Incentives for Lifelong Learning: Continuing Studies and the B.C. Forestry Community
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Report to the Silviculture Branch,
B.C. Ministry of Forests

by

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EXECUTIVE SUMMARY

The objective of this study was to identify incentives that would motivate members of the forestry community in B.C. to pursue lifelong learning through continuing studies. We did this by examining several continuing education and training programs in 10 occupational sectors in B.C., and 15 forestry jurisdictions outside B.C. These results we discussed with members of B.C.'s forestry community.

We found job-related incentives to be among the most important. These include the desire to upgrade knowledge, develop professionalism, attain job advancement, improve peer interaction, and receive employer encouragement. Professional development is especially important for professionals; it is less so for other types of workers. The opportunity for interacting with colleagues, and for receiving systematic support from employers (in funding, time, and job rewards) are also significant incentives. Designers of continuing studies programs in forestry in B.C. should work with target group associations and employers to build these incentives into programs.

Financial incentives operate in many ways to encourage lifelong learning — from offering increased income based on course credits, to allowing tax deductions for education expenses. Conversely, cost is a major barrier to participation in lifelong learning. Employers should be encouraged to provide employees with financial rewards for participating in continuing studies.

Poor program planning and design is another barrier to participation. Programs should be designed to meet the needs of the audience; materials should be relevant to regional issues and conditions; program providers should be well organized and skilled in delivery; and scheduling and location of courses should be convenient.

Regulatory incentives can also be important in motivating members of the forestry community to pursue continuing studies. They include requirements for mandatory continuing education as part of job qualifications, licencing, and/or promotion. Interviewees varied widely in their opinion about the effectiveness of regulatory requirements. We think B.C. should move cautiously in this area, working closely with those who would be affected by mandatory requirements.

Purely personal incentives for lifelong learning, such as the desire to learn, were mentioned rarely by interviewees. Those who did mention them were the professionals in most sectors and managers of small-scale forest operations. In B.C. opportunities should be sought within continuing studies programs to use the personal enthusiasm of those who are motivated in this way.

Cultural or moral incentives are also not strong motivators, although public pressure is of some concern within the B.C. forestry community. Continuing forestry studies programs should provide opportunities for improved communications between those in the forest sector and the general public.

Representatives of the B.C. forestry community are unanimous that lifelong education is essential to promoting a broader view of forestry issues and better long-term forest management. To build on this support, forestry educators in B.C. should focus initially on providing incentives that can be easily incorporated into program design. These include pay and job advancements, compensation for expenses, appeals to professionalism, and opportunities for networking. Employer support and attention to program content and format are also essential.
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Volume I: Main Report
1 INTRODUCTION

1.1 Background

The British Columbia forest sector is in a period of rapid evolution, adapting to social, economic, and political changes. These include new technologies, an expanding research and knowledge base, changing markets, growing emphasis on non-timber forest values, land use debates, and public concern about resource sustainability. One response to these changes is a greater interest in improved learning opportunities for those working in the forest sector. Included is a variety of continuing education, extension, and training activities, collectively referred to in this report as "continuing studies."

Until recently, continuing studies programs for professionals, technicians, and forest workers in B.C. have been fragmented and uneven. It is increasingly recognized that these groups should have options for learning throughout their working lives. Continuing studies can help those in the forest sector develop their knowledge and skills, through exposure to new ideas and techniques. Continuing studies also provide opportunities for exchanges of information and views within the forest sector and society generally.

Various educational initiatives for both the forestry community and the public are being pursued by the B.C. Ministry of Forests, Forestry Canada, educational institutions, and non-government organizations. As part of these efforts, the Ministry of Forests requested this study on incentives for participation in continuing studies, as identified in other employment sectors and forest jurisdictions. This report answers the following questions: What is it that motivates people to participate in continuing studies activities? What lessons have been learned in other settings that might be useful for fostering lifelong learning within the B.C. forest community?

The report is organized as follows. An overview of programs in other sectors and jurisdictions is provided in Section 2. Section 3 analyzes key incentives to lifelong learning, as gleaned from the review of other sectors and jurisdictions, and of the literature. Section 4 summarizes barriers to lifelong learning. Section 5 describes the applicability of the incentives and barriers to the B.C. forest sector. Our conclusions and recommendations are presented in Section 6.

Volume II of this report contains four appendices, which provide more detailed information than that presented in this report. Appendix 1 describes three case studies — medicine and accountancy in B.C. and forestry in Oregon, which were chosen because of the potential transferability of ideas to the B.C. forestry sector. Appendix 2 provides detailed descriptions of each of the 10 continuing studies programs examined in other occupational sectors in B.C. Appendix 3 provides the same for 15 forest sector programs in jurisdictions outside B.C.

1.2 Objectives

The report is intended primarily for those who are directly involved in continuing studies in forestry, including educational decision-makers, planners, and program "providers" (e.g., universities and government agencies). The specific objectives are:

1. to describe training and continuing education programs for practitioners and professionals in selected non-forestry employment sectors within B.C.;
2. to describe forestry training and continuing education programs in selected provinces and countries;
3. to identify the incentives that support a commitment to lifelong learning for practitioners, professionals, and managers, and barriers to their realization;
4. to identify some factors that assist in the development of a public that is knowledgeable about forest resource management issues; and
5. to provide general principles to assist in structuring continuing forestry studies in B.C. in a way that encourages a commitment to lifelong learning throughout the forestry community.
The report discusses the relevance of the incentives to various audiences within the forest sector, but does not explicitly address public education. It focuses on the motivational aspects of continuing studies programs; it does not analyze program structure or content, except where these provide direct incentives for (or barriers to) participation. The findings should help those involved in continuing studies to plan and deliver more effective programs.

1.3 Approach

This report is based largely on a comparative analysis of continuing education experience in non-forestry sectors in B.C., and in forestry jurisdictions outside B.C. The information was collected through telephone and personal interviews and related documentation. Interviewees represented sectoral organizations such as professional associations or deliverers of continuing studies programs. We were particularly interested in programs outside the formal education system, many of which were innovative grassroots-based programs. The interview findings are supplemented by selected reference to the literature on continuing education and lifelong learning.

Despite the use of directed interview questions, it was often difficult to get respondents to step back from the "nuts and bolts" of program planning to comment on incentives for lifelong learning. Thus, some of the observations in the report we have deduced from respondents' general comments on successes and failures of programs.

As well, we interviewed several members of the forestry community in B.C. Individuals representing different categories of forestry personnel were asked to respond to the findings about incentives and barriers to lifelong learning, and to comment on their relevance to the B.C. forest sector.

1.4 Lifelong Learning

1.4.1 The need for lifelong learning

Lifelong learning, in the broad sense of "learning that continues throughout life," is widely accepted as an ideal and a goal for ongoing education efforts. One can find numerous references to the term in the literature on continuing education, adult education, extension, and professional continuing education. Yet the term "lifelong learning" is not well defined and means different things to different people.

Social, economic, and cultural factors have led to an increased interest in lifelong learning in the latter half of this century. They arise from the phenomenon of change, which is a major element in contemporary life. Continuous change requires continuous learning. This allows us to adjust to shifts that are rapid and sweeping. Models of education that once assumed most learning takes place in childhood and youth are now outdated, since they were based on the idea that adulthood is simply a time for applying old learning.

The most obvious area of rapid change is the workplace. Mechanization and other technological change, increased knowledge, and evolving business practices are combining to produce a situation in which some jobs disappear while others require very different skills over time. The "half-life" of school-taught knowledge (i.e., the period of time during which half the course content becomes obsolete) is diminishing continually, so that what is being taught today may be irrelevant in a few years. These changes mean that workers at all educational levels may need to renew, upgrade, or completely change basic job qualifications at least once during a lifetime.

1.4.2 Support for lifelong learning

The basic idea that learning can and should occur throughout each person's lifetime is not new. The term "lifelong education" appeared in writing more than 60 years ago (Knapper and Cropley 1985:21) and many contemporary ideas about lifelong education had already been stated by the 1950s. However, use of the terms "lifelong learning" and "lifelong education" has grown in the past few decades, forming the
basis for a movement among educational theorists and practitioners. Both terms have been favourite
themes among adult educators over the past several decades. Many colleges and universities, for
example, claim to promote lifelong learning through their programs.

The United Nations Education, Science and Culture Organisation (UNESCO) decided in the early
1960s to make lifelong education the master concept for all its educational planning. UNESCO
established a Lifelong Education Unit, which saw lifelong education as “a fundamental transformation of
society, so that the whole society becomes a learning resource for each individual” (Bagnall 1990:1). The
topic has inspired many books (see citations in Bagnall 1990) and journals such as the International
Journal of Lifelong Education.

1.4.3 Interpretations of lifelong learning

UNESCO made a number of recommendations for reorganizing educational efforts around the
concept of lifelong learning, including the following:

“The concept of education limited in time (to school age) and confined in space (to school buildings)
must be superseded. . . . A proportion of educational activity should be deformalized and replaced by
flexible, diversified models.” (Knowles 1970:179).

Lifelong learning is not always defined operationally in this sense. Many educational institutions use
the phrase to describe traditional activities and programs (such as part-time study or off-campus classes),
which owe little to the recent theoretical discussions. In the U.S., it has frequently been regarded simply
as a new term for adult education. In Europe, the concept has more frequently been associated with the
linking of learning and work, especially through the provision of paid educational leave and regular
educational activities. It has also been connected with “open learning” programs carried out by the Open
Colleges and Open Universities in the United Kingdom and B.C.

Lifelong learning represents a meeting of several trends in current educational theory and practice.
These include:

• a shift in focus away from the ideas of schools as the dominant learning institutions and initial
  qualifications as the only work training;
• use of education as an instrument for improving the quality of life or of changing society;
• the linking of education more closely with the needs of everyday life;
• broadening participation in decisions about education to include workers and other members
  of the public; and
• expansion of educational services outside of conventional ages, locations, and methods.

The single theme that runs through these discussions is that of a “lifelong” process of increasing
awareness, knowledge, and skills. In this report, we have adopted a broad definition of lifelong learning
as it can apply in a forestry context:

Lifelong learning in the forestry sector is the ongoing process of increasing
awareness, knowledge, and skills on forest-related topics among all members of
the forestry community, through participation in continuing studies activities.

1.4.4 Basic principles

A learning experience can develop new knowledge, understanding, and awareness; provide for the
acquisition of new skills or behaviour; or change attitudes, values, or priorities (Blackburn 1984:81). But
what motivates adults to take advantage of learning opportunities? Knowles (1970), a renowned adult
educator, notes that a person’s educational interests are highly individual and variable. He cites a list of
educational motivations compiled by Lorge (1947), an extension educator (Table 1). These apply
generally to adults, and should be kept in mind by those designing continuing forestry studies programs.
TABLE 1. Incentives for adult learning

**People want to gain:**
- health, time, money, popularity, security in old age, praise, comfort, pride of accomplishment,
  business and social advancement, enjoyment, self-confidence, prestige.

**They want to be:**
- social, up-to-date, creative, proud of possessions, influential, gregarious, efficient,
  recognized as authorities.

**They want to do:**
- express themselves, resist domination by others, satisfy curiosity, emulate the admirable,
  appreciate beauty, win respect and improve themselves.

**They want to save:**
- time, money, work, discomfort, worry, doubts, risks, embarrassment.

Since meeting basic human needs is a primary motivation for pursuing learning opportunities, the classic ranking of human needs by Maslow (1954, cited in Blackburn 1984) is also relevant. Maslow suggests that humans seek to satisfy their needs in a particular order (Table 2).

TABLE 2. Maslow's needs hierarchy

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Physiological</td>
<td>fundamental survival.</td>
</tr>
<tr>
<td></td>
<td>e.g., promote health, security in old age.</td>
</tr>
<tr>
<td>Safety</td>
<td>personal protection.</td>
</tr>
<tr>
<td></td>
<td>e.g., avoid injury, save discomfort.</td>
</tr>
<tr>
<td>Social</td>
<td>acceptance by family, friends, colleagues and anyone who is admired;</td>
</tr>
<tr>
<td></td>
<td>i.e., experience of love, affection and belonging.</td>
</tr>
<tr>
<td></td>
<td>e.g., gain popularity and praise, opportunity to socialize.</td>
</tr>
<tr>
<td>Ego</td>
<td>(esteem, status, prestige, reputation)</td>
</tr>
<tr>
<td></td>
<td>e.g., gain pride of accomplishment, personal prestige, influence over others,</td>
</tr>
<tr>
<td></td>
<td>recognition as authority.</td>
</tr>
<tr>
<td>Self-actualization</td>
<td>(independence in setting and pursuing one's own standards and goals,</td>
</tr>
<tr>
<td></td>
<td>empowerment)</td>
</tr>
<tr>
<td></td>
<td>e.g., gain self-expression and self-improvement, resist domination, emulate</td>
</tr>
<tr>
<td></td>
<td>the admirable.</td>
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\( ^a \) Within each category, examples relevant to learning are provided from Lorge (1947).

In responding to these personal needs, individuals are strongly influenced by the family, the community, or the employer. This includes how they perceive their roles in the workplace, home, family, and community. Rewards offered by these groups largely determine the individual's course of action. Continuing studies programs should therefore be carefully designed to incorporate these motivational factors. For example, programs should be supported by employers and local communities. Participation in a program should enhance the participant's status and role in the workplace and community, and should not interfere with family and community obligations.
Unless adults clearly see a benefit in learning, they are unlikely to participate voluntarily (Blackburn 1984). A desire for success or a fear of failure, with the associated feelings of satisfaction or dissatisfaction, are also driving forces. Thus, programs should encourage potential participants to have positive feelings about themselves and their ability to learn, as well as about education in general. Adults must be shown that the benefits of continuing studies are worth the necessary cost, time, and energy.

2 PROGRAM OVERVIEWS

Section 2.1 summarizes the approaches to continuing studies taken by various non-forestry sectors in B.C.; Section 2.2 provides an overview of the approaches taken by forestry programs outside B.C.

2.1 Overview of Programs in Other Sectors in B.C.

The occupations we surveyed were agriculturists, geologists, planners, lawyers, engineers, chiropractors, dentists and dental hygienists, pharmacists, teachers, medical practitioners (doctors and nurses), and accountants. The programs under each occupation are described in detail in Volume II, Appendix 2, except those for medicine and accountancy, which are presented as case studies in Volume II, Appendix 1.

Overall, we found that most programs are targeted at professionals. Little attention seems to be paid to non-professional workers. An exception is in dentistry, where improved teamwork is seen as a benefit of dentists and hygienists training together.

Courses are offered either by independent organizations that cooperate with a professional association (e.g., B.C. Federation of Agriculture, Continuing Legal Education) or by educational institutions (e.g., UBC Planning School).

Continuing studies programs vary in their approach, extent, and format. Some involve a few specialized courses, such as business management for farmers; others are more comprehensive and systematic, such as accountancy. For all, however, the main learning format is course work, whether face-to-face with an instructor or via video or correspondence. Some survey respondents noted that, in their fields, continuing education is built into the work environment — people learn on the job (e.g., geologists) or are required to have certain knowledge levels to do the job (e.g., engineers and lawyers).

Participation in continuing studies is mandatory for teachers, chiropractors, dentists, and dental hygienists; agrologists are considering mandatory requirements. Most professions have initial entry requirements based on university or other training.

2.2 Overview of Experience in Forestry Programs Outside B.C.

The other jurisdictions in which forestry continuing studies programs were surveyed include:

• in Canada — Alberta, Ontario, Quebec, Nova Scotia, and Newfoundland
• in the USA — Oregon, Vermont, Georgia, and Mississippi, and the Society of American Foresters (national)
• in other countries — New Zealand and Sweden

In Alberta, Ontario, and Georgia, we surveyed more than one program or organization. Oregon is presented as a case study in Volume 2, Appendix 1. The other programs are detailed in Volume 2, Appendix 3.

2.2.1 Providers

Boards, committees, or councils have a strong role in delivering many continuing forestry studies programs. They usually comprise volunteers representing various sectors or client groups. An example is the Ontario Professional Forester's Association, which has a program advisory committee with representatives from government, university, and industry. These groups have various roles, including:
• co-ordinating programs and making recommendations to the Minister of Forests (the Alberta Forest Industry Training Council);
• developing training plans (Nova Scotia Forest Resource Industry Training Council);
• organizing funding (New Zealand Logging and Forest Industries Training Board);
• designing programs (Order of Quebec Professional Foresters Continuing Education Committee); and
• validating and approving courses and programs (Quebec’s Société de Formation et d’Education Continué).

Industry often plays a major role in forestry education (e.g., in Alberta, Nova Scotia, Newfoundland, and New Zealand), as reflected in the commonly used label, “Forest Industry Training Council.” Industry may be involved in funding, technical direction, and program provision. Some survey interviewees claimed that being “industry-driven” is a major asset. The Nova Scotia Forest Resource Industry Training Council deliberately avoids relying on traditional educational institutions.

In contrast, the University of Georgia’s continuing education departments and extension workers are called upon extensively for their educational expertise. Although the Swedish National Board of Forestry is a government agency, continuing education for most forest workers is the responsibility of forest sector employers. Courses there are often offered by companies, who regularly turn to schools, manufacturers, and consultants for assistance.

2.2.2 Program form and content

As in other sectors, forestry continuing education generally emphasizes course work, using diverse vehicles for course delivery. These include correspondence courses (e.g., Georgia), field training programs (e.g., hauling and falling in New Zealand), and colloquia and symposia (e.g., offered by the Order of Quebec Professional Foresters Continuing Education Committee). Georgia was the only jurisdiction surveyed in which regulatory requirements for continuing forestry studies recognize non-course learning experiences. Innovations in program content include Georgia’s correspondence courses, which are based on forest land owners completing management plans for their own property, and a “negotiation seminar” offered in Mississippi.

Two programs stand out as being particularly comprehensive. The Continuing Forestry Education and Professional Development Recognition Program of the Society of American Foresters sets out required credit hours and types of participation leading to a certificate over a 3-year period. The New Zealand Loggers Certificate and Forest Skills Certificate programs offer trade certificates to individuals who complete a set of “skill modules” with multiple entry points and choices.

2.2.3 Regulatory aspects

Most professional programs in the sample, including that of the Society of American Foresters, are voluntary. Continuing education is mandatory for foresters in Georgia, but it was noted that program design is driven by foresters’ needs rather than licensing requirements.

The Ontario Professional Forester’s Association is attempting to institute licensing requirements, in part to demonstrate the competence of foresters to the public. Mississippi’s Forest Industry Training and Education Council also feels that certification requirements can help to emphasize professionalism within the industry. The Alberta Professional Forester’s Association may consider mandatory requirements once a full program is developed.

Obligatory course work is also required of some forestry workers. In New Zealand, some large companies will soon require contractors to have logging skills certification. The Ontario Forest Products Accident Prevention Program has developed mandatory certification programs in falling and log hauling, and the Alberta Forest Industry Training Council is considering the same requirements.
2.2.4 Audiences/target groups

The programs reviewed target various members of the forestry community, from professional foresters to fallers. Professionals organizations, such as the Society of American Foresters and the Alberta Professional Forester's Association, naturally cater to forestry professionals. These efforts may be complemented by industry training council programs for forest workers, such as those offered by the Alberta Forest Industry Training Council and the Nova Scotia Forest Resource Industry Training Council. Only in Alberta was such complementarity found within a particular jurisdiction.

The New Zealand Loggers Certificate and Forest Skills Certificate programs concentrate on developing trainers to teach forest workers. Nova Scotia, Newfoundland, and Alberta respondents also emphasized training of trainers as an important educational goal. In Sweden and Georgia, some extension services and correspondence courses are aimed at private owners of forest lands.

No respondents reported training for technicians. The Quebec respondent observed that education for technicians is much less organized than that for professional foresters, in part because of the lack of an organization for technicians.

Two programs address more than one type of forestry worker. Mississippi's Forest Industry Training and Education Council is primarily concerned with professional foresters, but has also run a harvesting and procurement course for field and mid-management people for 26 years. The Vermont Silviculture Education for Loggers project offers courses free-of-charge to logging contractors. It also offers courses for foresters, aimed at increasing their understanding of the logger's perspective, in order to build trust between professionals and practitioners.

Several interviewees noted the importance of school programs such as the "Focus on Forests" program offered in Ontario and Alberta. The Swedish respondent suggested that one of the incentives for lifelong learning among adults working in forestry is the early and positive effect that school forestry awareness programs might have on them.

3 INCENTIVES

This section summarizes the incentives we identified through our analysis of the continuing studies experiences in other occupational sectors, other forestry jurisdictions, and of the continuing education literature. The incentive categories are listed in Table 3.

3.1 Job-related Incentives

Job-related incentives include professionalism, job advancement, peer interaction, and support from employers. These relate to Maslow's "ego" needs category, appealing to an individual's desire for improved knowledge, status, and reputation. Besides providing financial benefits, job advancement may also fulfill the need for "self-actualization."
TABLE 3. Types of incentives identified outside B.C.

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<td>Professionalism and job advancement</td>
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<td>Networking and peer interaction</td>
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<td>Support from employers</td>
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<td>2. Financial</td>
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<tr>
<td>Increased income/financial rewards</td>
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<td>Payment of expenses</td>
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<td>3. Personal and cultural</td>
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<tr>
<td>Desire to learn</td>
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<tr>
<td>Personal competence/empowerment</td>
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<td>Public expectations/pressure</td>
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<td>4. Regulatory</td>
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<td>5. Program design:</td>
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<td>What? (content)</td>
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<td>Who? (deliverers)</td>
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<td>How? (format)</td>
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3.1.1 Professionalism

Murphy (1979:32) notes that

"... the pressure for continuing education for professionals stems from a widespread concern about competency. Gone are the days when the professional could expect to equip him or herself for a professional lifetime during one often-arduous training period at the beginning of the career. The great expansion of scientific and technological knowledge requires the practitioner to participate in some form of regular study to keep abreast of developments."

Professionalism and personal professional development topped the list of incentives identified by representatives from non-forestry occupational sectors in B.C. Among the forestry examples surveyed, however, this incentive was mentioned by only the Swedish and New Zealand correspondents. (It should be noted that the other sectors surveyed were made up mainly of professionals, while the forestry cases involved other categories of personnel.) The Quebec representative identified the benefits of maintaining and up-grading knowledge in the face of new developments, as well as the benefits of exchanging technological experience with researchers.

More important to the forestry communities was the incentive of lifelong learning providing an increase in status and respect from others. For example, it was suggested that participation in New Zealand's program gives the worker the sense that "I'm not a bushman, I'm a logger now."

Only two survey respondents directly mentioned job advancement as an incentive; for example, one noted the benefit of being able to choose from more diverse job possibilities. The Continuing Education Science Program at Mount Royal College in Calgary has moved away from general interest courses to training, upgrading, and professional courses.1 Most course participants are at the entry level of their careers and are taking courses to improve career opportunities.

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1 J. Lockhart, pers. comm., 1991, Director of Continuing Education Science Programs, Mount Royal College, Calgary, Alta.
3.1.2 Networking and peer interaction

The continuing studies programs we examined for this study support Knowles’ (1970) contention that learning is enhanced by interaction with other learners. After professionalism, the opportunity for peer interaction was mentioned most often by respondents as an incentive for participating in continuing studies. Some referred to “professional networking” or “social networking”; others referred to “peer pressure” or “peer expectations.” Among the forestry examples, Alberta, Ontario, and Mississippi specifically mentioned the importance of sharing experience with other members of the forestry community.

In several sectors, especially teaching and dentistry, the emphasis on peer interaction is supported by increasing recognition of the importance of team performance on the job. The chance for interaction between participants and faculty was also seen as an attraction in many cases.

3.1.3 Support from employers

Of a list of 20 main reasons for participating in continuing education, used in a U.S. survey, the third most important one overall was “meeting the requirements of the employer, profession, or someone in authority.” Professionals were an exception to this pattern, ranking “help to advance in present job” slightly higher (cited in Houle 1980:138).

Several respondents interviewed identified the importance of employer and industry involvement to the success of continuing studies programs. Roles may vary. Forestry programs in Alberta, Nova Scotia, and New Zealand emphasize a strong industry role in setting training standards and designing and delivering programs. Industry support may also come through the employer’s role in financing employee participation or program development costs.

The Swedish respondent noted that supervisors and foremen in the work place often help to identify training needs, and sometimes they deliver training. Another interviewee attributed the success of his program largely to support from industry leaders. In another case, employers and employees sitting down together helped to build support for employee involvement in learning opportunities. Many American forestry companies include continuing education credits as part of employee evaluation.

As for the B.C. situation, the Dean of Forestry at UBC, C. Binkley, feels that employers ought to accept responsibility for upgrading employees’ knowledge. This can be done through paying for Silvicultural Institute of British Columbia (SIBC) courses, providing time off or paid leave, and adding “subsequent rewards” such as job enrichment, pay increments associated with qualifications, and work contracts following training (C. Binkley, pers. comm. 1991).

3.2 Financial incentives

Financial incentives, perhaps the most obvious of the rewards for pursuing lifelong learning, were frequently mentioned by respondents. They address most comfortably the lowest level of Maslow’s needs hierarchy — “physiological needs” — but they can also contribute to meeting the higher needs. They include increased income, payment for time or expenses, and other financial rewards.

3.2.1 Increased income/financial rewards

Income incentives were recognized as important by the mining sector and forestry representatives from Nova Scotia, Sweden, Newfoundland, and Georgia. These incentives can take various forms:

- Pay increments in a job category can be based on course credits completed.
- Personnel can qualify for higher-paying positions through upgrading knowledge or skills.
- Forest workers may get higher pay rates if their productivity increases after training.
- Woodlot owners can increase economic benefits through specific management actions.
• Contractors can expect more and higher-paying contracts after participating in continuing studies.
• Government can add a percentage to contract wages in recognition of increased education.

Indirect forms of financial reward for continuing education include reduced costs of liability insurance, tax deductions for education expenses, and increased ability to develop good business plans to facilitate getting bank loans. One example cited was the Vermont Timber Truckers and Producers Association, which has considered providing discounted membership dues for loggers participating in particular programs.

3.2.2 Payment of expenses

The expenses of participating in continuing education programs may include tuition, travel, child care, and foregone income. Employers, government, or other organizations can provide employees with incentives for attending courses by offsetting these expenses. In turn, employers are compensated through their investment in the "human capital" of their business.

Examples from survey respondents of such encouragement include an annual contribution from the B.C. Ministry of Health towards educational expenses incurred by doctors, and School Board allowances for teacher professional development days. In New Zealand, forest workers continue to receive pay while attending courses and do not have to pay tuition.

Opinions on this topic vary. Dean Binkley of UBC takes issue with the waiving of course fees on the grounds that willingness-to-pay is a good measure of a program's worth. He supports a marginal cost recovery policy.

3.3 Personal and Cultural Incentives

All incentives for participation in continuing education are "personal" in the sense that it is ultimately the individual who chooses to participate. Most of the incentives reviewed above appeal to personal motivation in some way. Purely personal incentives, however, such as the "desire to learn" and an individual's wish to become more competent and thus "empowered" are also important. These incentives fall into Maslow's highest category of needs — "self-actualization."

3.3.1 Desire to learn

Knowles (1970:181) suggests that lifelong learning involves a process of active inquiry, with the initiative residing in the learner. However, individual motivation varies since learners differ in their experience, pace of learning, readiness to learn, and learning styles.

While the desire to learn is influenced by other incentives, it also seems to stand alone as an incentive itself. In the U.S. survey of reasons for participating in continuing education, the most common category by far (of the 20) was "become better informed, personal enjoyment, enrichment." The category of "curiosity, learn for the sake of learning" also ranked highly (cited in Houle 1980:138).

In research for this report, three forest sector representatives (Ontario, Sweden, and Vermont) — but no one from other sectors — identified personal interest, individual initiative, or the opportunity to learn as incentives for lifelong learning. In Sweden, an openness to forestry education is attributed in part to early exposure to forestry topics in school. The teachers' representative saw youth as a positive factor in openness to learning.

3.3.2 Personal competence/empowerment

The idea of encouraging personal competence or "empowerment" is often mentioned in the literature on lifelong learning. Blackburn (1989) suggests that:
“Extensionists' primary concern should be that of empowerment: helping people to help themselves. [They] should understand that their role is to help clients achieve independence, through learning, so that they can function effectively after the agent or agency has departed.”

Knowles identifies four “conditions for an educative environment” that provide guidance for designing a program that will appeal to an individual's personal motivation for learning:

1. respect for personality;
2. participation in decision-making;
3. freedom of expression and availability of information; and
4. mutual responsibility for defining goals, planning and conducting activities, and evaluating.

Few respondents in this survey directly mentioned empowerment as an important incentive, although many of the incentives under program design (discussed more fully in Section 5) are probably related to this topic. The Swedish interviewee did note the importance of factors such as job satisfaction, pride in quality work, and increased status and respect from peers, superiors, and employees. The Vermont respondent believed that the opportunity to teach courses builds self-esteem in the instructor.

3.3.3 Public expectations/pressure

The expectations of the public, whether expressed as pressure or support, are seen as a minor factor in motivating participation in continuing studies. This incentive would fall under Maslow’s category of “social needs” — our sense of responsibility to community and society.

Public pressure was identified as an incentive in Ontario, where the public is asking that foresters demonstrate up-to-date knowledge and practice. The Vermont respondent also observed that loggers in that state are eager to improve their public image, as can be seen in this excerpt from the promotional material for the Silviculture Education for Loggers project:

"Logging needs to be a more respected profession in Vermont! Too often loggers are seen as distrustful and careless pillagers! We want to change that image, but you have to help. How? By learning why foresters mark stands the way they do and how their prescriptions will produce more and better timber in the future."

Community support and interest were seen as incentives in a more positive sense in Alberta and Sweden.

3.4 Regulatory Incentives

While the other categories of incentives are primarily rewards (professional, financial, or personal), the more coercive incentives are the formal requirements for continuing studies. Three levels of regulatory requirements were identified in our survey:

1. Licensing legislation — the most stringent requirement, which involves the most paperwork to maintain.
2. Certification — formal recognition of job qualifications through an individual’s completion of a set of relevant programs (e.g., professional foresters in B.C.).
3. Accreditation — formal recognition of institutions that deliver programs that meet the standards of an overseeing organization (e.g., the Society of American Foresters accredits forestry schools that meet basic requirements, so that participants can collect credits for courses completed).

Murphy (1979:46) suggested that there would be an increasing trend for mandatory upgrading in the professions, and concluded that such requirements should be the focus for continuing professional education.
"The moment of truth will come when the practitioner takes the relicensure or recertification examination. Unless continuing education programs can prepare [them] for that moment, whatever other merits the program may have will count for nothing." (Shimberg 1977, cited in Murphy 1979)

Mandatory requirements can be divided into (1) initial qualifications and (2) requirements for further education. Most professionals (and the specialists within the professions) cannot practice until they meet certain educational requirements. This is sometimes the case in non-professional occupations as well; for example, fallers may be required to attend a course promoting operational skills and safety.

Initial job qualifications can be seen as incentives to lifelong learning in that individuals may be motivated to take courses in order to increase job opportunities. Individuals may also be pressured to update their skills when job requirements change.

In some fields, continuing education is required so that practitioners can maintain the legal opportunity to practice or to hold a job. This they can do by completing accredited programs, as chartered accountants do, or by audits, as pharmacists do.

Table 4 summarizes mandatory continuing education across a range of professions and jurisdictions, as collected by the Association of B.C. Professional Foresters.

**TABLE 4. Mandatory continuing education in other professions**

<table>
<thead>
<tr>
<th>PROFESSION</th>
<th>BC</th>
<th>ALTA</th>
<th>SASK</th>
<th>MAN</th>
<th>ONT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cert. Mgmt. Acct.</td>
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<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Chartered Acct.</td>
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<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Cert. Gen. Acct.</td>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>M.D.</td>
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<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Nurse</td>
<td>no</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lawyer</td>
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<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Engineer</td>
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<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
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<tr>
<td>Dentist</td>
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<td>yes</td>
<td>yes</td>
<td>soon</td>
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<tr>
<td>Architect</td>
<td>no X</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
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</tbody>
</table>

* indicates no information provided; "X" indicates that mandatory continuing education is being considered. Source: Association of B.C. Professional Foresters, n.d.]

The Association also commissioned a review of continuing education programs (T. Abbott and Company 1990). It found that the accounting and dental professions had gone the farthest in introducing mandatory professional development. Except in Ontario, dentists have had mandatory professional development for many years.

The engineering, architectural, legal, and medical professions do not have mandatory professional development programs, but some of these professions do face mandatory requirements (T. Abbott and Company 1990:2). While no Management Accounting Societies have mandatory requirements, several encourage members to report professional development activities.

In the forestry field, the Society of American Foresters respondent felt that mandatory requirements, applied through state licensing (in South Carolina, Georgia, and Alabama) are the best incentive for participation in continuing studies. Respondents from Georgia, Alberta, Quebec, and Vermont also felt that accreditation requirements are important. The Georgia respondent also noted that credit is given for non-course work in his state.

If participation is mandatory, participation rates are higher and results usually positive. However, two representatives from other sectors (including dentists and hygienists) and one from forestry (Georgia) identified mandatory requirements as having a negative influence. They suggested that obligatory participation can lead to negative attitudes towards participation in learning, thus compromising program effectiveness. At the same time, this did not seem to be a factor for chiropractors and teachers, for whom continuing education is also mandated.
A desire to avoid regulation can also act as an incentive. In Vermont, foresters are motivated to keep their knowledge up-to-date to avoid additional regulation of their operations and, presumably, the administrative work and other inconveniences associated with regulation.

3.5 Program Design Incentives

While this is not a report on how to plan and design programs, we examined aspects of program design because they were frequently mentioned as incentives in the forestry sector interviews. In general, it appears that participants will be motivated to attend a program that is relevant, well-organized, and high quality, given by interesting instructors and conducted in a convenient format and location. In contrast, inadequacies in program planning and delivery can be a significant barrier to participation. As one person put it, courses should be designed to be “so attractive that workers can’t afford not to take them.”

3.5.1 What? (content)

The need for continuing education programs to be relevant to the needs of the target audience cannot be over-stated. People want to learn if they feel the new information applies to them and if they see the information source as reliable (Blackburn 1984:81). Several respondents also mentioned the importance of continuing studies programmers choosing relevant course topics that meet the needs of foresters and other forest workers. Their comments indicate the value of appropriate course content:

- “By selecting a controversial and topical course subject, a program offered loggers something which was clearly in their interest to learn about.”
- “The program is oriented to the information that foresters need, rather than just setting up courses to meet licensing requirements.”
- “Courses must address regional variations in conditions and issues.”
- “Courses will be most effective if you can show loggers, for example, that you are sensitive to their concerns over matters such as productivity and practicality.”
- “Courses which are targeted to a particular group or a deliberate mix of technicians, field people, and foresters are more appealing.”

The Quebec correspondent noted that high participation rates result largely from careful needs assessment. This observation is supported by the Swedish respondent, who stressed that training should be based on a thorough analysis of the practical needs of forest workers. Sweden’s National Board of Forestry assesses the problems of private forest owners and then organizes extension services so that owners with similar problems are offered group consultations and instruction.

Finally, as jobs and work requirements within forestry change, personnel should be informed of the reasons for changes and the necessary adaptations (the “why”, not just the “how to implement”). Managers should also have adequate information to support new activities (Bunnell and Pearce 1988).

3.5.2 Who? (deliverers)

The success of continuing studies design and delivery depends largely on the capabilities of the program deliverer. Continuing studies programs are usually provided by employers, educational institutions (private and public), or occupational organizations such as unions and professional societies.

Murphy (1979:34) suggest that most employers’ programs focus on the needs and practices of the corporation rather than on individual needs, usually with an emphasis on skills development. Nevertheless, as noted above, respondents from forestry programs felt that industry involvement in delivery is an asset. The Swedish respondent strongly supported involvement in forestry education by industry; for example, through local vocational advisory bodies that include both employer and union representatives.
Educational institutions often play a valuable role in providing continuing studies. Their programs, especially if university-based, tend to focus on research and extension. Reciprocal benefits usually result from exchanges among practitioners, academics, students, and professionals. One weakness of institutional programs may be a failure to distinguish between the practitioner and the regular student. The Nova Scotia Forest Resource Industry Training Council avoids using these institutions for that reason. Understanding the needs and motivations of adult learners can help such programs be more responsive to the learners' needs.

Government may also be involved in program delivery. For example, Alberta's very high continuing education participation rate is at least partly attributable to strong government support for the program. There, the Ministry of Advanced Education funds "Further Education Councils," which are located in rural areas and promote ongoing education in these communities.

Professional associations and other occupational organizations may also sponsor continuing education. Murphy (1979:43) note that such associations, particularly the regional and local branches, are very responsive to membership concerns. Thus, they are often effective at needs assessment and the development of innovative programs and formats to reach members in widespread locations. Our survey confirms this fact.

The distinctions between these categories of deliverers are increasingly blurring. Our review of forestry sector experience found that program strength in large part derives from partnerships among these groups. Partnerships among industry, management, and loggers were identified as being particularly important in New Zealand.

Interviewees also identified the quality of instruction as another key factor affecting an adult's motivation to participate. They emphasized the need to ensure good teaching by preparing instructors through training programs and supporting them afterwards. Certification schemes can help ensure high-calibre instruction.

Credibility of instructors in the eyes of the potential participants was seen as a major factor affecting program appeal. In addition to training, instructors should have appropriate background, experience, and communication abilities. For example, while teaching specialists may be more skilled at delivery than researchers or practitioners, the latter sometimes earn greater respect from participants. Participants also seem to enjoy their interaction with researchers and operations people in demonstrations and field projects.

The Swedish respondent stressed the importance of good instructor-client relations. The National Board of Forestry tries to create a good relationship between extension agents and forest owners. They recommend a decentralized organization with regional and local levels, so that the instructor is placed "in the middle of the village" and gets to know the forest owners and conditions in their forests. Many instructors come from the area in which they work. The respondent noted that owners and workers will trust the advice they receive if they see instructors as qualified and unbiased.

3.5.3 How? (format)

The format of programs — how they are delivered — also influences an individual's choice to participate. Factors include the type (course, seminar, field trip, workshop, etc.), timing, accessibility, and location of program events.

While few respondents identified specific delivery formats as incentives to lifelong learning, several identified the appeal of non-classroom learning formats, such as field sessions and correspondence courses. The importance of an effective delivery format has been emphasized in adult education literature.
Delivery mechanisms should be matched to learning objectives, such as abstract thinking, observation, analysis, experimentation, and application (Blackburn 1984:81). A combination of different presentation methods has been found to have the most impact. Techniques include reading, "buzz groups", case studies, demonstration and practice, discussion, experiments, field projects, field trips, games or simulations, role-playing, lectures, audio-visuals, panels, programmed instruction, and workshops.

Information delivery is often more effective if it is project-oriented or directly related to learners' on-the-job needs. This can be done with the use of familiar examples and case studies and thorough demonstration techniques.

It is also important to choose delivery formats that are appropriate to the target group. Ideally, the format should also allow for different types of participation (reading, discussion, and practice) to meet the differing needs and skills of individuals.

Bunnell and Pearce (1988) and Bunnell (1988) provide a useful summary of types of information documentation, distribution, and extension methods that are suitable for the B.C. forestry community. According to Bunnell (1988), the general characteristics of a successful extension and demonstration program include:

- personal contact between researchers and operations people, in part because it enables trust and leads to co-operation;
- capable personnel and adequate manpower;
- user involvement through demonstration and participation;
- documentation in a usable form; and
- integration between researchers and users).

However, the variety of approaches they discuss was not reflected in the programs we surveyed, which seemed to be based mainly on conventional classroom courses.

Finally, convenience in program delivery, in terms of location and scheduling, was identified by several forest sector respondents as influencing participation. Courses are generally more appealing if they are short, flexibly scheduled, or scheduled at the convenience of participants, and offered in the field, at the work site, or at attractive residential facilities. Correspondence courses can also meet the need for flexibility. In Nova Scotia, the instructor meets with participants before the course to decide on course timing and structure. Classroom courses are scheduled for industry slack times, such as during spring break-up or road closures.

4 BARRIERS

There are many obstacles to participation in continuing education. Several of the "incentives" identified above are attempts to overcome barriers to learning. Just as effective program delivery provides an incentive to participation, weaknesses in program delivery can pose barriers to participation. The barriers most often mentioned in our survey include:

Inadequate employer support: Two forest sector respondents identified a problem with employer support. One suggested that workplace rewards for participation were inadequate; the other felt that smaller companies were particularly unsupportive. The New Zealand respondent observed that smaller companies are generally more concerned with "production, production, production." In one case, union concerns over pay rates were seen to be a disincentive to continuing education.

Costs: Costs that can deter participation include tuition or course fees, work time lost or time away from work, and travel costs. Independent consultants, contractors, and technicians were seen to be at a disadvantage relative to foresters employed by government and larger companies, and to mid-managers who reporty could receive more financial assistance.
Time: Time constraints were mentioned more often by respondents than were monetary costs. For some participants, especially independent operators, time is a more critical constraint than money. Scheduling should accommodate the seasonal activities of forestry personnel.

Location: The difficulty in accessing program locations was also frequently identified as a barrier. Choosing convenient locations for courses is crucial, in that travel time is a major component of time costs. The geographically dispersed nature of the forest industry exacerbates access problems. For example, in Alberta, most of the industry is located north of Edmonton, yet few courses are offered close to field operators. A similar situation occurs in B.C. In all sectors, the tendency for courses to be located in the Lower Mainland was seen as an impediment for participants from other areas.

Decentralized delivery is an obvious solution to this problem. For example, concern over loss of production time was overcome in Vermont's Silviculture Education for Loggers Project by "taking the course to the loggers." Courses were offered in dispersed locations so that no one needed to travel more than 40 miles to attend.

Other program delivery issues:

Inadequate coordination: Lack of co-operation, co-ordination, and integration among program delivery organizations was another problem (noted especially by Ontario and Nova Scotia respondents). The Nova Scotia respondent reported that there is little information exchange between foresters, technicians, and forest workers: "The flow has to be from the worker up; the forester has to spend time on the ground with the worker."

Inadequate deliverers: Finding and training good instructors, advisors, or faculty was a problem cited by the Society of American Foresters and in the forestry sector in Sweden, Vermont, and New Zealand. The agriculture sector in B.C. and the forest program in New Zealand find it hard to meet the demand for continuing studies.

Inadequate course material: Some courses are regarded by participants as being boring, biased towards one type of personnel, substandard and/or uneven in quality.

5 RELEVANCE FOR THE B.C. FORESTRY COMMUNITY

The results of our review of other continuing studies programs can serve as a basis for designing programs that promote lifelong learning in the B.C. forest sector. Practitioners, however, should take into account the special characteristics of this community.

5.1 Characteristics of the B.C. Forest Community

For educational purposes, B.C.'s forestry community can be divided into various "target groups" (or "audience sectors"), depending on occupation, previous education and training, and experience. Members of these groups are located in different sizes and types of communities, within a variety of biogeoclimatic zones and administrative areas. Each group has different needs, priorities, and resources for continuing studies.

Target groups include professional foresters, technicians, forest workers (loggers, silvicultural workers, etc.), and small-scale practitioners (private forest land owners, woodlot licensees, Native bands, etc.). Employment status can also affect motivation for and access to continuing education. Categories here include independent operators, salaried employees, and hourly-wage employees.

Added to this fragmentation is the challenge of geography. The "forest community" is widely dispersed in this province, often located in thinly populated regions. This can make it difficult for courses to reach all parts of the community efficiently and cost-effectively.

Social, economic, and demographic factors also influence motivation to participate. These include pay or income structure, socio-economic circumstances, age and family composition, and cultural heritage and language. Such factors must be into considered by those attempting to transfer incentives and ideas from
other contexts to the B.C. forest sector. As Blackburn (1989:8) notes: "A consciousness of the learners' socio-cultural context is fundamental to effective programs of change. Activities initiated without regard to this context are doomed to failure."

Incentives and barriers of particular importance to members of the B.C. forestry community are outlined below. These summaries are based on interviews with representatives of three categories of forestry personnel: professionals and technicians, forest workers, and small-scale practitioners (in this case, woodlot owners). Section 7.2 lists the names of the interviewees. Three or four individuals were interviewed per category. While their views may be representative of the category, they were personal views only.

5.2 Reaching Professionals and Technicians

Four representatives of professional and technical forestry personnel were interviewed.

5.2.1 Importance of Lifelong Learning

The interviewees felt that lifelong learning is especially important in forestry because it allows professionals and technicians to:

- step out of a particular working area or specialty to develop a broader perspective;
- reflect on field results of past practices that only show up over time;
- keep up with new information in the biological sciences, including improved approaches to land management;
- see the forest from many points of view, including understanding new and developing attitudes towards forest management; and
- draw on a wealth of technical information to make better decisions.

Two respondents felt that lifelong learning is especially important to professionals and technicians. Engineers, contractors, and silvicultural workers were also singled out as important target audiences. All four respondents noted that lifelong learning is important for the entire forestry community.

5.2.2 Relevant Incentives

For professionals, the interviewees saw personal motivation to increase knowledge, and professionalism (the desire to do a good job), as primary incentives for lifelong learning. Professionals, in particular, seem to have a built-in motivation stemming from their dedication to a chosen profession and the satisfaction that accompanies that pursuit.

Other incentives identified as critical for both professional and technical personnel were high quality course material that is audience-specific, practical, well-documented, and relevant; and good instructors who are stimulating, experienced, credible, aware, and knowledgeable. Interviewees variously called for courses on integrated management, new silviculture, forest policy changes, public involvement, public speaking, media relations, and dealing with conflict.

Sensitive scheduling of courses in the off-season was called for, and convenience of location, although two felt that courses were more effective when attended away from home. Recognition by, and interaction with peers was also important, as was support from employers. Job advancement was seen as less relevant to this group than other incentives.

Opinions were mixed on the importance of public pressure as an incentive. There is a resistance to this factor on the part of this group, but they admitted that perhaps it should be important, and one emphasized the overriding importance of peer standards.
5.2.3 Relevant barriers

While one respondent felt there were no barriers to lifelong learning, the others referred to practical matters such as the *time pressure* caused by heavy workloads, especially in the summer season (northern B.C.), and to difficulties in *funding course attendance and travel restrictions*. No strong views were expressed about cost or employer support. *Lack of co-ordination* in course delivery often results in confusion and overlap. Lack of interest in learning was not seen as a barrier for professionals and technicians.

5.2.4 Views on mandatory requirements

Registered Professional Foresters (RPFs) and technicians have no mandatory requirements for continuing studies, except that attendance at the SIBC is seen to be necessary. One respondent felt strongly that continuing education should be mandatory for RPFs and another suggested that licensing or certification might assure the public that up-to-date forestry standards are being maintained. Two also implied that mandatory certification might be appropriate for other types of forestry personnel, or in connection with “key issues.” One observed that mandatory courses could be perceived as “a fact of life” rather than a problem.

On the negative side, some interviewees feared that mandatory provisions could compromise the individual’s freedom to pursue the specialized information most relevant to his or her needs. They noted that a standard curriculum and courses might not be appropriate for the diverse needs of various audiences. It was also suggested that a negative attitude towards mandatory continuing studies might be connected with a sensitivity to public criticism.

One person recommended a *certificate program* as a means of strengthening and co-ordinating the current weak and disjointed continuing education offerings.

5.3 Reaching Forest Workers

Three representatives were interviewed.

5.3.1 Importance of lifelong learning

All three interviewees felt that lifelong learning is essential in the forest sector due to changing circumstances, new requirements linked to new knowledge, and the “imperative of learning to live under scarcity.” One noted that without continued learning, “you are forever imprisoned by your first conclusions.” Another suggested that workers must understand how their work fits into the broader context of forest management.

Two respondents said that lifelong learning is equally important for all personnel. The third pointed to one key target group: those who manage and oversee the activities of others, including operations and planning personnel, as well as supervisors and contractors.

5.3.2 Relevant incentives

The first incentive listed by each respondent was that of *job security* or the opportunity to be employed in the future as a result of doing a good job. In the category of ego satisfaction, “*doing a good job*” was also seen as an incentive because of the associated sense of *self-esteem* and the desire to *demonstrate competence*. Related to this was the incentive of having one’s work appreciated by others — a *sense that one’s work is valued*.

*Two interviewees identified public pressure* as another incentive. The contractor interviewed said that meeting public expectations would affect his ability to get more work. The other person specified that motivation to do a good job still outweighs the influence of public pressure. Two of the three felt that *peer pressure* is also an incentive.
All interviewees agreed on the importance of incentives related to good delivery, from good teaching to convenient location. Two of them proposed delivery of courses on-site, in rural areas, and even in logging camps.

Variation in the types of incentives that will be effective was said to be greater among individuals than among groups, due to the importance of personal motivation. However, some specific incentives might apply to First Nations peoples because of cultural factors.

5.3.3 Relevant barriers

In contrast to professionals and technicians, the main impediment for forest workers was identified as the lack of a will to engage in learning. Two interviewees attributed motivation problems to the cultural and working backgrounds of forest workers. Some workers do not expect much of themselves educationally because they have had few role models. There may be no family experience of higher education and the workers themselves may not have finished high school. As vocational workers, these people have not been encouraged by the school system or society to think in terms of lifelong learning.

Linked to these low expectations is a sense of insecurity about formal learning environments. These workers are accustomed to a working environment where manual skills are more important than verbal skills and written communication is not a high priority. The classroom setting may be foreign to the outdoor or plant worker. Furthermore, the outdoor worker is often drawn to his or her occupation by a love of the outdoors rather than a desire to develop any particular knowledge base.

Inadequacies in program delivery, especially in scheduling, costs (such as travel expenses), and time off work, were also significant barriers. The scheduling of courses in the summer work season was identified as a major impediment. One respondent also pointed to a lack of coherence in continuing education programs, and a lack of guidance as to what is available and how an individual should progress through courses.

To deal with these barriers, all interviewees stressed the importance of providing learning opportunities that overcome forest workers' lack of interest in formal education. These are likely to be non-classroom events, preferably at the work-site. Camp-based programs could also take advantage of the camaraderie among workers as an incentive for learning. The rewards to workers for participating in continuing studies should be primarily job-oriented and backed by a broad-based appreciation of their contribution to the forest sector.

5.3.4 Opinions on mandatory requirements

All interviewees agreed (with some qualifications) that there is a role for mandatory continuing education for forest workers. One interviewee suggested that while standards should be set, industry is capable of establishing these in face-to-face discussions rather than through licensing requirements. Another suggested that those who attain licences are generally less likely to share their knowledge with others. It was felt that there might be resistance to mandatory participation and that there should be a “grandfather clause” exempting those with sufficient experience-based knowledge from attending courses.

5.4 Reaching Small-scale Practitioners

Three people who work with small-scale forestry were interviewed.

5.4.1 Importance of lifelong learning

The reasons why lifelong learning is important to small-scale practitioners are similar to those of professional and technical personnel. They are paraphrased as:

- The forest is a dynamic entity, constantly changing, so that each thing you learn raises more and more questions.
• There is an opportunity for landowners to play an important role in the management of forest resources, both timber and non-timber; lifelong learning can improve forest stewardship.
• The public is demanding much of the forestry profession and, to meet those needs, we need education.
• Lifelong learning helps small-scale foresters to make their operations fit the forest — a big, complex system with which they are vitally concerned.

5.4.2 Relevant incentives

Incentives relevant to small-scale practitioners are a hybrid of financial and non-financial. These people perceive that a knowledge of improved forestry management, from silviculture to business management, will help them secure a sufficient income over an extended period of time, through the efficient production of a quality product.

At the same time, small-scale practitioners are driven to expand their knowledge base by less tangible factors, including:
• personal challenge, inherent interest in learning, and a strong curiosity about the forest ecosystem — "the forests are absolutely fascinating";
• the desire to pass on productive, healthy forests to the next generation;
• the rewards of success and failure, and building on those through new knowledge — "when you get an answer to something, it's a tremendous feeling";
• a desire to understand how and why particular practices work;
• the aesthetic and other benefits of maintaining non-timber values such as recreation, wildlife, and range;
• the satisfaction of working with nature without harming ecosystems.

Environmental awareness, not mentioned as an incentive to learning in other sectors and jurisdictions, is a significant motivating factor for this group. Other important incentives were the sharing of knowledge with peers and the pride in accomplishment that goes with this interaction. Community support and involvement also provide motivation (based on the assumption that the public is sometimes ahead of government and industry in their thinking, and that small-scale practitioners are often ahead of the public). One interviewee noted that society should express appreciation for the work performed by those in the forest industry. Employer or industry support was seen as virtually irrelevant for this group.

5.4.3 Relevant barriers

One interviewee noted that the individualistic and stubborn nature of small-scale practitioners helps them overcome obstacles to lifelong learning. However, finding enough time and energy to pursue learning opportunities was seen as a challenge, given the busy lifestyle of the small-scale practitioner, which usually involves a second job and community commitments.

While practical aspects of delivery seemed less daunting to small-scale practitioners, the importance of scheduling outside the summer season and having on-site or otherwise conveniently located courses was emphasized. Organizational problems in delivery were identified, but for small-scale forestry these were accepted as the "growing pains" of a new field. This field does have special organizational needs, in that woodlot operations call for multidisciplinary expertise, drawing on non-forestry resource and business professionals. Extra co-ordination will be needed in program planning and delivery to avoid confusion.

Two interviewees referred to a barrier in course content that seems peculiar to this group: that is, practitioners assume that programs may not be relevant because they are designed around the objective of harvesting trees, rather than around supporting diversity. A lack of expertise in this field in B.C. was noted, as was the difficulty in ensuring that course offerings keep up with evolving information and technology, and with changing forests. It will also be a challenge to meet the varying needs of small-scale practitioners, who have diverse educational and work experience. Additional delivery problems are that
small-scale foresters are scattered throughout the province and that some educational formats are not suitable to their needs.

A central concern of small-scale foresters is that of the security of their enterprises. Several government agencies, from the Forest Service to the Taxation Branch, have an influence on the continuity of woodlot operations. Until government mandates, community needs, and landowner needs are meshed in a way that recognizes the value of small-scale forestry, the threat of the loss of operations will continue. This concern overshadows other barriers to participation in continuing studies, although it does not seem to have dampened the small-scale foresters' built-in enthusiasm for learning. Indeed, the apparent energy for education that pervades this forestry sector could have a positive "demonstration effect" on other groups if support for these practitioners was assured.

5.4.4 Opinions on mandatory requirements

On the whole, mandatory requirements for continuing education were seen as irrelevant to this group. One respondent was skeptical that the material provided through mandatory programs could meet the needs of woodlot owners. He felt that small scale forestry practices are currently so far ahead of regulations that they contravene them. Another suggested that the independent nature of woodlot owners would cause them to resist regulated requirements, especially where paperwork for bureaucratic purposes is involved.

6 CONCLUSIONS AND RECOMMENDATIONS

Our conclusions and recommendations should assist program designers in structuring continuing forestry education in B.C. in a way that encourages a commitment to lifelong learning throughout the forest community. Conclusions on the various types of incentives and related recommendations are presented roughly in descending order of importance.

6.1 Job-related incentives

Job-related incentives such as professionalism and job advancement are among the most important motivators to participation in continuing studies. The desire for professional development is particularly important among professionals in most employment sectors, while it is less important among other types of workers. Security of job or livelihood, on the other hand, is most important among forest workers and small-scale practitioners. "Networking" with colleagues or having "peer interaction" is of primary importance to all types of employees. Support from employers was also identified as a significant encouragement to participation.

We recommend that:

Continuing studies programs in forestry appeal to employees' professionalism by showing them how programs will help enhance their professional development and expand their current knowledge in their fields.

Those working in continuing studies in forestry in B.C. should encourage employer support for continuing studies programs. This support may include direct industry involvement in program design and planning, and provision of time away from work and funding assistance for employees. Union officials and other occupational associations should also be involved, as appropriate.

Employers should offer support from all levels of management, possibly endorsed in corporate policy. They should make it clear that employee efforts to improve their knowledge base are appreciated and will be rewarded (see Section 6.3 Financial Incentives). This is especially important for forest workers, who may be less inclined to participate without such encouragement.

Small-scale practitioners should be granted greater security of access to forest land, so that their investment in education will not be wasted due to a lack of continuity in their enterprise. Their energy and knowledge should be seen as a resource in continuing studies programs.
6.2 Program Design Incentives

The dominant barrier to lifelong learning, especially in B.C.'s forestry community, is inadequate program design, mainly in terms of program format and delivery. The specific educational needs of different target groups vary widely, but many logistical concerns are common to all groups.

Because of B.C.'s dispersed population, scheduling and locational considerations, such as timing, convenience, and accessibility, are particularly important. The diversity of forest conditions and communities also requires that events be made relevant to the local situation. The technical credibility and teaching skills of instructors are also important.

We recommend that:

The program content and format be designed to meet the needs of each target group. Specific target group needs should be determined more accurately through in-depth needs assessment studies.

Providers (organizations and instructors) should be carefully chosen. They should be well organized, well qualified, and skilled in delivery. Quality control is important to maintain, and instructional training should be made available if necessary.

Educational events should make allowance for a range of learning styles and use a variety of teaching techniques, including on-the-job training. Consideration should be given to accreditation for learning in non-classroom settings.

Decentralized delivery is essential, with content customized to local needs and conditions as much as possible. An array of programs should be offered with sufficient frequency in a wide enough range of locations in B.C. that barriers related to scheduling and location are minimized. Correspondence courses should also be used.

Program design should build in opportunities for peer interaction and networking among participants; for example, by allowing sufficient time for discussion of experiences, as well as "down-time" between teaching sessions. In some cases, multi-disciplinary or multi-occupational programs may be useful. Participants should also have the opportunity to learn from experience in places beyond the working environment with which they are familiar.

The planning and delivery of programs should be co-ordinated among delivery organizations. Partnerships should be developed among members of the forestry community, occupational organizations, employers, and institutional providers.

6.3 Financial Incentives

Our survey confirmed that financial incentives such as increased income and education tax deductions operate in many ways to encourage lifelong learning. Conversely, direct costs and costs due to loss of work time can be major barriers to an individual engaging in lifelong learning.

We recommend that:

Industry-management partnerships provide financial support for employee participation in continuing studies.

Enhanced capabilities of employees, resulting from participation in courses, should be rewarded by job-related financial incentives, such as increased salaries or wages, advancement, or job security.

Prospective participants in continuing education programs should be made aware of any potential for enhanced income and job security that they might acquire by being more effective and efficient in their work.
6.4 Regulatory Incentives

Interviewee opinions vary widely as to whether mandatory requirements are effective, with several representatives of forestry jurisdictions supporting the idea. However, others noted that regulations can be a disincentive.

*We recommend that:*

Mandatory requirements for continuing studies for different occupational groups should be carefully considered by the forest community. All of those affected should be fully involved in any decisions on this topic.

Any new regulations should be accompanied by a “grandfather” clause that recognizes work experience equivalency for program requirements.

6.5 Personal and Social Incentives

It can be argued that it is ultimately personal motivation that will determine whether someone participates in continuing studies (unless it is mandatory). Though not frequently mentioned overall, such incentives were seen as primary motivators in several forest sectors outside B.C. and for small-scale practitioners in B.C. For many forest workers in the province, the lack of personal motivation for further education is a major barrier.

Social or moral incentives, were not identified as dominant motivators, although public pressure is of concern for some members of the B.C. forestry community and in certain other jurisdictions. Professionals tend to emphasize peer standards and expectations over public pressure as a driving force. Small-scale practitioners seemed to be the only group explicitly driven by environmental priorities. They were particularly aware of the less tangible rewards associated with improved practice, such as passing on healthy forests to the next generation and maintaining non-timber values in managed forests. Several respondents also noted that community support can provide encouragement.

*We recommend that:*

At the workplace, forest workers be strongly encouraged to engage in learning opportunities that are tailored to their needs and so that they can overcome any negative attitudes towards formal education that may exist.

Those organizing continuing studies should design programs so as to enhance the communication and relationships within forestry communities and among forest-based and more urban communities.

Ways should be found to make the public aware of efforts taken by forest sector workers to maintain current knowledge of the field. The public should also have ways to interact more directly with forest sector personnel. For example, continuing studies programs could provide opportunities for dialogue among the general public, public interest groups, and forest sector personnel, to build better mutual understanding and community support.

6.6 General Conclusions

Representatives of the B.C. forestry community agree unanimously that lifelong learning is essential to promoting a broader view of forestry issues and better long-term forest management. They realize that information on silviculture and harvesting is changing and that they need to keep up with this emerging knowledge, as well as with the changing economic, social, and political context for their work. While continuing studies are important for all groups within the forestry community, those involved in management and overseeing the work of others are identified as a key target group.
We recommend that:

The various incentives identified in this report, which are extracted from a range of 25 examples and cases, should be systematically studied by those working with continuing studies in forestry in B.C., so that they can identify opportunities for transfer of ideas to their programs.

To build on the existing interest in continuing studies among all levels of forest workers in B.C., continuing educators should focus initially on incentives that can be easily incorporated into program design and planning. These include job-related incentives, program delivery incentives, and financial incentives.

If regulations are passed to require continuing studies in B.C., these must be designed to incorporate other incentives such as employer support and effective program delivery. Otherwise, disillusionment or distress in participants could counteract the benefits of the programs.

In the longer term, the potential to strengthen personal motivation for learning, and cultural or moral incentives should be explored. This would have to occur in concert with a broader social learning process in the forest community, supported by the education system and by improved communication within individual communities and between urban and rural resource-based communities.

7 REFERENCES

7.1 Literature Cited

Association of B.C. Professional Foresters. (No date.) Report of the Mandatory Education Committee. Vancouver, B.C.


University of Vermont Extension Service. (No date.) Information package on the UVM Extension "Silviculture Education for Loggers" project. Promotional notice.
7.2 Interviews

Clark Binkley, UBC Dean of Forestry, was interviewed for his general expert knowledge, on April 10, 1991.

Persons interviewed from other sectors and other jurisdictions for Sections 2 to 4 are listed, with the results of their interviews, in the Appendices in Volume II.

The following people were interviewed for Section 5:

**Professional Foresters:**
- Ted Nash, Ministry of Forests, Vancouver Region
- Brian Zak, Crestbrook, Cranbrook
- Dave Presslee, Northwood, Prince George
- Ian Moss, Industrial Forestry, Prince George

**Forest Workers:**
- Ross Styles, silviculture contractor, Arland Reforestation, Kamloops
- Graham Lea, Truck Loggers Association, Vancouver
- Clay Perry, IWA, Vancouver

**Small-scale Forestry:**
- Merv Wilkinson, woodlot owner, Nanaimo
- David Haley, Forestry Canada, Victoria
- Peter Sanders, UBC Research Forest, Haney
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APPENDIX 1. CASE STUDIES

These three case studies provide a more detailed picture of experience in lifelong learning in two other sectors within B.C. — medicine and accounting — and one other jurisdiction — the state of Oregon. They were chosen because they seemed to offer some useful information for possible use in B.C. continuing studies programs in forestry.

1.1 Medicine in B.C.

Aspects of lifelong learning for doctors and nurses in B.C. are described together here, to facilitate the comparison of factors relevant to two types of personnel in the same sector.

The background information for doctors is as follows:

Association — B.C. Medical Association
Contacts: Claire Knowlin and Maggie Ross (April 29)
115-1685 West Broadway, Vancouver, B.C. V6J 5A4
Phone 736-5551, toll free 1-800-972-BCMA, (Fax) 736-4566
Licensing Body — College of Physicians and Surgeons of B.C.
Contact: 733-7758

The background information for nurses is as follows:

Licensing Body and Association — Registered Nurses’ Association of B.C.
Contact: Judith Walker, Education Coordinator (April 29)
2855 Arbutus Street, Vancouver, B.C. V6J 3Y8
Phone 736-7331

1.1.1 Special features of lifelong learning for personnel in medicine

Continuing education opportunities appear to be plentiful for both doctors and nurses, and both have large and well-organized associations. In both cases incentives well out-number barriers to lifelong learning. While both require specific training for specializations, neither is reliant on mandatory requirements for continuing education generally, except in the case of doctors’ maintenance of hospital admitting privileges.

For both groups, peer review and professional integrity are primary incentives, with professionalism at the top of the list. (The peer review aspect is immediate in nursing, where much of the work is performed in a team situation.) Although nurses perhaps occupy a lower status profession than doctors in the eyes of society generally, nurses apparently take no less a professional attitude in their commitment to lifelong learning. Indeed, while attitudinal problems were identified in the case of doctors (in reaction to regulatory requirements), the only barriers identified by the nurses’ representative were of a practical nature. Based on the information available, nurses are obliged to cover more of the cost of continuing education than are doctors.

1.1.2 Context for doctors

There are approximately 6500 doctors in the B.C. Medical Association. There are no mandatory continuing education requirements to maintain a medical licence. The respondent noted that the United States is much more strict regarding mandatory continuing education requirements for physicians.

Many doctors belong to specialist “colleges” with continuing education requirements. For example, the College of Family Physicians has mandatory continuing education requirements to maintain membership. Physicians must first pass an exam to be certified by the College and then are required to take 50 credit hours per year of continuing education to maintain membership. There are presently 1126 members of the College in B.C., of whom 65% are certified. All costs of continuing education are absorbed
by the physician. The College provides guidelines for a variety of continuing education programs such as training videos, recommended conferences, and medical hospital rounds. Each hospital organizes its own continuing education programs.

The Ministry of Health pays up to $1000 yearly for continuing education to qualifying physicians (i.e., member of the Association, resident of B.C., and non-salaried). The BCMA administers this $1000 (the doctor attends his or her choice of conference, workshop, etc., and submits bills for hotel, travel, tuition, etc., to the Association for disbursement).

1.1.3 Context for nurses

The Registered Nurses Association of B.C. has 34,000 members, of whom 27,000 are practicing. At this time, continuing education is not mandatory in order to maintain a licence. It is, however, necessary that each member work a minimum number of hours each year in order to maintain a practicing membership. By the year 2000, all diploma nurses must have completed a university degree program. The RNABC puts on general knowledge programs for nurses throughout the province. These courses are theory-based, not clinical, and the content is determined according to the need of each community. Most continuing education is offered through individual hospitals for their staff nurses. These are usually free, and nurses are paid for the hours they attend.

Other courses are offered through colleges (Langara and British Columbia Institute of Technology). These are usually more technical in nature and are often paid for by the nurses themselves. Sometimes the employer may assist with the costs if the training results in that individual being able to fill a position within that hospital. University courses are for degree programs only.

In most cases, nurses pay all of the costs for continuing education courses.

The respondent feels that it is only a matter of time before the hospitals make mandatory continuing education a condition of employment. This is presently the case in the United States and it is usual for Canadian institutions to follow the U.S. lead.

1.1.4 Incentives for doctors

1. Peer review and professional integrity.
2. Financial. Annual contributions are made by the B.C. Ministry of Health, described above.
4. Requirements of specialty associations. The requirements of specialist "colleges" are described above.

1.1.5 Incentives for nurses

1. Professional responsibilities. In the respondent's view, most nurses believe that it is important to stay current in order to perform the job effectively.
2. Peer review. Most nurses perform in a team situation and must be able to contribute accordingly.
3. Regulatory requirements. In order to enter a specialty, such as intensive care or emergency nursing, a nurse must first complete a training course.

1.1.6 Barriers for doctors

1. Attitude. Doctors demonstrate a resistance to regulation and outside interference in the profession.
1.1.7 Barriers for nurses

1. Costs. Both the cost of courses and of scheduling time outside of work are obstacles to participation.
2. Access. Nurses outside the lower mainland do not have easy access to most continuing education courses.

1.2 Chartered Accountants in B.C.

Licensing Body and Association – Chartered Accountants’ Institute of B.C.
Contact: 1133 Melville Street, Vancouver, B.C.
Phone 681-3254

1.2.1 Special features of lifelong learning for chartered accountants

The Chartered Accountants’ Institute sees ongoing education as critical in maintaining the credibility of Chartered Accountants. Integrity and professionalism are what CAs sell to their clients, and proof of current knowledge gives accountants credibility in the eyes of clients. Chartered Accountants have the most rigorously enforced continuing education requirements of any professional group surveyed. Along with professional integrity, peer review is again an important incentive to lifelong learning.

It is notable that dentists also have high requirements for continuing education to maintain their licence. Both accountants and dentists operate largely as independent businesses and hence have an interest in maintaining credibility with private clients. Mandatory ongoing education is one way of maintaining that credibility. However, as in the case of doctors, accountants experience regulatory requirements as a negative influence on their attitude towards learning.

1.2.2 Context

There are about 6000 Chartered Accountants in B.C. In order to acquire a licence, applicants must:
(1) have already completed a university degree in a relevant subject (usually a Bachelor of Commerce);
(2) complete three Institute courses (audit, accounting, and tax) followed by 4 days of examinations; and
(3) complete 36 months of articling with an approved firm. Continuing education is a mandatory requirement of licensing. Each member must report a minimum of 14 credit hours per year with a total of 70 credit hours over three years. The member must send in a detailed report each year and the Institute determines if the reported credit hours are acceptable. There are strict Institute by-laws with regard to continuing education. Each member is required to maintain a “Professional Development” file at all times. The member could be audited at any time and asked to submit this file to the Institute for accuracy. Each member is entirely responsible for continuing education costs. Individual firms sometimes organize their own continuing education program. Some firms cover a portion of the cost for an employee’s professional development.

1.2.3 Incentives

1. Regulation. Continuing education is a requirement of licensing and is strictly monitored by the licensing body.
2. Peer review and professional integrity. These factors play a major part in maintaining a high standard of professional development among Chartered Accountants. If an accountant does not keep current it will be impossible for that individual to maintain effectiveness in the profession.
3. Opportunity. The Institute has a large department that organizes courses throughout the province all year long. This ensures that there are many opportunities for accountants to build credit hours.
1.2.4 Barriers

1. Time and monetary cost. Some members complain that courses are time-consuming and costly.

2. Attitude. Some accountants see courses as obligatory, rather than as learning opportunities, and consequently "sleep through" courses.

3. Quality control. With a captive audience, course providers may not be challenged to offer the best quality courses. Some members comment that courses are "boring."

1.3 Oregon Forest Sector

Program – Oregon State University Extension Service
Contacts: Perry Brown, Associate Dean of Extension Services, and
Paul Adams, Associate Professor, Forest Watershed Extension Specialist (July 24)
Forestry Extension, Oregon State University, Peavy Hall 119
Corvallis, Oreg., USA 97331 - 5712
Phone (503) 737-3527, (Fax) 737-2668

1.3.1 Special features of lifelong learning for the forest sector in Oregon

The program of the Oregon State University Extension Service caters to virtually all members of the forestry community, from professionals to youth groups. Special programs to enhance forestry practice in the state are also provided, with the cooperation of government and industry. This cooperative approach is supported by the advisory committee to the Forestry Extension program, which includes representatives of various forest resource interests.

Although there are no regulatory requirements for continuing education in Oregon, the program has been successful in attracting participants by offering courses that meet the needs of practitioners and addresses issues on the horizon.

This program is apparently the most comprehensive and well planned of the ongoing education programs surveyed. It is well supported with personnel and technical resources and appears to be responsive to the needs and concerns of practitioners. The university specialists who organize the program explicitly recognize the importance of lifelong education.

The Oregon respondents claim that their program attempts to encompass virtually all of the incentives identified in Section 4 (in the main report), as demonstrated by the list below. However, several barriers to lifelong learning encountered in Oregon, which again echo the experience of other jurisdictions, still must be overcome.

1.3.2 Context

There are 20 forest extension staff working with the Forestry Extension program at Oregon State University — 12 field agents and 8 specialists. All specialists hold Doctorates while field agents have Master's degrees. The Continuing Education Program of the College of Forestry, which is aimed mainly at professionals, scientists, resource managers, and policy-makers, receives its impetus from the Extension specialists. The field agents work with private landowners, forest operators (loggers), and resource professionals, as well as with the general public. All field agents are involved with youth work such as 4-H groups. The Extension Service also undertakes special programs such as the Coastal Oregon Productivity Enhancement Program. This project is a regional resource and technology transfer program, administered and lead by the university and funded jointly by government agencies and industry sources.

According to Mr. Perry Brown, the purposes of continuing education for the University of Oregon are to provide:
• information and technology transfer;
• interaction of faculty with scientists, resource managers, and others;
• lifelong education in natural resources;
• support for faculty diversity, size, and quality; and
• personal growth and development of faculty, 60% of whom are involved in continuing education.

The Forestry Extension Program is overseen by an advisory committee of 12 members, representing various forest resource interests, which meets annually. The program leader, an Associate Dean of the College of Forestry, reports jointly to the Dean of the College of Forestry and the Director of Extension.

The University is currently advocating the development of a “curriculum” for continuing education for resource managers. The respondent (Paul Adams) felt that such a curriculum could help to provide guidance to professionals in planning their career paths, rather than the present “shotgun” approach of offering courses in response to issues.

There are no mandatory requirements for ongoing education for professional foresters in Oregon.

1.3.3 Incentives

1. Personal interest, relevance, and quality. The program has found that if courses are relevant and well presented, there is no problem in attracting participants. Indeed, participants will often pay their own way to courses if they are unable to obtain funding from their employer.

2. Support from employers. The respondent felt that a good deal of the success of the Coastal Oregon Productivity Enhancement Program and the earlier Forestry Intensified Research Program is due to leaders in industry saying that “this is the thing to do.”

3. Sensitivity to concerns. The respondent has found that courses will be most effective if you can show loggers, for example, that you are sensitive to their concerns over such matters as productivity and practicality.

4. Peer expectations. A focus on opinion leaders, who will inspire and motivate others, appeals to peer influence.

5. Need for upgrading. Employees need to maintain and update knowledge in the face of new developments in the field of forestry and in society (e.g., economic, social, and political), which affect their work.

6. Technology transfer. Participants get the benefit of the latest research and development and they can provide information and feedback to researchers.

7. Field sessions. These are more popular because of their practical application.

8. Self-esteem. For example, participant involvement in teaching builds self-esteem.

9. Quality. Clients desire to keep up in the field by participating in high-quality courses.

10. Good instruction. People want courses to be interesting; thus credible instructors with good communication skills are important.

11. Careful targeting. Courses aimed at a particular group or a deliberate mix of technicians, field people, and RPFs make participation more appealing.

12. Attractive facilities. Attention to detail and logistics is important to participants, such as dedicated teaching space and appealing residential facilities.
1.3.4 Barriers

1. Timing and scheduling. The program attempts to overcome these difficulties by scheduling courses during the off-season, in the evenings and/or in rural areas.

2. Cost. The respondent has found that among both government agencies and industry, people with travel budgets come to courses, rather than those who might best benefit from them. For example, mid-managers more commonly attend courses, rather than technicians. The program is attempting to address this through targeting courses to specific groups, such as field people, and providing scholarships for courses.

3. Employer support. The respondent feels that employers generally do not provide significant rewards for continuing education. For example, there is little incentive for foresters to sign up with the Society of American Foresters’ continuing education certificate because it is not generally encouraged by employers through financial incentives or professional advancement. Foresters usually pursue their continuing education independently, rather than under the auspices of a certificate program.

4. Effective needs assessment. It could be better.

5. Faculty participation. Convincing faculty to be involved in programs can be a problem.

6. Partnerships. Getting cooperation from relevant agencies is sometimes difficult.
APPENDIX 2: EXPERIENCE IN OTHER SECTORS IN B.C.

This appendix provides a full listing of the research results of experience with lifelong learning in non-forestry sectors in B.C. When more than one contact name is included, the first name is that of the person who provided most of the information recorded here. Written program documentation was also drawn upon in some cases. The barriers and incentives to lifelong learning are listed in the order in which the respondent provided them. The interviewee's own words have been used to describe all incentives and barriers, to the extent possible. Classification of different descriptors is undertaken through the analysis for the report, Volume 1. The sectors are described in the following order:

1. Agriculture (A)
2. Agriculture (B)
3. Geologists
4. Planners
5. Teachers
6. Lawyers
7. Engineers
8. Chiropractors
9. Dentists and Dental Hygienists
10. Pharmacists

2.1 Agriculture (A)

Association — B.C. Institute of Agrologists
Contact: Garth Bean, Registrar (April 29)
302 – 3452 Marshall Road
Abbotsford, B.C. V2S 5E4
Phone 859-1887 (Fax) 852-6251 (cel) 854-0222

2.1.1 Description

Agrologists are licensed under provincial legislation. The professional association presently has about 800 members throughout B.C. Continuing education is not presently a requirement of licensing but the subject is under active discussion by the membership.

2.1.2 Incentives

1. Professionalism. To maintain high standards of knowledge, integrity, and ethics in the profession.

2.1.3 Barriers

1. Size and location of the membership. The small number of agrologists scattered throughout the province makes putting on courses and mounting a continuing education program an expensive proposition, which would strain the present resources of the professional association.
2.2 Agriculture (B)

Association – B.C. Federation of Agriculture
Program – B.C. Agricultural Research and Development Corporation (ARDCORP)
Contact: Bill Twaites, Program Coordinator (June 13)
B.C. Federation of Agriculture
846 Broughton Street, Victoria, B.C. V8W 1E4
Phone 383-7171

2.2.1 Description

The program offers farm business management training to agriculture producers. Participants learn through realistic case studies designed for their specific commodity or production area over two weeks of half-day classroom sessions. Following the classroom sessions, 20 hours of one-on-one on-farm training is offered over the following year to aid participants in adopting the learned principles to their own situation.

A second-level course involves the use of personal computers for management decision-making and record-keeping. The format is similar to the basic course, except the classroom portion of the course involves three weeks of half-day classroom sessions. Both courses are offered on request from producers within the constraints of funding, with a group size of 15-25 required to hold a course in any given area. Over the 2 1/2 years of the program, several hundred participants have attended the courses.

The program is funded by Employment and Immigration Canada through the Canada-B.C. Farm Management Initiative. The steering committee for the initiative includes producer boards, which set the tone for the program, and a management committee, comprised of government and producer representatives.

2.2.2 Incentives

1. Follow-up. A key factor in the success of the program, in the view of the respondent, is the follow-up provided. Follow-up sessions ensure that classroom learning is implemented by individual farmers.
2. Producer involvement. The program is organized around the schedule of producers, set up in conjunction with producers, and instigated at their request.
3. Management orientation. The program is entirely management oriented, rather than considering production technology, which is the traditional domain of extension services. This management orientation has a more immediate and visible effect on the “bottom line” for producers.
4. Secondary benefits for producers. The program leads the producers to develop good business plans, which makes dealings with banks (such as loan applications) easier.

2.2.3 Barriers

1. Limited delivery. The demand is higher than the program’s ability to give courses.

2.3 Geologists

Association – B.C. and Yukon Chamber of Mines
Contact: Jack Patterson, Manager
840 West Hastings
Vancouver, B.C. V6C 3G9
Phone 681-5328
Additional contact – Geological Association of Canada
Phone 684-7254
2.3.1 Description

The B.C. and Yukon Chamber of Mines has 1200 individual members and 300 corporate members. Members must be graduates of a related university degree program. To become a member of the national body, a geologist must have an additional five years of work experience. In the past year, professional geologists have become licensed under the Association of Professional Engineers. This move came about due to concerns expressed by the stock exchanges. They required that anyone involved in geological mapping be accountable to some licensing body.

Continuing education is not a licensing requirement in any of the above-mentioned organizations. The respondent felt that the work of a geologist was in itself a form of lifelong learning. Technological changes occur at a rapid rate and each geologist must remain current. He also spoke of the code of ethics, which states that geologists must be qualified for each and every one of their contracts.

The B.C. and Yukon Chamber of Mines puts on a conference each year. It may have a specific theme, such as geophysics, or take a general approach. Other conferences are offered by the provincial government for their geologists and are open to geologists in the private sector. In each case, individual geologists are responsible for all of the costs of attending conferences. Courses are also offered through the Geology Department at UBC. Call Al Sinclair or Dick Chase (228-3086) for more information.

2.3.2 Incentives

1. Personal professional development. The respondent called this networking. He mentioned that if a geologist does not keep up with current trends he will lose the ability to communicate with his peers.

2. Marketability of acquired knowledge. While there are no direct fiscal rewards, involvement in a continuing education program could lead to more lucrative and higher-profile contracts for geologists.

2.3.3 Barriers

1. The respondent did not feel that there were any barriers to lifelong learning in the profession; the very nature of the work is an education in itself.

2.4 Planners

Association – Planning Institute of B.C.
Contact: Gary Holisko
Phone 663-4312

2.4.1 Description

There are 400 registered planners in B.C. The profession is not licensed under provincial legislation; therefore membership in the Planning Institute is not necessary for employment. Most planners are graduates of the UBC Planning School (or graduate of a similar university program) or they have some other degree plus considerable related work experience. There are continuing education courses for planners offered through UBC. There are summer courses at the UBC Planning School as well as programs developed by UBC Continuing Education. The Planning Institute has input into the content of these courses.

2.4.2 Incentives

1. Professional development.
2. Professional and social networking.
2.4.3 Barriers

1. Cost. Cost of tuition and work time lost.
2. Accessibility. Courses are offered in the Vancouver area and are not convenient for individuals from other regions of the province.

2.5 Teachers

Association – B.C. Teachers Federation
Contact: Rick Beardsley (April 29)
2235 Burrard Street, Vancouver, B.C.
Phone 731-8121

Licensing Body – B.C. College of Teachers
Contact: Douglas Smart, Registrar (April 29)
405 - 1385 West Eighth Avenue
Vancouver, B.C. V6H 3V9
Phone 731-8170

2.5.1 Description

There are 30 000 members of the B.C. Teacher’s Federation in 75 unions. It is compulsory for teachers to pay 2% of their gross income to the Federation. This money is spent on legal costs, insurance, salary indemnity, counselling, and ongoing education. The Federation spends $4-5 million annually on education and also arranges education contracts with the B.C. government, totalling $900 000 this year. It is compulsory for each teacher to take part in five professional development days per year in their district; they are paid full salary for this time. Of the compulsory days, one is spent at a district conference and four are arranged by staff at each school (speakers, workshops, etc.).

There are also university credit courses and special upgrading programs for teachers. Each year, 10 000 teachers (1/3 of the membership) are involved in continuing education beyond the required professional days. These courses are arranged by the Federation, with the costs split three ways between: (1) the Ministry of Education; (2) the University or college offering the course; and (3) the Federation. The amount paid to each teacher for each course is determined on an individual basis according to need and location (more assistance, for example, is given to out-of-town people).

2.5.2 Incentives

1. Peer pressure. Teachers are moving to more of a team approach to teaching. The traditional approach of one teacher per class and separate classrooms is breaking down. There are more open doors and sharing of information in the new environment. There is an increasing need for upgrading so that teachers can keep up with other members of the team. The respondent also felt that the young average age of teachers (in the mid-40s) is also a factor in openness to learning.

2. Competition among the school districts for teachers. Some districts are more progressive and generally known to be involved in continuing education. This can attract good teachers to the district. This is good public relations and can lead to pride in the district and the teachers. Also, a district can arrange a speaker or workshop and offer it free to teachers within the district, but charge out-of-district participants.

3. Remunerative incentives. Basic salary for a teacher with a four-year university degree is $27 000. Each additional year of university training is worth a $2000-3000 salary increase as part of union pay scales. As well, employers provide teachers with paid days off for ongoing education as a part of collective agreements.

4. Time availability. There is a natural opportunity for teachers and continuing education providers to arrange courses during the 2-month summer break between school terms.
2.5.3 Barriers

The respondent did not feel that there were any barriers to lifelong learning for teachers in B.C.

2.5.4 Observations

Teachers come closest to the ideal of lifelong learning among the groups surveyed. This should not come as a surprise, as educators should, as a profession, be very aware of the value of lifelong learning — there is an ethic of lifelong learning inherent in the profession. The clear monetary incentives for further education, through salary increases for additional university training, are also of prime importance.

2.6 Lawyers

Licensing Body and Association – Law Society of B.C.
Contact: 1148 Hornby Street, Vancouver, B.C.
Phone 669-2533

2.6.1 Description

The Law Society has approximately 7000 members in British Columbia. There are no mandatory continuing education requirements for lawyers to maintain practicing status. Ongoing learning opportunities for lawyers are provided by Continuing Legal Education (CLE), a non-profit organization. It is not affiliated with the Law Society and run courses on a cost-recovery basis. CLE offers 75-80 courses a year and also publishes legal brochures and books. The Law Foundation provides funding for special projects such as a dispute resolution course. The Ministry of Regional Development has also funded courses offered in remote regions by satellite.

Well over 50% of practicing bar lawyers take part in at least 16 hours of continuing education per year. This amounts to two days of courses each year. Instructors and lecturers for the courses are volunteers; last year 1051 volunteers assisted with CLE courses. The respondent feels that lawyers volunteer to teach as a way of gaining professional recognition and peer exposure, as part of a professional obligation to share expertise, or through an enjoyment of teaching.

2.6.2 Incentives

1. Professional development. The necessity to keep up with changes in the law. Taking a course saves individual lawyers the time needed to read and interpret the legislation in detail.
3. Regulations. Articling lawyers must complete a Professional Legal Training Course before being admitted to the bar.
4. Financial. Taking part in a Loss Prevention course once a year can result in a $100-200 reduction in the cost of liability insurance.
5. Tax deduction for training that can be combined with travel (such as a trip to Banff for a symposium).

2.6.3 Barriers

1. Cost of taking time away from practice, as well as course fees.
2. Location. Many of the courses are offered only in Vancouver, which makes it difficult for lawyers in other regions of the province. To address this, CLE makes many of the courses available on videotape.
2.7 Engineers

Association – Association of Professional Engineers (Licensing Professional body)
Contact: Mr. Wascine
Phone 736-9808

2.7.1 Description

There are approximately 11,000 members of the association. There are no requirements for mandatory continuing education in the profession. The respondent felt that most lifelong learning takes place on the job. Each professional can continue to learn through working on increasingly challenging projects. It is also possible to develop additional skills through work with more experienced engineers. The respondent believes that it is up to each individual to take on contracts that are within his educational limitations. The engineers’ code of ethics states that no engineer shall undertake a project unless they have adequate training and experience for that project.

SFU offers the most technical and successful continuing education programs for engineers, in the view of the respondent. These courses cater to specific engineering fields such as electrical engineering. UBC also offers programs, but these are usually cancelled due to lack of participants.

2.7.2 Incentives

1. Personal professional development.
2. Increased employment options. Continued education would enable the individual to choose from a more varied selection of job possibilities.

2.7.3 Barriers

1. Lack of available continuing education programs.

2.8 Chiropractors

Association – B.C. College of Chiropractors
Contact: Leanne Martell (May 6)
#102 - 7031 Westminster Highway
Richmond, B.C. V6X 1A3
Phone 270-1332
Further contact: Dr. Rob Cormack, Chair, Continuing Education Committee
101 - 915 Victoria Street
Prince George, B.C. V2L 2K9
Phone 562-5668

2.8.1 Description

The college feels that “it is imperative that practitioners maintain a minimum level of education on a regular basis in order to ensure the most up-to-date and effective care available.” Continuing education is required under rules pursuant to the Chiropractic Act: Division 16.01(G)

2.8.2 Incentives

1. Regulated requirements. Regulations require 24 credit hours of continuing education during each two-year time period. Requirements specify credit allocations for: (1) approved programs of study; (2) programs of independent study; and (3) presenting lectures and publishing research. A policy of the College defines the categories and procedures for allocating credits. Practitioners are required to submit continuing education records every two years to the Continuing Education Committee of the College of Chiropractors.
2.8.3 Barriers

1. The number of practitioners dispersed across the province and the difficulty that chiropractors in smaller centres have in attending courses. The college attempts to address this obstacle by approving continuing education credit for legitimate programs of independent study.

2.9 Dentists and Dental Hygienists

Association – Dental Association of B.C.
Contact: Cory (April 29)
1765 West Eighth Avenue
Vancouver, B.C. V6J 5C6
Phone 736-3621
Additional contact (in writing, with detailed questions): Dr. Brian Rocky, Chair
Continuing Education Committee, c/o Dental Association of B.C.
Association – Dental Hygienists Association of B.C.
Contact: Nancy Sewell (April 30)
109 - 2960 East 29th Avenue
Vancouver, B.C.
Phone 435-4145
Additional contact: Nancy Keselyak, Chair, Continuing Education Committee
Phone 942-5785

2.9.1 Description

Continuing education is mandatory for dentists and hygienists under licensing requirements. The requirements total about four 1-day courses a year for hygienists and five a year for dentists. Individual dentists are responsible for all of the costs of education and often absorb the costs of their hygienists' upgrading. Courses are usually open to both dentists and hygienists. Dentists and hygienists are encouraged to take courses as a team to build a working relationship and a common knowledge base.

2.9.2 Incentives

1. Regulatory requirements. Dentists require 90 and hygienists 75 credit hours within a 3-year period. One credit is assigned for each classroom contact hour of the course.
2. Peer involvement.

2.9.3 Barriers

1. Attitude. Some individuals take courses only because of the requirements and leave before courses are complete. Also, some dentists are resistant to seeing the value of taking courses with hygienists.

2.9.4 Observations

The dental profession is the only one surveyed that explicitly encourages professionals and technicians to take ongoing training courses as a team. Most dentists operate as independent professional businesses and increased teamwork can lead to direct financial returns for the business. This may be a factor in the ongoing education philosophy.
2.10 Pharmacists

Association – B.C. Pharmacists Society
Contact: Margaret McLean (April 29)
606 –1200 West 73rd Avenue
Vancouver, B.C.
Phone 279-2053
Additional contacts: UBC Continuing Education Medical Division
David Fielding or Sharon MacKinnon
Phone 822-3085
Don Millward, c/o B.C. Pharmacists Society
Licensing Body – College of Pharmacists of B.C.
Phone 733-2440

2.10.1 Description

The association has about 2400 members. There are no mandatory requirements for continuing education in the profession. To be licensed as pharmacists, individuals must pass the following requirements: (1) graduation from the UBC pharmacy program or passing the Pharmacist's Society of Canada exam; (2) a one-month internship; and (3) panel exams (before a panel of B.C. pharmacists).

2.10.2 Incentives

1. Self-assessment. In the past, the Pharmacist's Society had a "quality-assurance" exam, a self-assessment open-book exam sent to every pharmacist in B.C. The intention of the quality-assurance exam was for pharmacists to recognize their weak areas and upgrade accordingly.

2.10.3 Barriers

1. Administrative difficulties. The last "quality-assurance" exam was five years ago. The idea was difficult to implement and met with poor response from pharmacists.
APPENDIX 3: EXPERIENCE IN FORESTRY PROGRAMS OUTSIDE B.C.

This appendix provides a full listing of the research results of experience with lifelong learning in forestry sectors outside B.C. When more than one contact name is included, the first name is that of the person who provided most of the information recorded here. Written program documentation was also drawn upon in some cases. The barriers and incentives to lifelong learning are listed in the order in which the respondent provided them. The examples are described in the following order:

1. Alberta: Forest Industry Training Council Program
2. Alberta: Alberta Professional Forester's Association
3. Ontario: Ontario Professional Forester's Association
4. Quebec: Ordre des ingénieurs forestiers du Québec (The Order of Quebec Professional Foresters)
6. Newfoundland: Newfoundland and Labrador Forestry Training Association Program
7. USA: Society of American Foresters Continuing Forestry Education and Professional Development Recognition Program
8. Vermont, USA: Silviculture Education for Loggers Project
9. Georgia, USA: Woodland Management Correspondence Courses
10. Georgia, USA: Regulatory Requirements
11. Mississippi, USA: Forest Industry Training and Education Council Program
13. Sweden: National Board of Forestry

3.1 **Alberta: Forest Industry Training Council Program**

Contact: Len Bourdin, Alberta Forest Products Association
Edmonton, Alta.
Phone (403) 452-2841 (July 3, 1991)

3.1.1 **Description**

The council's purpose is to make recommendations to the Minister of Forests regarding training requirements and funding for training programs in the forest industry. The council has 16 members, mostly from industry, and it meets every 2-3 months. Membership includes eight members from the Alberta Forest Products Association (the main provincial mill owners association), three from government (one each from the Alberta Forest Service, Career Development, and Advanced Education), and the remaining members are from the logging industry. An assistant deputy minister is assigned to the council as a resource person.

The council's purpose is not to provide training courses, but to coordinate existing programs and make recommendations on additional educational requirements for the industry. The first action of the council was to put together a portfolio of available training courses for distribution to the forest industry.

3.1.2 **Incentives**

1. Strong industry role. The key factor in the success of the council, according to the respondent, is that it is industry-driven. The industry itself is setting the training standards and outlining training needs.

2. Mandatory certification. The council is presently investigating the Ontario Forest Product Accident Prevention Association (FPAPA) mandatory certification requirements for log falling and hauling. This program is also industry-driven.
3. "Train the trainer" courses. The respondent felt that the primary effort of industry certification schemes should be aimed at ensuring that good trainers are delivering the courses.

3.1.3 Barriers

Cost. According to the respondent, the cost to the attendees is always a factor in training courses.

3.2 Alberta: Alberta Professional Forester's Association

Contact: Barry Robinson, forestry education consultant
Calgary, Alta.
Phone (403) 251-1569

3.2.1 Description

The association is three years old and is presently discussing continuing education for the forestry profession. The group recently decided against mandatory requirements for continuing education until they have developed an effective program of courses.

3.2.2 Incentives

1. "Convenient and easy courses." Two big factors are time and location. The respondent has found that 1- to 2-day courses are the most popular while longer courses have more difficulty in attracting practitioners.
2. Peer trainers. The respondent is considering efforts at training good operators as trainers to increase acceptability of courses to experienced individuals. The respondent feels that this is particularly the case with the non-professional members of the forestry community.

3.2.3 Barriers

1. Location. Most of the industry is located north of Edmonton, yet very few courses are conducted close to the field operators. Field operator courses in the petroleum industry have been offered at actual well sites and are very well attended.

3.2.4 Observations

The Petroleum Industry Training Service in Calgary has been very successful in encouraging ongoing learning. The service is funded by the industry, and the council determines the content and timing of courses. According to the respondent, the courses have been very well attended for many years.

3.3 Ontario: Ontario Professional Forester's Association

Contact – John Ebbs, Executive Director (July 23)
102 - 27 West Beaver Creek Road
Richmond Hill, Ont., L4B 1M8
Phone (416) 764-2921
Additional contact: Laird von Damme, Lakehead University
Specialist in forestry continuing education
Phone (807) 343-8330

3.3.1 Description

The professional association is presently attempting to institute licensing requirements in the province. The respondent feels that foresters have to be able to demonstrate to the public that they are competent, and that continuing education is one method of demonstrating competence.
The most developed program in the province is the Ontario Advanced Silviculture Program, equivalent to the Silviculture Institute of B.C., which involves six 2-week in-residence modules at a cost of $2000. The program uses module leaders from universities because of their experience in teaching and their contacts with additional speakers. The advisory committee for the program includes a representative of the Ministry of Natural Resources, the two forestry deans, an industry representative, and the executive director of the professional association.

3.3.2 Incentives

1. Individual initiative. Individual foresters are more than willing to take advantage of opportunities to learn when they are provided.

2. Public pressure. The public is asking that foresters demonstrate up-to-date knowledge and practice.

3. Access. The Advanced Silviculture Program is not limited to professional foresters or members of the association. The screen for applicants is experience, rather than paper qualifications. The goal of the program is for participants to share education and experience.

3.3.3 Barriers

1. Lack of time; too far to go for courses. These were the most common complaints from respondents in a needs assessment undertaken by the association.

2. Coordination and communication. The respondent felt that there are many educational opportunities of which foresters presently are unaware because of limited mailing lists for communication and lack of coordination in disseminating course information.

3.4 Quebec: Ordre des ingénieurs forestiers du Québec
(The Order of Quebec Professional Foresters)

   Contact: Denis Malenfant, Director of Communications, Ordre des ingénieurs forestiers du Québec (OIFO)
   2022, rue Lavoisier, bur. 165
   Ste-Foy, Qué. G1N 4L5
   Phone (418) 651-9352 (July 12, 1991)

3.4.1 Description

   The Order of Quebec Professional Foresters (OIFO) has 20 programs, one of which is continuing education for its members. The organization considers continuing education as a high priority and has increased programs for recent years. The mandate of the Continuinng Education Committee of OIFO is to carry out an annual inventory of members' needs and to design and prepare a program of activities. Events include courses of 3-4 days, colloquia and symposia of 1-2 days, and correspondence courses.

   A key player in this process is the Société de Formation et d'Education Continué (SOFODEC), a committee with members representing various client groups (such as professional organizations) and employers. The model is based on the U.S. example and is relatively new in Canada. Their role is to validate and approve the overall program and individual courses. Courses are designed to be self-financing; companies often support employee participation.

   OIFO works closely with Laval University's Extension Service, so as not to duplicate program administration and delivery infrastructure. Laval often helps to find instructors, especially if "outside" people are needed in an area such as communications.
The respondent also commented on education for technicians, noting that it is much less organized, in part because there is no equivalent organization to systematically plan programs. Continuing education for this group consists largely of occasional colloquia and symposia, with no credit involved. Technicians often take part in OIFQ courses if there is space.

3.4.2 Incentives

1. Relevance: directly meets needs. The respondent is convinced that their high participation rates result largely from careful needs assessment. Participants are attracted to courses that they see as directly relevant and interesting for professional development. As evidence, he notes the high demand among forest technicians for OIFQ courses, although they do not receive credit. He also gave the example of “communications”, which had been identified by foresters as a priority topic. A pilot course on “Effective Communications” was so popular that OIFQ now plans to offer five different advanced courses. At the end of each course, participants are asked for suggestions for further programming.

2. Accreditation. Participation in educational events has increased since OIFQ introduced the credit system. Accreditation is seen as a factor in career advancement. A series of short courses is viewed as the equivalent of a college or university course.

3. Convenience. Correspondence courses are a new and highly successful development. Each of the six annual issues of the organization’s information bulletin “Audel” contains a full course worth two credits; thus participants can accumulate 12 credits per year. To gain credit, participants read the material and submit answers to a set of questions. Courses are systematically planned to meet identified needs; topics have already been chosen for 1992 and 1993.

3.5 Nova Scotia: Forest Resource Industry Training Council Program

Contact: Tom Harper, Administrator
Site 25, Box 50, RR #6
Armdale, N.S., B3L 4P4
Phone (902) 475-1190 (May 28, 1991)

3.5.1 Description

The program is directed to forest workers already employed in the industry. A volunteer board (council) made up primarily of industry people governs the program and brings forward requirements for courses. The council has 11 members, including representatives of the four major forest companies, the Christmas Tree Association, silviculture contractors, and two government representatives as resource people. The board employs an administrator, who develops training plans for courses that the board recommends and applies to federal employment training programs for funding.

The courses are designed to be “so attractive that workers can’t afford not to take them,” according to the respondent. The courses are taught by trainers selected by industry, rather than those provided by educational institutions, because the former are more knowledgeable in current practice and more acceptable to workers. The program has avoided traditional educational institutions because “the forest workers and employers are the customers, not the institutions.”

3.5.2 Incentives

1. Strong role of industry. The nature and delivery of the courses are determined by the industry. Courses include practical subjects such as hydraulics, welding, and small business management. They are offered at places and times convenient to the industry. In setting up a training program, the respondent felt it is most important to involve the key industry people in a coordinating group. They should then bring forward the training needs of the industry.
2. Financial support by industry employers. The total cost of the course is paid by the program and participants continue to be paid by their employer for work completed through the training courses.

3. Monetary incentives. Silviculture contractors who have taken the 6-week "Level II" course receive an extra 28% in government contracts.

4. Credible trainers. Use of trainers who are respected by workers and acceptable to the industry is an important incentive for participants. Emphasis should be placed on finding and training such individuals.

5. Flexibility in delivery and timing. The course instructor meets with contractors before courses to decide on the timing and structure of the course. For example, silviculture courses involve 80 hours of contact for each worker at the work sites, staggered so that the contractor can maintain productivity. Instructors may work with individuals or small groups of workers in "pre-evaluation and instruction" for one week, then return subsequently for further instruction and evaluation. Classroom courses are scheduled for industry slack times, such as spring break-up and during road closures.

3.5.3 Barriers

1. Little exchange of information between foresters, technicians, and forest workers. The respondent felt that "the flow has to be from the worker up, the forester has to spend time on the ground with the worker." Foresters "don't seem to have the time to be out on the ground."

3.5.4 Observations

The respondent felt that the transfer of knowledge basically "comes down to personal motivation." He doubted the effectiveness of community college courses.

There are about 90 courses a year offered by community colleges but they do not get quality participants because they are dependent on government unemployment and training programs for participants and they do not have approved trainers.

There is an 87% retention rate for FRITC course participants in the industry after 1 year as well as a decrease in accident rates for those who have participated in courses.

3.6 Newfoundland: Newfoundland and Labrador Forestry Training Association Program

Contact: George Ross, General Manager
29 Wellington Street
Corner Brook, Nfld. A2H 5H5
Phone (709) 634-0255

3.6.1 Description

The program trains new entrants and trainers in silviculture practices. Silviculture workers receive 2 weeks of training in the field from certified instructors. Instructors are certified after 2-3 weeks of training in chainsaw technique by Swedish trainers from Husqvarna. The training association board includes senior union and company representatives.

3.6.2 Incentives

1. Financial. Graduates of the course make considerably more money than the basic industry wage because pay rates are based on productivity, and workers’ productivity increases after training. The respondent states that "the best graduates of the program are making two times the basic wage, roughly $1000 a week."
3.6.3 Barriers

1. The main difficulty encountered by the respondent has been the concerns of public and private-sector unions because of an emphasis on productivity and pay rates based on production.

3.6.4 Observations

This program differs from the Nova Scotia worker training program in that all trainees are new entrants to the industry. Another difference is that 70% of the forest lands in Nova Scotia are private while virtually all of Newfoundland forestry takes place on public land. The Newfoundland respondent felt that this necessitates a different approach to training programs.

3.7 USA: Society of American Foresters Continuing Forestry Education and Professional Development Recognition Program

Contact: Dick Reed, Associate Director, Continuing Education and Meetings
Society of American Foresters (SAF)
5400 Grosvenor Lane
Bethesda, MD 20814
Phone (301) 897-8720 (June 13, 1991)

3.7.1 Description

The national CFE program is voluntary and open to members and non-members of the SAF. The objectives of the program are to:

• encourage foresters and allied professionals to participate in a formal program of continuing education and professional development;
• stimulate individual self-assessment by providing standards for achievement;
• advance the knowledge and skills of those engaged in forestry;
• give recognition, through issuance of a certificate, to those completing the program and thereby demonstrating continued learning and development.

The program sets out required credit hours and categories of participation for obtaining a certificate over a 3-year period. The SAF plays a record-keeping role for the program.

3.7.2 Incentives

1. Regulation. The respondent felt that the best incentive for ongoing education is regulation through state licensing requirements. South Carolina, Georgia, and Alabama have such requirements, with a credit system patterned after the voluntary SAF program.

2. Employer support. "Personal sitdowns" with employers help to build support. It is useful when a company requires continuing education on the part of their employees as part of their personnel evaluation process.

3.7.3 Barriers

1. Lack of personal motivation. Getting people to participate in a voluntary program. Only 2% of the SAF membership participates in this program.

2. Getting education providers signed up in the program. Providers send in their course outlines to the SAF, which evaluates them and assigns credit hours.

3. Time constraints. Time is a more critical element than money for participants, in the respondent's experience.
3.7.4 Observations

The respondent noted a difference between employers' and employees' perceptions of continuing education needs. Employers want "better communicators, facilitators" while employees generally call for technical courses such as "wildlife management" and "tree growth." Finally, in setting up a continuing education program, the respondent felt that the first step should be to identify the influential people in government, industry, and universities and "get them behind the program."

3.8 Vermont, USA: Silviculture Education for Loggers Project

Contact: Thom McEvoy, Extension Forester (July 23)
University of Vermont Extension
Service, School of Natural Resources, Aiken Center
Burlington, VT, 05405-0088
Phone (802) 656-3258 (Fax) 656-8683

3.8.1 Description

The project involved developing three 1-day courses for loggers, focusing on critical topics such as water quality regulations. The courses were offered free of charge to logging contractors in the state who implement silvicultural prescriptions. The project was very successful and there is presently a backlog of individuals wishing to take the courses.

The extension service is also undertaking courses for foresters aimed at increasing their understanding of the logger's perspective. The respondent felt that such courses can help to build the necessary trust between professionals and practitioners in forestry. The Service is also exploring the training of loggers as trainers. A successful "wildlife management for landowners" program of the extension service involves using landowners as disseminators of information.

3.8.2 Incentives

1. The chance to stave off further regulation. The State of Vermont has one of the toughest water quality laws in the United States but forestry is exempt from permit requirements if "acceptable management practices" are followed. There was a threat from the legislature to include logging in these requirements, hence it was in contractors' best interest to learn about and ensure that they are applying "acceptable management practices." The respondent said that before the courses were offered, this was the driving incentive for participants.

2. Opportunity to learn. Participants mentioned this as the most important incentive in a post-course survey.

3. Public perception. Loggers were eager to respond to an opportunity to improve their public image.

3.8.3 Barriers

1. Past experience with education. Loggers have the impression that extension material is often biased towards government interests or "talks down" to them.

2. Loss of production time. This perception was overcome in this case by "taking the course to the loggers." Courses were offered in various locations so that someone would not have to travel more than 40 miles to attend a course.

3. Relevance. By selecting a controversial and topical course subject (water quality regulations), the program offered loggers something that was clearly in their interest to learn about.
3.9 Georgia, USA: Woodland Management Correspondence Courses

Contact: Jack Warren, Executive Vice-president, Forest Farmers Association
Box 95835
Atlanta, GA 30347
Phone (404) 325-2954 (June 12, 1991)

3.9.1 Description

The course is aimed at private owners who manage their own timber. The program is about 3-4 years old and was modelled after the Oregon State University extension course designed by John Garland. The course takes "a couple of months" to complete, with the major goal being the completion of a management plan for the property. About 1500 copies of the course have been distributed to date, and most private owners in the industry have completed it. It is distributed through state extension foresters in the 16 southern states. The extension foresters keep half of the $50 course fee and grade the courses. The course is run on a non-profit basis. The Forest Farmers Association is presently developing a Timber Tax Correspondence course in response to interest from members.

3.9.2 Incentives

1. Relevance. The course is practical and oriented towards meeting the landowner's needs.
2. Financial. The course clearly outlines financial incentives and economic benefits of specific management actions.

3.10 Georgia, USA: Regulatory Requirements

Contact: Dr. Richard Field, Continuing Education Programs, University of Georgia
Athens, GA
Phone (404) 542-6640 (July 3, 1991)

3.10.1 Description

The Georgia licensing board requires continuing education for foresters to maintain their professional status. The pressure for this requirement originated with the state legislature rather than foresters in the field. The requirements follow the guidelines of the Society of American Foresters. Credit is given for "non-course" learning opportunities as well as for formal courses. A 1-hour professional ethics training component is a part of all forestry courses. The individual forester maintains his/her own continuing education records and submits them to the board when applying for recertification. A certain percentage of the records are audited by the board for accuracy.

3.10.2 Incentives

1. Mandatory requirement. "Once continuing education is mandatory, there isn't any question about doing it."
2. Relevance. The continuing education program is oriented to the information that foresters need rather than "just setting up courses to meet licensing requirements."
3. Accreditation. The credit for non-course opportunities encourages those "with a resistance to classroom teaching" to maintain ongoing learning.

3.10.3 Barriers

1. Lack of motivation when education is mandatory. One negative aspect of mandatory licensing is dealing with people who are only in courses to get the credits. There are very few such individuals but their attitude can affect the rest of the course.

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2. Cost in time and money. This is a factor for independent forestry consultants, who "are always short on time and money." Cost is less of a factor for foresters employed by government and larger companies.

3.10.4 Observations

The respondent felt that the best means of licensing foresters would be through the Society of American Foresters (SAF). If the SAF joined the American Forestry Association (AFA) as the professional arm responsible for maintaining and certifying foresters, then the AFA could concentrate on promoting forestry.

The respondent also felt that the continuing education organization of the University of Georgia provides an effective model for organizing ongoing forestry education. The University maintains a continuing education center separate from individual faculties such as forestry. This frees course designers from faculty requirements and direction. The forestry faculty retains responsibility for forestry extension programs directed to woodland owners rather than resource professionals. The fact that over half of the participants in the University of Georgia continuing education forestry courses are from out-of-state is evidence of the success of the model, according to the respondent.

3.11 Mississippi, USA: Forest Industry Training and Education Council Program

Contact: Bruce Alt, American Pulpwood Association
Box 1356
Clinton, MS 39060
Phone (601) 924-1830 (June 14, 1991)
Headquarters office: Richard Lewis, President, 1025 Vermont Avenue
NW Suite 1020, Washington D.C. 20005
Phone (202) 347-2900

3.11.1 Description

The council is primarily concerned with continuing education and training for professional foresters. It has run a harvesting and procurement course for field and mid-management level people for 26 years. The course is presently 4 1/2 days long and costs about $300. It is intensive in nature and involves 18 faculty members for a maximum of 50 students. The council also regularly runs a 2-day intensive negotiation seminar with a consulting specialist (Dr. Chester Karrass).

3.11.2 Incentives

1. Interaction with peers and faculty. The positive aspects of the course include the exchange that takes place among students and the opportunity for participants to learn from the faculty in an informal setting.

3.11.3 Barriers

1. Both courses are well supported; the respondent did not see any obstacles or barriers to learning.

3.11.4 Observations

The respondent noted that there has been interest in a certification program for loggers in New England. He feels that certification requirements can be turned into a "plus" through emphasizing professionalism in the industry.
3.12 New Zealand: New Zealand Loggers Certificate and Forest Skills Certificate

Contact: Mike Newbold, New Zealand Logging and Forest Industries Training Board
Box 1632
Rotorua, N.Z.
Phone (073) 455-555 (June 13, 1991)

3.12.1 Description

The loggers certificate program was established in 1980 and arose from a need for the industry to improve its image and production requirements. The program was originally promoted by the industry association, which “latched in” to a government program for funding. A sister system, the forest skills certificate, was established in 1985 for workers in forest establishment, tending, and protection.

The training board totals 12 members, including representatives from the Forest Owners Association, the major unions, forest contractors, and government. The board is primarily concerned with funding rather than operational matters. Most of the technical direction for the program comes from either the industry or the program staff.

The program concentrates on developing trainers. The respondent felt that credibility is critical for any worker training program. “You need to hire the right people, using industry as a starter base.” The program is “98% on-the-job oriented; we have purposely kept away from the classroom.” The training board plays the role of auditor of training, checking the assessments of trainers and evaluating the training programs of companies. The only courses the board runs are for trainers. Presently, there is no charge for the program; it is funded by a voluntary levy system of the New Zealand Forest Owners Association.

The program is currently being reviewed with the goal of melding the two certificates. Worker training will be divided into 25 “skill modules,” with multiple entry points for those wishing training certification. After 4 years of experience and a required number of training modules, a worker will be eligible for a trade certificate in logging or forest skills. Such a certification program will be reviewed by the New Zealand Qualifications Authority, which looks at all trade qualifications.

3.12.2 Incentives

1. Good on-the-job trainers.
2. Partnerships. Develop working partners from industry. “Talking with loggers and other people on the ground, not just the managers.” The initial incentive for participation came from pressure on workers from employers — first the forest owners, then the contractors. There was also pressure from the “ground floor, the men themselves.”
3. Professionalism. The wish for professionalism was always present in the industry but had to be marshalled through collective discussions. According to the respondent, the program helps to instill a sense of professionalism in the industry; the sense for a worker that “I’m not a bushman, I’m a logger now.”
4. Consistency. The system is simple and easily applied and has not been constantly changed. The present review of the program is based on 10 years of experience with the existing system.

3.12.3 Barriers

1. Meeting demand. Some workers cannot get courses as quickly as they would like sometimes. For example, difficulties in getting training through particular employers.
2. Quality control. Difficulties in maintaining the same standards across the industry.
3. Uneven employer support. “Some companies are more enthusiastic about training than others.” Generally, smaller companies are more concerned with “production, production, production.” There are also differences between regions within the same company.
3.12.4 Observations

Some large companies plan to require their contractors to have logging skills certification. The expectation is that certification requirements will build in training for the industry and encourage more training among contractors. The respondent felt that the best measure of the success of the program has been an independent survey that found that the turnover among those who hold the certificate is 75% lower than for those who do not.

3.13 Sweden: National Board of Forestry

Contact: Milton Nilsson, National Board of Forestry, S 55183
Jonkoping, Sweden
Phone 46 36 155600 (July 10, 1991)

3.13.1 Description

There is a general acceptance in Sweden of the idea that regular training of forest workers is required to maintain professional skills and to keep up with new advances (Nordansjo, 1988). The National Board of Forestry is a government agency housed within the Ministry of Agriculture. One of its responsibilities is to support continuing forestry education. In the past, the National Education Board was responsible for continuing education requirements and programs; however, this did not achieve the desired results.

Continuing education for most forest workers is now the responsibility of forest sector employers. Training is often offered directly by the companies, using their own instructors who visit the forest districts, assess practices, and provide instruction in new techniques as needed (extension model). For introducing new methods, standardized courses may be developed. Companies also use schools, manufacturers, and consultants for course delivery. This “bottom-up” approach has been well received. Specific requirements depend upon the employer, but data show that most workers in the forest industry get between 5-7 days per year of training.

Because half of Sweden’s forests are privately owned (one-quarter belong to companies and one-quarter are public), there is a sophisticated extension service directed to the owners of small-scale holdings. The following comments refer in general to the Swedish system, but other specific suggestions from Swedish publications dealing with motivation for lifelong learning are provided in Section 6 (in the main report).

3.13.2 Incentives

1. Pay incentives. The respondent felt that the possibility of earning more money after training was the strongest incentive. However, there are no certification programs related to pay scale associated with educational programs.

2. "A rise in status" and respect from others. Increased training can provide someone with increased status and respect from peers, superiors, and/or employees.

3. Job satisfaction/occupational pride. If a person knows that training will improve the quality of the work, he/she will be motivated to participate because of the increase in job satisfaction. For this reason, the respondent emphasized the importance of both theoretical and practical elements in courses. He noted that people want to understand the reasons behind a recommended approach or practice.

4. Personal and occupational interest in the topic. The respondent gave the example of environmental issues, which are of great interest, especially to young foresters and forest workers. They often have knowledge of environmental topics.
5. Openness to forestry education due to early exposure. Both Sweden and Norway have a "forest school" program for children, starting in the primary grades. Thus, all citizens, some of which are future forest workers, are exposed to forestry topics at an early age. Teachers are trained and provided with teaching materials that cover forests, forestry, and environmental topics. The program is separate from environmental education, because of forestry's importance to the Swedish economy (about $10 billion per year).

6. Opportunity for social contact and discussion/community tradition. The public is often made aware of forestry topics through "study circles", a technique in which people meet in groups of 8-10, with an assigned leader (facilitator), to discuss topics of interest. Forestry study circles are organized by forestry associations and unions. A major campaign in 1988-93, supported by the National Board of Forestry, reached 60,000 people, including private forest owners and the general public. Topics covered basic forest ecology and direct applications to forestry practices.

3.13.3 Barriers

1. Finding good instructors and advisors. Training of same. Good instructors who understand the principles outlined above are often in short supply.

3.13.4 Observations

The respondent, Mr. Nilsson, is co-author of an excellent guide published by the Board, "Some Good Advice for Advisors", which deals explicitly with motivational aspects of continuing education in forestry. The guide notes that "motivation is interest" (p. 11), and suggests that adult learners are motivated by the following: personal benefits, curiosity, a thirst for knowledge, reasonable demands, encouragement, committed instructors/advisors, stimulating activities, structure/security, variety, and relevance (or "meaningfulness") of the materials.
APPENDIX 4. CATEGORIZATION OF BARRIERS AND INCENTIVES IDENTIFIED IN OTHER SECTORS AND PLACES

In this appendix, the barriers and incentives identified by the research on other sectors and places are listed under headings that correspond to those of Section 3 of the main report.

4.1 List of Acronyms

Note that these acronyms were designed by the researchers for convenience in this survey only. In most cases, they are not the official acronyms used by the programs.

4.1.1 Other sectors in B.C.

- **BCIA**: B.C. Institute of Agrologists
- **BCFA**: B.C. Federation of Agriculture
- **BCYCM**: B.C. and Yukon Chamber of Mines
- **PIBC**: Planning Institute of B.C.
- **LSBC**: Law Society of B.C.
- **APE**: Association of Professional Engineers
- **BCCC**: B.C. College of Chiropractors
- **DABC**: Dental Association of B.C.
- **BCMA**: B.C. Medical Association
- **RNABC**: Registered Nurses' Association of B.C.
- **BCPS**: B.C. Pharmacists Society
- **BCTF**: B.C. Teachers Federation
- **CAIBC**: Chartered Accountants' Institute of B.C.

4.1.2 Forestry programs in other places

- **FITC**: Forest Industry Training Council Program, Alberta
- **FoF**: "Focus on Forests" School Program, Alberta
- **APFA**: Alberta Professional Forester's Association
- **OPFA**: Ontario Professional Forester's Association
- **OIFQ**: Ordre des ingénieurs forestiers du Québec (The Order of Quebec Professional Foresters)
- **NSFRITC**: Nova Scotia: Forest Resource Industry Training Council Program
- **NLFTA**: Newfoundland and Labrador Forestry Training Association Program
- **SAF**: Society of American Foresters Continuing Forestry Education and Professional Development Recognition Program
- **VSEL**: Vermont: Silviculture Education for Loggers Project
- **GWMC**: Georgia: Woodland Management Correspondence Courses
- **GRR**: Georgia: Regulatory Requirements
- **MFITEC**: Mississippi: Forest Industry Training and Education Council Program
- **NZLCFSC**: New Zealand: New Zealand Loggers Certificate and Forest Skills Certificate
- **SNBF**: Sweden: National Board of Forestry
- **OSUES**: Oregon State University Extension Service
4.2 Barriers to Lifelong Learning

Note that the number before the description of the barrier refers to the order of importance in which the barrier was identified by the respondent. Where there is no number, the barrier was the only one identified by that respondent. The sub-headings correspond to types of barriers discussed in Section 6 of the main report.

4.2.1 Personal barriers

4.2.1.1 Lack of positive attitude (c.f. Incentives: Desire to learn / Desire to upgrade knowledge)

DABC 1. Unreceptive attitude. Some individuals take courses only because of the requirements and leave before courses are complete. Also, some dentists are resistant to seeing the value of taking courses with hygienists.

SAF 1. Difficulty in stimulating interest. Getting people to participate in a voluntary program.

4.2.2 Cultural/moral barriers

4.2.2.1 Negative image (c.f. Incentive: Public Interest/pressure)

NLFTA Poor public image. The main difficulty encountered by one respondent has been the concerns of public and private-sector unions because of emphasis on productivity and pay rates based on union demands.

4.2.3 Professional development-related barriers

4.2.3.1 Inadequate support (c.f. Incentive: Employer/Industry expectations/encouragement)

NZLCFSC 3. Uneven employer support. "Some companies are more enthusiastic about training than others." Generally, smaller companies are more concerned with "production, production, production."

OSUES 3. Inadequate employer support. Employers generally do not provide significant rewards for continuing education.

4.2.4 Regulatory/legal barriers

4.2.4.1 Negative influence of regulation on motivation (c.f. Incentive: Licensing/Mandatory qualifications for positions)

BCMA Unreceptive attitude. A resistance to regulation and outside interference in the profession.

GWMC 1. Lack of motivation when education is mandatory. One negative aspect of mandatory licensing is dealing with people who are only in courses to get the credits.

CAIBC 2. Unreceptive attitude. Some accountants see courses as obligatory, rather than as learning opportunities and consequently "sleep through" courses.
4.2.5 Financial barriers

4.2.5.1 Cost in money and time (c.f. Incentive: Payment for time and/or expenses)

PIBC 1. Costs. Cost of tuition and work time lost.
LSBC 1. Costs. Cost of taking time away from practice, as well as course fees.
RNABC 1. Costs. Both the cost of courses and of scheduling time outside of work.
CAIBC 1. Costs. Some members complain that courses are time-consuming and costly.
FITC 2. Cost. The cost to the attendees is always a factor in training courses.
GWMC 2. Cost. This is a factor for independent forestry consultants, who “are always short on time and money.” Cost is less of a factor for foresters employed by government and larger companies.
OSUES 2. Cost. Among both government agencies and industry, people with travel budgets end up coming to courses, rather than those who might best benefit from them. For example, mid-managers more commonly attend courses, rather than technicians. The program is attempting to address this through targeting courses to specific groups, such as field people, and providing scholarships for courses.
OPFA 1. Time and access constraints. Too much travel is required to attend courses and participants do not have enough time.
SAF 3. Time constraints. Time is a more critical element than money for participants.
VSEL 2. Loss of production time. This was overcome in this case by “taking the course to the loggers.” Courses were offered in various locations so that no one would have to travel more than 40 miles to attend a course.

4.2.6 Program design-related barriers

4.2.6.1 Inappropriate/inadequate content (c.f. Incentive: Content (what?))

VSEL 1. Experience with inappropriate material. Loggers have the impression that extension material is often biased towards government interests or “talks down” to them.
OSUES 4. Lack of needs assessment. Better needs assessment could lead to better programs.
NZLCFSC 2. Difficulties in quality control. Difficulties in maintaining the same standards across the industry.
CAIBC 3. Inadequate quality. With a captive audience, course providers may not be challenged to offer the best quality courses. Some members comment that courses are “boring.”

4.2.6.2 Inappropriate/inadequate providers (c.f. Incentive: Providers (who?))

SAF 2. Difficulties in organizing providers. Getting education providers signed up in the program is difficult. Providers send in their course outlines to the SAF who evaluate them and assign credit hours.
SNBF Difficulties in finding and training good instructors and advisors. Good instructors who understand the relevant principles are often in short supply.
OSUES 5. Low motivation for faculty participation. Convincing faculty to be involved in programs is difficult.
4.2.6.3 Inappropriate/inadequate availability, organization  
(c.f. Incentive: Format (how?))

BCFA  Inability to meet demand. The demand is higher than the program’s ability to give courses.

APE  Lack of programs. Lack of available continuing education programs.

NZLCFSC  1. Difficulty in meeting demand. Some workers cannot get courses as quickly as they would like sometimes. For example, difficulties in getting training through particular employers.

OSUES  1. Difficulties in scheduling. The program attempts to overcome these difficulties by scheduling courses during the off-season, in the evenings, and/or in rural areas.

FoF  Inconvenient locations. Most of the industry is located north of Edmonton, yet very few courses are conducted close to the field operators. Field operator courses in the petroleum industry have been offered at actual well sites and are very well attended.

BCIA  1. Dispersed membership. The small number of agrologists scattered throughout the province makes mounting a continuing education program an expensive proposition that would strain the resources of the association.

RNABC  2. Lack of accessibility. Nurses outside the lower mainland do not have easy access to most continuing education courses.

PIBC  2. Lack of accessibility. Courses are offered in the Vancouver area and are not convenient to individuals from other regions of the province.

LSBC  2. Lack of accessibility. Many of the courses are offered only in Vancouver, which makes it difficult for lawyers in other regions of the province. To address this, CLE makes many of the courses available on videotape.

BCCC  Lack of accessibility. The number of practitioners dispersed across the province and the difficulty that chiropractors in smaller centres have in attending courses. The college attempts to address this obstacle by approving continuing education credit for legitimate programs of independent study.

BCPS  Administrative difficulties. The “quality-assurance” exam idea was difficult to implement and met with poor response from pharmacists.

OPFA  2. Inadequate coordination and communication. There are many educational opportunities of which foresters are unaware because of limited mailing lists and lack of coordination in disseminating course information.

OSUES  6. Insufficient partnerships. Getting cooperation from relevant agencies.

NSFRITC  Lack of integration. Little exchange of information among foresters, technicians, and forest workers. “The flow has to be from the worker up; the forester has to spend time on the ground with the worker.” Foresters “don’t seem to have the time to be out on the ground.”

4.3 Incentives for Lifelong Learning

Note that the number before the description of the incentive refers to the order of importance in which the incentive was identified by the respondent. Where there is no number, the incentive was the only one identified by that respondent. The sub-headings correspond to types of incentives discussed in Section 6 of the main report.
4.3.1 Personal Incentives

4.3.1.1 Desire to learn

**VSEL**
2. Opportunity to learn. Participants mentioned this as the most important incentive in a post-course survey.

**OPFA**
1. Individual initiative. Individual foresters are more than willing to take advantage of opportunities to learn when they are provided.

**SNBF**
4. Personal and occupational interest in the topic. The respondent gave the example of environmental issues, which are of great interest, especially to young foresters and forest workers.

**SNBF**
5. Openness to forestry education due to early exposure. Both Sweden and Norway have a "forest school" program for children, starting in the primary grades. Thus, all citizens, some of which are future forest workers, are exposed to forestry topics at an early age. Teachers are trained and provided with teaching materials that cover forests, forestry, and environmental topics.

**BCTF**
4. Young age. The young average age of teachers (in the mid-40s) is a factor in openness to learning.

4.3.1.2 Personal competence, status, and empowerment

**SNBF**
2. "A rise in status" and respect from others. Increased training can provide someone with increased status and respect from peers, superiors, and/or employees.

**OSUES**
8. Self-esteem. For example, participants involvement in teaching builds self-esteem.

**SNBF**
3. Job satisfaction/occupational pride. If a person knows that training will improve the quality of the work, he/she will be motivated to participate because of the increase in job satisfaction. For this reason, both theoretical and practical elements are important in courses. People want to understand the reasons behind a recommended approach or practice.

4.3.2 Cultural/moral incentives

4.3.2.1 Public interest/pressure

**FoF**
2. Broad community support. The project is being supported by a variety of interest groups on all sides of the forestry debate.

**OPFA**
2. Public pressure. The public is asking that foresters demonstrate up-to-date knowledge and practice.

**VSEL**
3. Public perception. Loggers were eager to respond to an opportunity to improve their public image.

**SNBF**
7. Opportunity for social contact and discussion and community tradition. The public is often made aware of forestry topics through "study circles," a technique in which people meet in groups of 8–10, with an assigned leader (facilitator), to discuss topics of interest. Forestry study circles are organized by forestry associations and unions.
4.3.3 Professional development incentives

4.3.3.1 Desire to upgrade knowledge/professionalism

BCIA 1. Professionalism. To maintain high standards of knowledge, integrity, and ethics in the profession.

PIBC 1. Professional development.

APE 1. Personal professional development.

BCPS 1. The necessity to keep up with changes in the law. Taking a course saves individual lawyers the time needed to read and interpret the legislation in detail.

RNABC 1. Professional responsibilities. It is important to stay current in order to perform the job effectively.

NZLCFSC 3. Professionalism. The program helps to instill a sense of professionalism in the industry, the sense for a worker that “I’m not a bushman, I’m a logger now.”

OSUES 5. Need for upgrading. Employees need to maintain and update knowledge in the face of new development in the field of forestry and in the general society (e.g., economic, social, and political changes) that affect their work.

OSUES 6. Technology transfer. Participants get the benefit of the latest research and development and they can provide information and feedback to researchers.

4.3.3.2 Job advancement

APE 2. Employment flexibility. Continued education would enable the individual to choose from a more varied selection of job possibilities.

OIFQ 2. Accreditation. Participation in educational events has increased since OIFQ introduced the credit system. Accreditation is seen as a factor in career advancement.

4.3.3.3 Peer expectations/encouragement, networking

BCYCM 1. Personal professional development or networking. If a geologist does not keep up with current trends he/she will lose the ability to communicate with his/her peers.

PIBC 2. Professional and social networking.


MFITEC 2. Networking.

Interaction with peers and faculty. The positive aspects of the course include the exchange that takes place among students and the opportunity for participants to learn from the faculty in an informal setting.

DABC 2. Peer involvement.

BCMA 1. Peer review and professional integrity.

CAIBC 2. Peer review and professional integrity. These play a big part in maintaining a high standard of professional development and professional effectiveness among Chartered Accountants.

RNABC 2. Peer review. Most nurses perform in a team situation and must be able to contribute accordingly.
1. Peer pressure. Teachers are moving to more of a team approach to teaching. There is an increasing need for upgrading so that teachers can keep up with other members of the team.

4. Peer expectations. A focus on opinion leaders who will inspire and motivate others appeals to peer influence.

**4.3.3.4 Employer expectations/encouragement**

2. Employer support. “Personal sitdowns” with employers help to build support. It is useful when a company requires continuing education on the part of their employees as part of their personnel evaluation.

**SAF**

2. Employer support. A good deal of the success of the programs is due to leaders in industry saying that “this is the thing to do.”

**OSUES**

2. Competition among the school districts for teachers. Some districts are more progressive and generally known to be involved in continuing education. This can attract good teachers to the district.

**4.3.3.5 Industry expectations/encouragement**

1. Strong industry role. The key factor in the success of the Council is that the industry itself is setting the training standards and outlining training needs.

**FITC**

1. Strong industry role. The nature and delivery of the courses are determined by the industry and they include practical subjects such as hydraulics, welding, and small business management. They are offered at places and times convenient to the industry.

**NSFRITC**

1. Strong industry role. The nature and delivery of the courses are determined by the industry and they include practical subjects such as hydraulics, welding, and small business management. They are offered at places and times convenient to the industry.

**NZLCFSC**

2. Partnerships. Develop working partners from industry. “Talking with loggers and other people on the ground, not just the managers.” The initial incentive for participation came from pressure on workers from employers — first the forest owners, then the contractors. There was also pressure from the workers. The desire for professionalism was always present in the industry but had to be marshalled through collective discussions.

**4.3.4 Regulatory/legal Incentives**

**4.3.4.1 Licensing/mandatory qualifications for positions**

1. Requirements of licensing. The best incentive for ongoing education is regulation through state licensing requirements.

**SAF**

1. Requirements of licensing. The best incentive for ongoing education is regulation through state licensing requirements.

**CAIBC**

1. Regulation. Continuing education is a requirement of licensing and is strictly monitored by the licensing body.

**LSBC**

3. Requirements of admittance to the bar. Articling lawyers must complete a Professional Legal Training Course before being admitted to the bar.

**BCMA**

4. Requirements of specialty associations for certification. Many physicians belong to specialist “colleges” with continuing education requirements.

**RNABC**

3. Requirements of specializing. In order to enter a specialty such as intensive care a nurse must first complete a training course.
4.3.4.2 Other regulations

GRR 1. Mandatory requirement. “Once continuing education is mandatory, there isn’t any question about doing it.”

BCCC 1. Regulatory requirements. Regulations require 24 credit hours of continuing education during each 2-year time period.

DABC 1. Regulatory requirements. Dentists require 90 and hygienists 75 credit hours within a 3-year period.

BCMA 3. Regulatory requirements. Each hospital requires mandatory continuing education for physicians to maintain admitting privileges.

VSEL 1. The chance to stave off further regulation. The State of Vermont has one of the toughest water quality laws in the United States but forestry is exempt from permit requirements if “acceptable management practices” are followed.

4.3.5 Financial Incentives

4.3.5.1 Payment for time and/or expenses

BCMA 2. Financial support. The Ministry of Health pays up to $1000 yearly for continuing education to qualifying physicians; can include travel.

NSFRITC 2. Financial support from industry employers. The total cost of the course is paid by the program and participants continue to be paid by their employer for work completed through the training courses.

4.3.5.2 Increased Income

BCYCM 2. Income. Involvement in a continuing education program could lead to more lucrative and higher-profile contracts for geologists.

NSFRITC 3. Pay increase. Silviculture contractors who have taken the 6-week “Level II” course receive an extra 28% in government contracts.

NLFTA Pay rates. Graduates of the course make considerably more money than the basic industry wage because pay rates are based on productivity and workers’ productivity increases after training.

SNBF 1. Pay increase. The possibility of earning more money after training was the strongest incentive.

BCTF 3. Pay increase. Basic salary for a teacher with a four-year university degree is $27,000. Each additional year of university training is worth a $2000–3000 salary increase as part of union pay scales.

4.3.5.3 Other financial rewards

LSBC 4. Financial savings. Taking part in a Loss Prevention course once a year can result in $100–200 reduction in the cost of liability insurance.

LSBC 5. Financial savings and travel. Tax deductions can be claimed for training; training can be combined with travel (such as a trip to Banff for a symposium).

GWMC 2. Financial incentives. The course clearly outlines financial incentives and economic benefits of specific management actions.

BCIA 4. Secondary benefits for producers. The program leads the producers to develop good business plans, which makes dealings with banks (such as loan applications) easier.
4.3.6 Program design incentives

4.3.6.1 Content (what?)

OIFQ 1. Relevance: directly meets needs. High participation rates result largely from careful needs assessment. Participants are attracted to courses that they see as directly relevant and interesting for professional development (high demand among forest technicians for OIFQ courses although they do not receive credit).

VSEL 4. Relevance. By selecting a controversial and topical course subject (water quality regulations), the program offered loggers something that was clearly in their interest to learn about.

GWMC 1. Relevance. The course is practical and oriented towards meeting the landowner's needs.

GRR 2. Relevance. The continuing education program is oriented to the information that foresters need rather than "just setting up courses to meet licensing requirements."

OSUES 11. Careful targeting. Courses that are aimed at a particular group or a deliberate mix of technicians, field people, and RPFs, makes participation more appealing.

BCIA 3. Management orientation. The program is entirely management oriented, rather than considering production technology, which is the traditional domain of extension services. This management orientation has a more immediate and visible effect on the "bottom line" for producers.

OSUES 1. Relevance and quality. If courses are relevant and well presented, there is no problem in attracting participants.

OSUES 3. Sensitivity to concerns. Courses will be most effective if you can show loggers, for example, that you are sensitive to their concerns over such matters as productivity and practicality.

OSUES 9. Quality. Clients desire to keep up in the field by participating in high-quality courses.

4.3.6.2 Providers (who?)

FITC 3. "Train the trainer" courses. The primary effort of industry certification schemes should be aimed at ensuring that good trainers are delivering the courses.

FoF 1. Getting teachers to buy in. Efforts are made to ensure that teachers are trained in the program in 1-day workshops prior to the modules being distributed to schools.

APFA 2. Peer training. Training good operators as trainers can increase acceptability of courses to experienced individuals, particularly for the non-professional members of the forestry community.

NSFRITC 4. Credible trainers. Use of trainers that are respected by workers and acceptable to the industry is an important incentive for participants.

NZLCFSC 1. Good on-the-job trainers.

OSUES 10. Good instruction. People want courses to be interesting, thus credible instructors with good communication abilities are important.
4.3.6.3 Format (how?)

BCFA  1. Follow-up. Follow-up sessions ensure that classroom learning is implemented by individual farmers.

APFA  1. Ease and convenience. Two big factors are time and location. One- to 2-day courses are the most popular, while longer courses have more difficulty in attracting practitioners.

OPFA  3. Access for different groups. The Advanced Silviculture Program is not limited to professional foresters or members of the association. Participants share education and experience.

OIFQ  3. Convenience. Correspondence courses are a new and highly successful development. Each of the six annual issues of the organization's information bulletin "Audel" contains a full course.

NSFRITC  5. Flexibility in delivery and timing. The course instructor meets with contractors before courses to decide on the timing and structure of the course. For example, silviculture courses involve 80 hours of contact for each worker at the work sites, staggered so that the contractor can maintain productivity. Classroom courses are scheduled for industry slack times such as spring break-up and during road closures.

CAIBC  3. Scheduling opportunities. The Institute has a large department that organizes courses throughout the province all year long.

BCIA  2. Producer orientation. The program is organized around the schedule of producers, set up in conjunction with producers, and initiated at their request.

GRR  3. Accreditation for non-course work. The credit for non-course opportunities encourages those "with a resistance to classroom teaching" to maintain ongoing learning.

NZLCFSC  4. Consistency. The system is simple and easily applied and has not been constantly changed.

OSUES  7. Field sessions. These are more popular because of their practical application.

OSUES  12. Attractive facilities. Attention to detail and logistics is important to participants, e.g., dedicated teaching space, and appealing residential facilities.