue with the pilot project.

[13] At the time this paper was written there were no formal evaluations of the IFPA program. Subsequently a report was prepared that offers additional detail and discussion of the pilots (Breakthrough Forest Solutions 2006) — the permanence of any AAC increases continues to be an issue.

[14] This is a more general concern in the area of environmental regulation, where governments have been exploring a variety of approaches to move towards regulations that rely more on results and incorporate either voluntary commitments or incentives to achieve those results. The best known example of a pilot in this area is the EPA's XL Program in the US that attempted to strike environmental contracts between the regulator (the EPA) and companies that would grant the companies increased flexibility and reduced oversight in exchange for meeting negotiated pollution targets.

Several concerns were expressed in regards to the pilots. Since pilot projects are an experiment, evaluation methods needed to be developed and implemented in order to assess and monitor the progress, achievements and problems that may arise. While the proponents have developed criteria and indicators (C&I) to measure their performance against its objectives, it is questioned whether they are the "right" criteria and indicators and how well they measure the desired environmental outcomes. In some cases there are questions as to what should be monitored, who should pay for the monitoring, and who is responsible for different environmental attributes. For example, to what extent is a licensee responsible for wildlife populations that cross planning boundaries? There are also public concerns as to whether companies can be trusted to ensure that the best environmental outcome is achieved if it is not prescribed (West Coast Environmental Law 2001).

Establishing the "right" criteria and indicators to measure performance was a key issue

Outcomes

In general all the pilot applicants were seeking to reduce the administrative costs and complexity of planning. They seeked to develop plans that could be approved at the higher landscape level and would not require ongoing approval of the more detailed operational plans. However the emphasis of each of the pilots was slightly different. Canfor, the licensee in the Ft. St. John pilot, emphasized an approach to developing an integrated management plan with multiple licensees and utilized certification to reduce some of the administrative requirements. Riverside (now Tolko Industries) in the Okanagan was exploring the use of higher-level constraints through zoning the landbase to achieve better environmental and economic outcomes. Weyerhaeuser on the BC coast in Stillwater was investigating different ways of enhancing public participation in the planning process to develop longer-term plans and reduce the need to seek more frequent approvals. To date there has not been any systematic assessment as to whether these approaches were successful or not.[15]

There has not been any systematic assessment of the pilots to determine whether they were successful

All of the pilots provided a higher level of public participation.[16] How to structure this participation was open-ended; the licensees chose at what level the public could participate and how they could participate. The level of participation differed in all three pilots: in Stillwater the Community Advisory Group (CAG) was involved at the beginning and throughout the planning process, while in Fort St. John the role of the Public Advisory Group (PAG) was to review and comment after the plans were developed (Canadian Forest Products et. al 2001). Tolko pursued a similar approach, incorporating public participation into the design of the pilot program but not involving public advisory groups in the planning process.

The pilots all had a higher level of public participation, each structured differently

In regards to defining desired environmental results and how best to achieve them, Tolko undertook considerable effort to identify the most appropriate C&I and to relate them to desired environmental outcomes. Canfor focused on gaining certification under the Canadian Standards Association (CSA) and tailored its C&I to match, while Stillwater looked to the local CAG to help provide input as to the most appropriate local C&I. All of the licensees prepared new plans using information gained in the process of pursuing the pilots. Tolko has yet to implement their plan as there are still unresolved questions as to what C&I should

Licensees prepared new management plans based on knowledge gained through the pilots

[15] As of 2008 this was still the case.

[16] In fact this was one of the government's objectives.

be measured and the costs and responsibilities associated with monitoring C&I. In Stillwater, public participation has been scaled back as it proved to be more costly than originally anticipated.

The introduction of FRPA reduced the importance of the pilots in terms of insights for policy change

One of the desired objectives for the pilot projects was that the experience gained might shed light on possible changes to existing regulatory practices. One MoF official stated their uncertainty as to whether the pilots will be used to change anything because of the implementation of FRPA. However, they did feel that the pilots contributed to improved working relationships between the government and the licensees.

3.0 Diversifying Tenure Allocations

Provincial governments have moved to diversify tenure ownership within existing systems in Canada in two areas. The first is the effort to develop community forests; the second is increasing the participation of Aboriginal groups in the forest sector through directly granting them tenure allocations. There have been calls for the development of an Aboriginal tenure (Ross and Smith 2002) more suited to Aboriginal goals. However, to date such a new tenure form has not been developed; instead, efforts have been focused on incorporating these goals and objectives within existing systems (as can be seen in the two examples discussed below).[17]

Community Forests

Community forestry is seen as a way to increase local benefits and influence over forest management

One of the perceived flaws in existing tenure systems has been the lack of opportunity for communities to participate more directly in forest management decisions. A second and related issue is the desire to maintain and enhance local benefits accruing from forest management. Over the past three decades a movement seeking more local access and control over Canada's forests has emerged out of a critique of the conventional model of forest management and governance and a tenure system designed for a high-throughput sustained yield management regime (Pinkerton 1993; Ross 1995; Burda 1997). There are concerns expressed around the existing system and the incentives it creates that lead to job losses and less than optimal wood utilization (Marchak, Aycock et al. 1999). Community forestry is seen as an alternative approach to forestry that can create opportunities for stable employment, value added manufacturing, and diversified local economies. It is also hoped that community forests will manage for a range of values and operate in a more sustainable manner (Burda 1997).

A number of jurisdictions have made efforts to devolve forest management rights and responsibilities to different community groups (White 2002). In Canada, there are several locally based initiatives in forest management, although the majority of examples are found in Quebec, Ontario and British Columbia (Teitelbaum 2006). Many First Nations communities have continued traditional practices in their local forests, some of which involve co-management arrangements, sharing jurisdictional power with the provincial or federal government.[18]

[17] The discussion on Community Forests is based on work carried out by Lisa Ambus.

[18] See for example, the Whitefeather Forest Initiative (WFI), involving the Pikangikum First Nation and the Ontario Ministry of Natural Resources (OMNR) http://www.mnr.gov.on.ca/MNR/nbi/

Ontario has a number of diverse community forest initiatives managed by local government and conservation authorities originally set up through 'former Agreement Forests' (Harvey 1994, Teitelbaum 2006). The government of Ontario also launched a 5-year community forest pilot project in the early 1990s with the expressed purpose of implementing sustainable forestry by supporting community development (Harvey 1994). Quebec has a rich history of locally-driven initiatives and has recently instituted a series of changes enabling various community forest arrangements through intra-municipal public lands and Territory Management Agreements (Masse 1995; Teitelbaum 2006). In 1997, British Columbia initiated a small pilot project to design and implement a new tenure for community forests. BC's experience has received extensive attention from communities, environmental organizations, academics, and the provincial government (Mitchell-Banks 1999; Anderson 2002; Bradshaw 2003; McIlveen 2004; Barry 2005; Bull et al. 2005; McCarthy 2006; Tietelbaum et al. 2006). While there are ongoing community forest initiatives in Quebec and Ontario,[19] the following sections will focus on BC's community forest pilot project as it has been well documented and widely studied as an experiment in forest tenure.

There are several locally based initiatives in forest management in Canada

3.1 Community Forests in British Columbia

As early as 1945, during the first Sloan Commission, community forests were identified as a viable and desirable option for managing BC's forests. For several decades, the only avenue available for communities that wished to exercise management authority was through industrial forest tenures. One exception is BC's oldest community forest, the North Cowichan Municipal Forest that has been operating on 5,000 hectares of privately owned land, acquired by the municipality for non-payment of taxes in 1946. The second oldest community forest is in Mission. Since 1958 the municipality of Mission has owned and operated Tree Farm License 26 (TFL 26) (Allan 1994). In 1982, the Tl'azt'en First Nation obtained the rights to TFL 42, and in 1992, the Village of Revelstoke purchased TFL 56. By the mid to late 1990s, interest and support for community forestry was widespread, prompting the Union of BC Municipalities to pass a resolution calling on the government to increase opportunities for community management.[20] In lieu of an appropriate tenure, ten communities were awarded non-replaceable volume based Forest Licenses (FLs). While TFLs and FLs provided communities with fibre, the communities did not feel that the tenures offered the security and flexibility required to meet their broader management objectives (Burda 1997).

The history of community forests in BC is long

3.2 The Community Forest Agreement

In response to mounting pressure from communities, First Nations, and environmental groups, the NDP government introduced the Community Forest Pilot Project in 1997. The pilot project was announced as a part of the Jobs and Timber Accord and legislated under the Forests Statutes Amendment Act, 1998 (Bill 34). The Community Forest Agreement (CFA) was designed by the BC Ministry of Forests (MoF) based on the recommendations of a volunteer multi-stakeholder Community Forest Advisory Committee (CFAC).

[19] For a comprehensive inventory of community forest initiatives in Canada see Teitelbaum et al (2006).

[20] UBCM Resource Committee 1993. Motion put forward by Lake Cowichan.

Community Forest Agreements are similar to other tenures but provide opportunities to achieve locally-defined objectives

The new Community Forest Agreement is similar to other tenures in BC with respect to broad economic, social, and environmental objectives. The CFA differs from other tenures in that it is intended to encourage active participation and co-operation among stakeholders and provide communities with opportunities to achieve a range of locally-defined objectives. Characteristics of the tenure are based upon the TFL, with a few significant changes.[21] The following are features of CFAs:

- Community forests are area-based tenures;
- Applications for CFAs may be directly invited by the MoF or considered through a competitive process;
- CFAs may be governed by a municipal government, society, corporation, cooperative, partnership, or First Nation but the tenure holder must be a legal entity;
- CFAs must demonstrate broad community support, and involve the public on an ongoing basis;
- The CFA application requires a solid business plan;
- CFAs are subject to the same provincial regulations and standards as other license holders, including MoF approval and oversight[22]; and
- The CFA has a probationary term of 5 years. The community forest is required to submit two interim reports, and after five years is evaluated by MoF and CFAC. Based on this assessment, the tenure may be extended for 2 to 5 years, or replaced by a long term Agreement ranging in duration from 25 to 99 years.

There has been a tremendous response to CFAs but they only account for a small portion of BC's annual allowable cut

At the time the CFA pilot was announced, 88 communities expressed interest, and 27 submitted full proposals within the short window of time to submit an application (MoF June 16, 1998). Initially, the pilot project was going to include only four pilot communities. Due to the high levels of interest and quality of the proposals, the MoF increased the number of pilots and by July 1999 announced a total of seven pilot CFAs. A further expansion of the program was announced in October 2000, inviting three new pilot CFAs. At the same time they revealed plans to add eighteen more (Haley 2002). In 2003, the pilot project was established as a program and through the Liberal's Forestry Revitalization Plan, an additional volume of wood was reallocated to create new CFAs. By January 2006, eleven CFAs were operational (See Table 2), and thirty new communities were invited to apply for CFAs.[23] However, relative to the area and volume allocated to major industrial licensees, community forests still account for only a small percentage of the provincial annual allowable cut (AAC) (Haley 2002).

[21] See Cortex Consultants, September 2001. "A Quick Reference: British Columbia's Timber Tenure System"

[22] Effective January 1st 2006, the MoF amendments to the stumpage appraisal system manual allow CFA holders to pay a revised stumpage rate for a duration of 12 months. For most CFA holders this results in a significant reduction in stumpage fees and administrative reporting. This was subsequently turned into a permanent reduction.

[23] To illustrate the rapid growth in the program, as of April 2008, 650,000 hectares were being managed as community forest with another 700,000 hectares offered (http://www.for.gov.bc.ca/hth/community/).

Table 2: List of Operational CFAs as of January 2006

	License	Community Forest Organization	Area (ha)	AAC (m^3)	Date Offered	Date Issued
1	K1A	Burns Lake Community Forest Corporation	42,900	62,631	1999/06	2000/07
2	K1C	Esketem'c First Nation	25,000	17,000	1999/06	2001/02
3	KID	District of Fort St. James	3,582	8,290	1999/06	2001/03
4	K1E	Bamfield Huu-ay-aht Community Forest Society	418	,000	1999/06	2001/09
5	K1B	Harrop-Procter Community Cooperative	10,860	2,603	1999/07	2000/07
6	K1L	Likely-Xats'ull Community Forest Corporation	14,000	12,231	2000/10	2003/03
7	K1H	Village of McBride	60,860	50,000	2000/10	2002/08
8	K1K	Cowichan Tribes First Nation (Khowutzun)	1,786	10,000	2001	2004/12
9	K1M	Cheslatta First Nation	39,129	16,613	2002/07	2002/10
10	K1P	Westbank First Nation	45,693	55,000	2002/09	2004/08
11	K1W	Ktunaxa/Kinbasket Development Corporation	20,234	5,790	2004/03	2004/10
		Total	**264,462 ha**	**241,158 m^3**		

Implementation

While there is a sense of optimism and opportunity, practitioners have reported a series of challenges with implementing the new tenure (Anderson 2002; Gunter 2004; Barry 2005). The following concerns have been identified:

- There are few areas of forest land in close proximity to communities that have not already been allocated to other tenures. Anderson (2002) observed that many community forests occur in socially contentious areas such as community watersheds or marginally productive lands. Identifying appropriate areas for community forests is further complicated by land claim negotiations over First Nations' traditional territories. Several of the invitations to apply for CFAs are pending First Nation consultation (MoF December 10, 2005).

- Communities with a CFA are required to adhere to provincial statutes and regulations and this has tended to increase production costs (Bradshaw 2003). In the category of economic viability, one of the primary challenges for community forests is their ability to pay industrial stumpage rates (Mulkey et al. 2005). Given the small size and scale of CFA operations, the economies of scale do not weigh in their favour.

- The CFA is granted for a five year probationary phase and communities have reported that the probationary term has limited their ability to encourage investment and participation, creating significant obstacles to establishing a financially viable business (Mulkey et al. 2005).

- The CFA offers exclusive rights to harvest timber and rights to other botanical products. There is a potentially lucrative market for non timber forest products (NTFPs), however, mechanisms to regulate NTFPs and to protect First Nations intellectual property rights for traditional foods and medicines have not been developed (Powell 2005).

Obtaining local forest land and high production costs challenge the implementation of these tenures

- The learning curve for community forests is steep. Communities face several challenges simultaneously and with few resources - starting up a new forestry business, finding markets for their wood, engaging community members in decision-making processes, and so on.[24] Bradshaw (2003: 147) observed that, "the prospects of many pilots could be significantly improved if the province were to identify limitations in community capacity and assist with capacity-building where requested".

Outcomes

While there has not been a program evaluation, individual agreements are reviewed and evaluated for extension

BC's community forest program is undergoing rapid expansion and evolution. The number of community forests is increasing quickly as they are politically popular. The performance of each CFA holder is on an individual basis assessed after a five year probationary period.The MoF has yet to carry out a comprehensive program-wide evaluation. There are seven primary categories used in the evaluation: 1) Benefits and returns to the Province; 2) Economic Self-Sufficiency; 3) Forest Practices and Management; 4) Innovation; 5) Governance and Compliance; 6) Returns to the community; and 7) Incremental Use of the Landbase (MoF 2004). Additional factors include continued support by the public and community members. Depending on the outcome of the evaluation the MoF, in consultation with the Community Forest Advisory Committee, may decide to offer the community forest a 5 year extension, replace the pilot agreement with a long term license (ranging between 25 and 99 years), or terminate the agreement (MoF 2004).

In 2005, the first four pilot CFAs awarded in 1999 underwent an evaluation by the MoF. The results of the evaluation were generally positive: community forests managed by Burns Lake and the Esketem'c First Nation were each awarded a 25 year CFA, the Harrop-Procter CFA was extended by 5 years and the Fort St James CFA received a 3 year extension. To date no CFAs have been terminated; three that have been offered but were not extended have been due to applicants that were unable to resolve internal issues.

Forest practices have not changed substantially under CFAs

Generally the Community Forest Program enjoys widespread support, both locally and at the political level. To date there appears to be few changes in terms of forest management practices as license holders must prepare operational plans that need to be approved by the regional representative and must meet current forest practice standards. As well, license holders were initially subject to the same stumpage payments as other tenure holders. With regard to the AAC determination, these were mostly established by the MoF based on the community's objectives and land base available for the first pilot community forest agreements. The economic reality of small tenures remains a key challenge. Concerns have been expressed about the economic feasibility of the community forests, and indeed, stumpage rates were reduced sharply to improve their economic viability.[25]

[24] The BCCFA published a guidebook in response to questions frequently asked by communities seeking CFAs. See Gunter 2004.

[25] This change took place in 2007 with an 85% reduction in sawlog rates for the Interior and a 70% reduction on the BC Coast (http://www.bccfa.ca/about.php).

One unanticipated outcome of this initiative has been the 2002 emergence of a province-wide network of community forest organizations that acts as both an information provider and a policy advocate. The British Columbia Community Forest Associations (BCCFA) mission is to promote and support the practice and expansion of sustainable community forest management (BCCFA 2004).[26] The network has allowed local people to share information and ideas, and is proving itself to be an effective voice for communities seeking more local control over forest resources. The BCCFA has become a vehicle through which community forests and those wanting community forests can bring their needs and concerns to the attention of the MoF. On a few key policy issues, the BCCFA has been negotiating with government, seeking changes that are in the interests of CFA holders, such as the change in stumpage rates (Mulkey et al. 2005).

A benefit of this program has been the development of a province-wide network of community forest organizations

3.3 Expanding Aboriginal Participation in the Tenure System

The question of how to address Aboriginal and treaty rights in forest management has emerged as one of the key issues facing governments today.[27] Although the federal government has the responsibility to protect Aboriginal rights, it is the provincial governments that are responsible for managing Crown land and natural resources.[28] Even though Aboriginal and treaty rights are constitutionally protected under the Canadian Constitution Act, the exact nature of these rights continues to be a subject of debate between the federal, provincial and Aboriginal governments. This debate is typically played out in the Supreme Court of Canada and various lower courts, with recent decisions demonstrating that governments have a legal obligation to consult and accommodate Aboriginal groups potentially affected by industrial activities (Supreme Court of Canada 2004). Provincial forest tenure systems, through providing access to Crown resources, therefore become one of the focal points of this debate.

Provinces struggle with how to address Aboriginal and treaty rights in forest management

Provincial governments have responded to these obligations by introducing a variety of initiatives. Several authors have criticized these initiatives as being shortsighted and paternalistic in nature (Clogg 2004, Ross and Smith 2002). Such initiatives include the granting of small-scale forest tenures, encouraging joint ventures with industrial tenure holders or offering short-term agreements that provide timber and funding. Essentially these strategies have followed an "integration approach" in which Aboriginal communities are expected to operate within the existing industrial tenure framework (Ross and Smith 2002). Although several Aboriginal communities across Canada hold a variety of short-term forest tenures (NAFA 2003), there is concern that the industrial timber extraction orientation of these tenures may be incompatible with Aboriginal values and culture (Curran and M'Gonigle 1999, Ross and Smith 2002).

Various initiatives have been introduced to attempt to respond to this issue

There have been calls for the development of an Aboriginal tenure but this has yet to materialize. However, there are examples of Aboriginal communities that have created innovative forest management arrangements within the existing forest tenure system. This section highlights two such examples, the Nuu-chah-nulth First Nations of Coastal British Columbia and the Innu Nation of Central Labrador, that

Some Aboriginal communities have created innovative forest management arrangements within existing tenure systems

[26] See www.bccfa.ca

[27] This section is based on a research conducted by Jason Forsyth.

[28] The exception is fisheries where the federal government retains its authority.

have modified forest management regimes to focus on maintenance and protection of cultural and ecological values.

The Nuu-chah-nulth example was born out of the political clash over harvesting old growth in Clayoquot Sound. In 1993 political opposition from communities (Aboriginal and non-Aboriginal) over the rate of harvesting led to various government efforts to craft a politically acceptable approach and finally resulted (after a mounting and widely publicized series of public protests) in the establishment of a special panel of scientists and First Nations representatives. The Clayoquot Sound Scientific Panel was charged with the mandate of making recommendations on special forest practices appropriate to Clayoquot Sound. The Panel's recommendations were released in 1995 and were all accepted for adoption by the provincial government. Accompanying the Panel's work was a historic two-year Interim Measures Agreement (IMA) the BC government entered into with the five First Nations of the Nuu-chah-nulth Central Region: Ahousat, Hesquiaht, Tla-o-qui-aht, Toquaht and Ucluelet. The IMA established protocols for Nuu-chah-nulth participation and decision-making in land and resource management planning in Clayoquot Sound (Province of BC and Nuu-chah-nulth First Nations 1994).

The Nuu-chah-nulth First Nations and the Innu Nation are examples of co-management agreements

The Innu Nation example in Central Labrador also took place under a similar backdrop of political protest. In the late 1980s and early 1990s the Innu initiated road blockades to try to stop further clear-cut harvesting of their culturally important lands. At this time the Innu Nation also began to commission scientific studies of the environmental impacts of such operation. These studies highlighted several key ecological concerns and helped the Innu Nation develop an interim forest policy that was more consistent with Innu values. The Innu made it clear to the provincial government and industry that any future forestry activities in Central Labrador would have to incorporate an ecosystem-based management (EBM) planning approach, have direct employment benefits for the Innu, and ensure the Innu Nation is actively involved in all levels of forest management planning (Innu Nation 2003).

In response the Newfoundland and Labrador (NL) Department of Natural Resources shifted the provincial forest policy to an ecosystem management approach and updated the draft forest management plan for Central Labrador. Although the policy changes were progressive on paper, the Innu felt they did little to change the on-the-ground harvesting practices as large scale clear-cutting continued and the AAC remained the same. Although the forest operations in Central Labrador were only harvesting 50,000 m3/year, a draft management plan for the district had set the AAC at 400,000 m3/year. This represented a significant portion of the provincial timber supply (approximately 20%), considering that the entire provincial AAC is a little over 2 million m3 (NAFA 2003). This situation created an increased level of frustration within the Innu communities and tension between community members and forestry workers. To resolve this situation the Innu Nation and the province entered into discussions around the concept of co-management (Innu Nation 2003).

Implementation

In both cases co-management agreements facilitated the development of new intermediaries within the existing system. In the case of the Nuu-chah-nulth, the IMA created a co-management structure entitled the Central Regional Board (CRB).[29] The Board is responsible for reviewing and making recommendations on all proposed decisions of any provincial ministry dealing with natural resource management in Clayoquot Sound (Iisaak 2001). In January 2001, an interim Forest Process Agreement (FPA) was signed between the Innu Nation and the Government of Newfoundland and Labrador. The FPA served to initiate a formal process for how the Innu Nation and the province could collaboratively work together on forestry issues in Central Labrador.

The development of intermediary bodies to facilitate co-management are key to implementation

The FPA was implemented by creating three main management structures to achieve the specific goals of the agreement:

1) an EBM planning team comprised of representatives from both the Innu Nation and the Department of Natural Resources charged with developing a EBM forest management plan for Forest Management District (FMD) 19;

2) an Interim Forest Management Committee (IFAC) comprised of an equal proportion of representatives from both the Innu Nation and the Department of Natural Resources to resolve operational issues and develop new ecosystem-based forest management guidelines for Central Labrador; and

3) a negotiation team of senior Innu and Newfoundland and Labrador representatives that would work towards creating a longer-term co-management agreement as well as resolving any conflicts that arose from the EBM Planning Team or IFAC (Innu Nation 2003).

One of the outcomes of this process, in addition to a new EBM plan for Central Labrador, was the creation of a Forest Management Committee (FMC) to serve as the governing forest management body in Central Labrador.[30]

In both cases timber rights were provided through the existing tenure system, albeit with some modifications. In the case of the Nuu-chah-nulth, a new organization was formed, Iisaak Forest Resources Ltd, consisting of a partnership between the existing licensee at the time, MacMillan Bloedel, and the Nuu-chah-nulth, that was designed to hold the tenure within the area. To facilitate this new entity and fulfill their commitments of IMEA, the provincial government approved a new tenure arrangement that encompasses 87,600 hectares of coastal rainforest. The tenure arrangement is classified as a traditional Tree Farm Licence (TFL 57) and was partitioned off the existing TFL 44 held by MacMillan Bloedel. At the time the tenure was transferred new conditions and clauses were introduced so that the objectives and management practices governing operations on the tenure would follow the guidelines established by the Scientific Panel. In the case of the Innu, they were allocated a timber harvest allocation that is equivalent to

In both cases timber rights were provided through the existing tenure system with some modifications

[29] The Board is made up of one member per each Nuu-chah-nulth Nation and five non-Aboriginal members appointed by the provincial government.

[30] The FMC is comprised of two representatives from both the Innu Nation and Department of Forestry and is facilitated by an independent chair (Innu Nation 2003).

approximately 30% of the FMD 19 AAC. This currently translates to 15,000 m3/year and is expected to increase when new access structures are in place (Pomeroy 2004).

Outcomes

In both cases there were changes to forest management practices and strategic plans and reductions in AAC

In both cases there were significant differences in the strategic plans governing the area within which the tenures fell, as well as changes in forest management practices. In BC, one of the most significant of the recommendations of the Scientific Panel and the CRB was to eliminate clear-cut harvesting, the dominant harvesting system, and replace it with variable retention harvesting systems. Retention levels were recommended to be at least 70% on sites with significant values (for example, visual, cultural, or wildlife resources) and at least 15% on sites without significant values (CSSP 1995). There was also a significant increase in protected areas. The net result was that the AAC in Clayoquot Sound was reduced by over 60% (Marshak 1999).

In Central Labrador, one of the key outcomes was the creation of a co-authored ecosystem-based management plan for FM 19 (7.1 million ha). The plan identified ecological protected area networks at three different levels of planning as well as protected areas to ensure sensitive cultural areas and values are considered. Again there was a substantial impact upon the AAC; it was recalculated at 198,600 m3/year, which represents a 50% reduction from previous forest management plans for the district (Deering and Forsyth 2003). The NL Department of Natural Resources and the Innu Nation also developed a district specific set of ecosystem-based environment protection guidelines that differed from others utilized in the province. They placed limits on the size and scale of harvest blocks, required a minimum of 30% of in block retention for stand level protect area networks, and included more detailed specifications for riparian protection (Deering and Forsyth 2003).

4.0 Organizational Change

An alternative way to increase efficiency is to change the way the state manages its public lands

The earlier examples focused on ways in which it might be possible to better achieve different management objectives associated with SFM through changes in the regulatory framework and ways in which different stakeholders were incorporated into the existing forest management framework. In some cases achieving those objectives in a more cost-effective manner was one of the policy goals. An alternative approach to managing in a more cost-effective manner involves changing the way the state manages its public forestlands.[31] One of the ways this can be done is through restructuring the government agencies responsible for forest resources. Indeed, this approach has been fairly widespread, with this kind of restructuring taking place in a Europe and Australasia.

Creating an independent business unit within an existing government forest agency is an example of "corporatization"

The vehicles used to achieve these range from the creation of independent business units within existing state forest agencies to the "corporatization" of state agencies that can extend to the development of an explicit corporate structure such as establishing a board of directors and the creation of shares.[32] Such a

[31] This section focuses not on the extent to which SFM objectives might be met but whether there is evidence that these changes do lead to improvements in efficiency.

[32] The following is drawn from Haley and Nelson 2007.

corporation is given a mandate to maximize profits within the context of certain constraints devised to protect broader public interests — forest practices regulations for example. They are usually autonomous as far as business strategies are concerned including staffing, investment, production and marketing, and have the authority to raise funds in capital markets but not sell equity. Timber is sold competitively to the manufacturing sector in the form of logs and/or stumpage charged for standing timber.

4.1 Corporatization

A number of countries including Germany, Australia, New Zealand and Sweden have introduced varying degrees of corporatization to their state forest agencies. All had similar reasons for introducing these new types of arrangements, namely to reduce the demand on public funds and to improve the efficiency of existing operations (this has been part of a broader trend to have government agencies operate on a more business-like footing). While these arrangements all initially faced criticism, this was more to do with the distributional impacts associated with the new form and objectives, including changes in timber pricing, supply, and potential effect on government staffing, rather than any issues around forest management. Generally they met with some success in terms of increased efficiency reflected in profitability. In the case of New Zealand and Sweden corporatization proved to be a short-term measure on the road to privatization (discussed in the next section).[33]

Many countries have introduced corporatization to their state forest agencies

Implementation

State governments (which have substantial jurisdiction over public forests) in both Australia and Germany have elected to choose different forms distinguished in part by their relationship to the previous state forest agencies of which they were originally part. In Germany, starting in 1999, 10 of the 13 states embarked on programs of tenure reform designed to place forests, owned and managed by the state, on a sounder commercial basis. Privatization was considered during the reform process but rejected as an option in favour of corporatization. In fact, Bavaria, one of the leading forest states, passed legislation prohibiting the privatization of state forests. Two major types of public corporation have been introduced: the *Landersbetrieb* (state corporation) adopted by 6 states; and the *Anstalt offenlichen Rechts* (public law legal entity) adopted by 3 states. Three states have retained direct management by a public agency (*Regiebetrieb*) and one has a third type of arrangement known as a *Sondervermogen* (public law special fund). The state corporations (*Landesbetriebe*) are essentially profit centres run on a commercial basis but remaining under the supervisory control of state governments that also provide funding. In contrast, the public law legal entities (*Anstalt offenlichen Rechts*) are run as autonomous businesses although the states exercise some control by defining their public responsibilities.

There are various different organizational forms employed by different states within each country

In Australia, governments have reorganized state forest agencies to operate on a more commercial basis. This move was precipitated to some extent by the Commonwealth Government's 1995 National Competition Policy (NCP). Under this policy government agencies agreed to act on the basis of market principles and to impose similar tax and regulatory costs upon themselves that an equivalent

[33] The case of Sweden is not discussed in this report. Currently the commercial aspects of forestry on public land in Sweden are carried out under a corporate structure, *Sveaskog*.

private sector organization would face. Also, state governments would undertake to corporatize public agencies where appropriate.[34]

In New South Wales, South Australia, Western Australia and Tasmania, state forest management agencies have been reconstituted as Government Trading Enterprises (GTEs) with a mandate to function as profit seeking enterprises. In Queensland, DPI Forestry became a commercial business unit within the Queensland Department of Primary Industries. All the newly constituted GTEs retained responsibility for both indigenous forests and exotic plantations. The exception being Victoria, where responsibility for plantations was given to a separate corporation with the intention of privatization (discussed in the next section). The new commercial operations are expected to act like private sector businesses with obligations to pay equivalent taxes and meet similar regulatory obligations.

Outcomes

While these reform processes are still in a transitional stage, preliminary results in Australia suggest an increase in productivity

In Germany this reform process is still in a transition stage since most states did not complete reorganizations until 2005-2006. Consequently, the impacts of the restructuring on the profitability of state forests and the direction that forest management will take under the new regimes is still unknown. There is a similar issue in Australia given the short time frame within which GTEs have been operational. This, combined with difficulties encountered in making necessary changes to pricing and contacting arrangements, make assessment of the full impact of corporatization impossible at this stage. Preliminary results suggest a general improvement in productivity (with most GTEs showing a drop in employment while harvest levels have either remained steady or increased) and in performance, as measured by increases in the selling price for timber.

5.0 Institutional Transformation

Privatization of state forest resources is a radical change that is rare

The final sets of changes involve more radical change and not surprisingly are far rarer. The most prominent example is the privatization of the state forest resources in New Zealand (and to a smaller extent state commercial forests in the state of Victoria in Australia) where ownership of the forest resource was transferred to the private sector.

5.1 Privatization

Privatization was part of a broader macroeconomic policy New Zealand chose to address its financial and economic crisis

There were several key factors that led to the dramatic change in forest policy in New Zealand where privatization became seen as the appropriate response to the challenges facing the New Zealand government in regards to its forest sector.[35] First the country found itself in dire financial straits and government was seeking ways to "right" its financial ship.[36] Within this framework the existing management of state owned forest resources was seen as a drain on scarce government funds. It was thought that any asset sales could potentially serve as a source of funds that could be used to reduce net foreign debt. Second, government management was seen as inefficient and there was a need to ready businesses to compete in a new

[34] A more complete description of the process can be found in Nelson and Nikolakis (in progress).

[35] This section is drawn from Nelson and Vertinsky 2005.

[36] The net public debt was 40% of GDP; the government's deficit exceeded 6%; the current account deficit was 8%; the inflation rate was high and economic growth had fallen (Evans et al 1996). Perhaps more worrisome was that all of these measures were deteriorating further.

global environment. This was then coupled with the perceived need to undertake significant investments to process the expected increases in timber harvests over the next few decades.

For the newly elected government that embraced the use of markets, and identified the need to move towards a reduced role for government, such dramatic moves were ideologically appealing. Privatization became a politically palatable prospect. The same was true (albeit on a smaller scale) for the Victorian government in Australia. Here too the state government found itself facing severe financial constraints at the time it decided to privatize its plantation resources. The privatization took place when the federal government was moving to introduce national policies to encourage the restructuring of government agencies that would act more like commercial entities and help generate sustained improvements in productivity and national competitiveness.

Implementation

In New Zealand the government retained ownership of the land but sold harvesting rights to the existing timber plus rights to the productivity of the land starting in 1988. These packages of rights, known as Crown Forest Licences (CFLs), which vary in size from 51 to over 130,000 hectares, are renewable annually but entitle their holders to a minimum of 35 years notice if the licence is to be terminated thus allowing a full rotational cycle of radiata pine, the principal species, to be completed. In some cases, an initial term of 5 to 20 years was granted prior to the commencement of the 35 year notice period. The government retains a financial interest in the land through rents paid annually. The CFLs are freely transferable and divisible and are largely unencumbered by regulations, including requirements for reforestation, although public access for recreational purposes must be guaranteed unless there are safety or protection concerns. Interestingly, from a Canadian perspective, most of the privatized resources occupy land that is under unresolved Maori land claims. Agreements were reached with Maoris that, in the event of a land claim being settled, the Maoris concerned would honour the existing licences and, in return, annual rents would be placed into a trust fund that would be turned over to the successful claimant.

The New Zealand government sold harvesting rights with few regulatory requirements but retained ownership of the land

Most of the licenses were for land under unresolved Maori land claims

Privatization in New Zealand was restricted to state-owned exotic plantations and accounted for about 5 percent of New Zealand's land area (about 2 million hectares). Responsibility for publicly owned indigenous forests (amounting to 6.4 million hectares) was transferred to the Department of Conservation (DOC), while a new public agency – the Ministry of Forests, later to be combined with the Ministry of Agriculture – remained responsible for regulation and research. Indigenous timber, that prior to privatization was a significant component of the total timber supply, has been reduced to a mere trickle, mainly from private land.

In the Australian State of Victoria in 1993, the government established the Victorian Plantation Corporation; carved out of the Department of Conservation and Natural Resources. This corporation functioned as a profit centre within the Department with the eventual goal being its sale to private interests. The government created a new license, granting the right to grow trees in perpetuity, but retaining a fee simple interest in the land itself. The right would only be

In Australia a crown corporation was developed and later sold to private interests

One government goal was to attract additional outside capital

invalidated if there were a change in land use from forestry. The corporation was then offered for sale with existing supply contracts in place and was purchased by Hancock Victoria Plantations, a subsidiary of the American Hancock Timber Resources Group Ltd. The Victoria government's expectation was that by drawing in outside capital it would assist in attracting other investors into forestry and thereby help it meet its policy goal of trebling the area of plantations by 2020 (with this to take place on private land).

Outcomes

The New Zealand experiment has improved efficiency but investment has been less than expected

The New Zealand experiment has had some limited success. In the short-term, efficiency improved and profitability within the sector increased, however, investment in processing has fallen short of what was expected. Indeed, this continues to be a source of disappointment and government and industry continue to explore whether there are other factors may be responsible and need to be addressed (such as non-tariff barriers or the presence of restrictive local land use planning requirements). The potential long-term commercial impacts are less clear. Investment in the resource has declined somewhat as planting and management has been scaled back, in part because other uses out-compete forestry for land. Institutionally, the transfer of indigenous forests to the DOC has reduced the resources available for their management and the DOC has difficulties in meeting its objectives in terms of conservation and the provision of non-timber values, particularly recreational infrastructure.

In Australia the new ownership has not resulted in significant changes to forest management and investment has been less than expected

For the Victorian plantation, evidence suggests that management of the resource has not changed significantly under new ownership. However, there has been an increased emphasis on efficiency. Harvest ages have been reduced and, consequently, the profile of timber reaching the market is of lower quality than processors had received under previous management. There is increased use of contracting-out and, it has been suggested, wages paid are lower relative to traditional norms. In terms of investment in the resource, Hancock has not invested in expanding the resource through new plantings as the government anticipated, nor have outside investors entered the industry in a significant way. Although there has been an expansion in plantations, this has been in short-term hardwood pulp rather than in long-term softwood, the government's main goal.

Privatization has been a commercial success in terms of revenue generation and employment

A consequence of the increase in efficiency is that Hancock Victoria Plantations has been a commercial success measured in terms of the increase in revenues associated with the resource. Employment in the company has also expanded. However, as in New Zealand, there are concerns that the company's strategy is to maximize profits from log production, a high proportion of which are exported providing little incentive for investment in domestic manufacturing capacity.

6.0 Conclusion

In considering these efforts to introduce new approaches to forest management there are several common points that emerge. The first is the widespread use of pilots to explore changes to existing systems where the experimentation is confined to either a small set of participants or a small area. This reflects the desire to manage the political risk if such experiments are unsuccessful. All of the examples, with the exception of the co-management agreements involving Aboriginal groups, used pilots designed to address a particular issue. Pilots appear to be a politically acceptable way to explore changes within limited areas that do not require a substantial modification of the existing institutional structure.

Pilots seem to be a politically acceptable way to explore changes to existing tenure systems

However, it appears that those ideas that promote more radical change or lead to a more fundamental shift in authority have difficulty in becoming pilot programs. Examples in the US include a number of proposals to explore new ways of managing federal lands. These include proposals to utilize collaborative decision-making processes involving local stakeholders (either governing or participating in the planning); permitting local forest managers to retain the receipts from different forest-based activities; and the development of independent land management trusts with their own boards (Federal Lands Task Force Working Group 2000; Forest Options Group). None of these have yet been implemented.

Approaches that involve more radical changes have difficulty becoming pilot programs

Developing new approaches that require a redistribution of decision-making authority away from the USFS has proven difficult. In an independent case involving a potentially innovative collaborative approach to managing forests in Northern California, while initial efforts were successful in developing a forest management plan that had widespread community acceptance, the actual implementation of the plan has yet to occur due to opposition from both the USFS and national ENGOs.[37] In Canada, while there is some experimentation with new types of tenure, such as CFAs, and modifying existing tenure agreements, such as the IFPAs and pilot projects in BC, more innovative proposals (such as bundling multiple rights into one agreement or permitting different types of license holders such as ENGOs) face greater resistance even when framed as pilots.

It is also not clear how the experience gained from such pilots can be translated into more broad policy changes. For example, formal assessments of pilots by governments are rare. The BC MoF only undertook an evaluation of the IFPAs after the program was terminated, while CFAs have not been evaluated on a systematic basis nor have issues around their economic feasibility been carefully examined. In the case of the BC pilot projects, which were designed to yield insight into new approaches to regulation, no such evaluation was ever carried out. Assessments of such experiments become more difficult when there are multiple goals and the values held by the various stakeholders differ. For example, the experiments around introducing community forests and creating more innovative arrangements with Aboriginal groups effectively let those groups internalize the tradeoffs they want to make and make their own decisions yet at the same time (at least for the community forests) part of the evaluation consists of the benefits the province receives. Even where there are formal assessments, as carried out in stewardship contracting, the multiple goals make it difficult to identify how well it is achieving its objectives as the assessment depends upon a particular viewpoint (American Forests 2005).

Lack of formal assessments of pilots mean that experience gained from them does not get realized

[37] The Quincy Library Group, as it is otherwise known, involved a collaborative approach between community members, industry and local environmental groups to develop a timber harvesting plans for national forests in northern California. Currently the plan is tied up in appeals.

This makes it difficult to generalize the results from such experiments and identify how existing policies should be more broadly changed. In some cases, this difficulty is compounded by the nature of the change, such as diversifying tenure allocations (as in the case of community forests and Aboriginal involvement). Here the key mechanism is providing access to timber resources yet increasing the size or scope may be politically contentious as the resource is fully allocated across most of Canada. It is also more difficult to extend the model, as it requires changing ownership patterns which in turn requires a redistribution of rights.

A crisis along with a shift in the political landscape seems to be sufficient to make more substantive policy changes

Given these observations, it is also worthwhile to note that the most substantive change-privatization-or even some of the more substantive policy changes that have taken place (such as in BC in 2003) have happened despite the fact that they are politically more difficult. In these cases, a combination of a time of crisis along with a shift in the political landscape appears to be sufficient to overcome the political deadlock associated with the status quo. Niquidet, Nelson and Vertinsky (2007) discuss the recent policy changes in BC that combined several of the elements discussed above: the modification of existing regulations; diversification of ownership; and development of a business unit within the existing Ministry of Forests. Here too the changes were driven by crisis and the election of a new government that saw the need to move towards more market-based policies.

Pilots have encouraged innovation and led to the emergence of new organizations and collaborative arrangements

Despite these caveats, however, the pilot projects do appear to have encouraged innovation and in many cases have led to unanticipated outcomes that do offer insight into how further policy changes could be supported or extended. Some of these outcomes involve the emergence of new organizations and institutional innovations that are required to support the experimentation. For example, in the innovative Aboriginal co-management agreements, provincial governments have delegated their authority to the new intermediaries they have created. In the case of Clayoquot Sound it was delegated to the Central Regional Board and for Central Labrador it was delegated to the Forest Management Committee. In both case these co-management bodies have equal representation from both provincial and Aboriginal governments and effectively have local jurisdiction for managing forest resources. In BC, the IFPA led to a change in the working relationship between licensees-a long-term goal of the government. In the case of the CFA, the development of a province-wide organization might address concerns over the limited capacity of smaller agreement holders and provide the support required to ensure they could operate effectively.

Successful implementation relies on policy makers' willingness to cede authority

A common element in many of these approaches is the willingness of existing decision-makers to cede authority. In some cases, policies may not be achieving their full effectiveness because forest managers have not been given sufficient latitude or are critically constrained by elements of the existing system. On the other side, policy makers wrestle with questions of how much responsibility can be transferred to these forest managers, what the level of risk is in terms of failing to achieve objectives and how to ensure accountability. In all the examples described in this paper, with the exception of privatization, although governments moved to introduce more flexibility into the system, they still retained control and the ability to exercise their discretion.

With stewardship contracting, for example, it is still at the discretion of the local manager to enter into agreements and they have the ability to choose which contract best suits their objectives (there is no requirement to take the lowest bid). In the case of the co-management boards, the provincial governments still retain the right to intervene in decisions if warranted. The CFA are still subject to provincial regulations. For the IFPA holders, uplifts are only on a five-year basis and are not permanent and in at least one of the BC pilot projects the government specifically requested the right to be able to cancel the agreement at no cost to the government and revert to the existing system. In the examples where government did cede authority in a meaningful way (such as privatization), it was only in response to a severe financial crisis where such a move was also consistent with the ideology of the elected government (and was part of a much broader paradigm shift in the case of New Zealand).

It is clear that not only will the institutional environment affect whether or not an "experiment" can be extended more broadly or even whether it will be remain on course but that external factors will also play a role in the success of the "experiment". In the case of the IFPA, the increase in timber harvests associated with the Mountain Pine Beetle reduced the incentive for the government to seek ways to encourage investment in increasing the AAC as they responded to the short-term need to address heightened harvest levels. For the BC pilots, the introduction of new policies reduced the apparent need for government to explore alternative ways to meet regulatory requirements. Changes in ownership for two of the companies that were participating also had the effect of slowing down the implementation of the pilots as the new owners had to perform their own assessment of specific costs and benefits.

External factors such as new policy can also affect the success of pilot programs

It is also apparent that the effectiveness of any policy changes depends not only on what might be politically feasible but also the economic environment within which firms operate. Ultimately if the policy changes are not economically sustainable the policies may not last beyond the experimental stage. In the case of stewardship contracting, the viability of this approach rests not only on institutional factors-whether the program will receive sufficient support from both local and national USFS employees (along with the appropriate amount of training) – but whether new markets will develop for the type of timber harvested and inducing capable local suppliers to emerge. The use of small diameter timber remains problematic, as there is still not enough of a consistent product flow to induce companies to make the required investment. Unless such markets emerge, continued government support will be required to maintain the program. For the IFPAs investment ceased when the public availability of funds ended. Community forests in BC are still looking to understand what economic model will work to sustain their operations on a long-term basis.

The effectiveness of any policy change depends on the economic environment

Even the case of the transformational change highlights the importance of economic conditions. It may very well be that the lack of investment in the processing industry in New Zealand, which privatization was meant to rectify, was not due to the lack of incentives and insecurity associated with government ownership of forestland, but instead the riskiness associated with the nature of the markets New Zealand forest sector firms face. Domestic markets are small relative to the amount of available timber that can be processed into solid wood or pulp and paper products. In pursuing export markets for those type of products, New Zealand firms face a number of significant competitive challenges. Transportation costs are high, firms face currency risks, several important end product markets

prefer roundwood over processed wood, and there are a number of other international competitors in their export markets that have comparable or higher-quality fibre. In such circumstances, it is not surprising that firms may be unwilling to make the investments to serve these more risky markets, and that it is largely unprocessed wood that is exported rather than finished products. In this case, the policy change did not lead to the desired outcome (greater investment in processing) as it was these economic fundamentals that ultimately drove firms' decisions not to invest.

In conclusion, these experiments do reveal some important lessons. First, while it is political feasibility that is important in determining what kind of change takes place, it is the economic feasibility of the selected policy or changes that becomes important in determining whether or not it will reach a satisfactory outcome. This is true whether the change is incremental or transformative. Second, it also reveals that while it can be difficult to make these changes, whether this is due to distributional concerns or the risk of failure, none of these concerns should prevent us from attempting such changes. Supporting regulatory systems and other existing checks and balances have been sufficient in preventing any of the more dire predicted consequences from materializing. Even where policies do not achieve their goals and therefore may be considered failures, there can still be positive outcomes. Allowing for experimentation has also allowed for some unexpected innovation — a key ingredient in adapting or forest management policies for the future.

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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 300 research projects from 1995 – 2004. 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.

SFM NETWORK PARTNERS AND AFFILIATES AUGUST 2008

GRANTING COUNCILS

- Networks of Centres of Excellence (NCE) Program
    - Natural Sciences and Engineering Research Council of Canada (NSERC)
    - Social Sciences and Humanities Research Council of Canada (SSHRC)

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FUNDING PARTNERS

GOVERNMENTS

- Canadian Forest Service
- Environment Canada
- Parks Canada
- Government of Alberta
  Sustainable Resource Development
- Government of British Columbia
  Ministry of Forests and Range
- Government of Manitoba
  Department of Conservation
- Government of Newfoundland and Labrador
  Department of Natural Resources
- Government of Ontario
  Ministry of Natural Resources
- Gouvernement du Québec
  Ministère des Ressources naturelles, de la Faune et des Parcs
- Government of Yukon Territory
  Energy, Mines and Resources

INDUSTRIES

- AbitibiBowater Inc.
- Ainsworth Lumber Co. Ltd.
- Alberta-Pacific Forest Industries Inc.
- Canadian Forest Products Ltd.
- Daishowa-Marubeni International Ltd.
- J.D. Irving, Limited
- LP Canada Ltd.
- Manning Diversified Forest Products Ltd.
- Tembec Inc.
- Tolko Industries Ltd.
- Weyerhaeuser Company Ltd.

ABORIGINAL GROUPS

- Heart Lake First Nation
- Kamloops Indian Band
- Métis National Council
- Moose Cree First Nation
- Treaty 8 First Nations in Alberta

NON-GOVERNMENT ORGANIZATIONS (NGOs)

- Ducks Unlimited Canada

INSTITUTION PARTNERS

- University of Alberta
  (Host Institution; also a Funding Partner)
- Concordia University
- Dalhousie University
- Lakehead University
- McGill University
- Memorial University of Newfoundland
- Mount Royal College
- Royal Roads University
- Ryerson University
- Simon Fraser University
- Thompson Rivers University
- Trent University
- Université de Moncton
- Université de Montréal
- Université de Sherbrooke
- Université du Québec à Chicoutimi
- Université du Québec à Montréal
- Université du Québec à Rimouski
- Université du Québec à Trois-Rivières
- Université du Québec en Abitibi-Témiscamingue
- Université Laval
- University of British Columbia
- University of Calgary
- University of Guelph
- University of Lethbridge
- University of Manitoba
- University of New Brunswick
- University of Northern British Columbia
- University of Ottawa
- University of Regina
- University of Saskatchewan
- University of Toronto
- University of Victoria
- University of Waterloo
- University of Western Ontario
- University of Winnipeg
- Wilfrid Laurier University

AFFILIATES

- Canadian Institute of Forestry
- Forest Ecosystem Science Co-operative
- Forest Engineering Research Institute of Canada
- Lake Abitibi Model Forest
- Manitoba Model Forest
- National Aboriginal Forestry Association

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