TIMBER RIGHTS

and

FOREST POLICY

In British Columbia

VOLUME 1

REPORT OF THE ROYAL COMMISSION ON FOREST RESOURCES
PETER H. PEARSE, COMMISSIONER

VICTORIA
1976

The Honourable WALTER S. OWEN, Q.C., LL.D.,
Lieutenant-Governor of British Columbia.

MAY IT PLEASE YOUR HONOUR:

In accordance with your Order-in-Council of June 12th, 1975, a Commission was issued under the Great Seal of the Province pursuant to the *Public Inquiries Act.* That Commission appointed me sole Commissioner to inquire into and report upon certain matters relating to forest policy in British Columbia.

The Inquiry has been completed, and I beg to submit my report herewith.

I have the honour to be, Sir
your obedient servant,

Peter H. Pearse, B.S.F., M.A., Ph.D., R.P.F.
Commissioner

Victoria, British Columbia,
September, 1976.

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PREFACE

This report contains the findings and recommendations of the Royal Commission on Forest Resources appointed by the Lieutenant-Governor in Council of the Province of British Columbia on June 12, 1975. The Order-in-Council establishing the Commission determined the Commission's basic structure and status, the scope of its inquiry, and provided it with general guidelines for formulating its recommendations. The salient parts of the Order, which have guided me in conducting the inquiry and in designing the recommendations in this report, are the following:

> Pursuant to the Public Inquiries Act, and upon the recommendation of the undersigned, the Lieutenant-Governor, by and with the advice and consent of the Executive Council, orders that
>
> > WHEREAS it is desirable and in the public interest to cause an inquiry to be made into the management, regulation and use of the forest resources in British Columbia:
> >
> > AND WHEREAS under section 3 of the "Public Inquiries Act", being chapter 315 of the "Revised Statutes of British Columbia, 1960", it is provided that whenever the Lieutenant-Governor in Council deems it expedient to cause inquiry to be made into and concerning any matter connected with the good government of the Province or the conduct of any part of the public business thereof, the Lieutenant-Governor in Council may, by Commission intituled in the matter of the said Act and issued under the Great Seal, appoint a sole Commissioner to inquire into such matter:
>
> A COMMISSIONER IS HEREBY APPOINTED to inquire into, formulate recommendations, and report on all matters relating to the disposition of rights by the Crown to harvest timber and to occupy forested land in British Columbia, including the terms and conditions attached to the various forms of tenure, but excluding the royalties payable by the holders of Timber Leases and Licences, Pulp Leases and Licences, and Timber Berths, and excluding the general form of the stumpage appraisal system; and in particular, but without limiting the generality of the foregoing, to inquire into, formulate recommendations, and report on:
>
> 1. The extent to which the forest resources of the Province are committed to use and to users under all tenure arrangements, including Crown grants:
> 2. The procedures for allocating rights under these various arrangements:
> 3. The provisions for conservation, management, utilization, protection and development of the forest resources allocated:
> 4. The taxes, royalties, rentals and other charges levied upon forest land, timber and primary forest products, excepting the general form of the stumpage appraisal system:
> 5. The implications of these tenure arrangements for the structure of the forest industry, having regard to its pattern of integration, con-

centration, ownership and control; and for the structure of markets for forest products produced in the Province:

AND FURTHER ORDERS THAT the Commissioner shall formulate recommendations directed toward ensuring that the public interest is protected in the legislation, policies, procedures and practices affecting the allocation and use of forest resources of the Province, and in particular that:

1. The full contribution of the forest resources to the economic and social welfare of British Columbians is realized in terms of the diverse commercial and environmental benefits they potentially may generate:
2. The various public levies on, and the charges associated with the acquisition and retention of, Crown timber reflect the full value of the resources made available for harvesting, after fair and reasonable allowance for the costs, harvesting, forest development and profits; and that the various forms of public revenues derived from Crown granted and Crown forest resources are systematic, equitable and consistent with general taxation policy in the Province:
3. The marketing arrangements for timber products permit their full value to be realized and are consistent with an efficient economic structure:
4. The regulation of exports of forest products serves the best economic interest of the Province:
5. The efficiency and vigor of the forest industry is maintained, and that domestic participation in its ownership and control is adequate:
6. Proper provisions are made for the efficient management, protection and enhancement of the forest resources and for the regulation of harvesting and utilization practices:

The Public Inquiries Act provided me with broad powers and discretion in conducting the inquiry. Under that authority, I held public hearings in six cities—Prince George, Nelson, Prince Rupert, Kamloops, Victoria, and Vancouver—for the purpose of receiving and examining submissions from interested parties. These hearings elicited a considerable response: in total 194 written submissions were received, from a wide range of interested societies, firms, professional associations, local governments, labour groups, and other organizations, as well as many individuals. It is an indication of the current breadth of public interest in forest policy in the province that more than one-third of the presentations were made by groups or individuals that cannot be said to have a vested interest in the forest industry.

These submissions, and the discussion of them at the hearings, provided extensive and valuable information and opinion on the matters addressed in this report. The written submissions, the *verbatim* transcript of the hearings amounting to nearly 10,000 pages, and the participants' concluding statements have all been made available to the public. In the second volume of this report Appendix F describes the public hearings; the participants and exhibits are listed in Appendix G.

In addition to receiving information and advice through these hearings, the Commission undertook a considerable amount of research into problems germane to the inquiry. Some of this concerned specific points of law or involved gathering data required to describe or analyse particular problems. In other cases it involved substantial projects, undertaken by Commission staff or by consultants to the Commission, the results of which are apparent in the chapters and appendices of this report.

I can hardly begin to acknowledge the enormous number of individuals and organizations that contributed to this inquiry. All those who made formal submissions performed a valuable and often onerous public service; they deserve the gratitude of the government and public as well as my own thanks for providing the Commission with a broad base of information, experience, and advice. Many went to a good deal of personal trouble and expense to assist the Commission. The calibre of submissions was remarkably high, and participants at the hearings revealed an openness and enthusiasm for the inquiry that made the process both rewarding and congenial.

Although nearly all particpants regarded this inquiry as timely, if not overdue, the latter half of 1975 (when these hearings were held) was in some respects an inauspicious time for an abjective examination of forest policy in a public forum. Recent changes in public policy had created anxieties in the forest industry, and it as well as the Forest Service were attempting to respond to new demands for protection of the forest environment. A few months previously lumber markets collapsed, and pulp and paper markets had also begun to decline. Then, while the hearings were in progress, the forest industry suffered one of the most complete breakdowns in industrial relations in its history, which ended only with unprecedented government intervention. There followed a vigorous provincial election campaign, resulting in a change of government. In spite of all these distractions, participants in the hearings showed commendable forebearance in directing their attention to the long-term policy issues in my terms of reference, and a good deal of patience in co-operating with my procedural strictures.

During the public hearings and afterward, the Commission enjoyed the full co-operation and assistance of the Deputy Minister of Forests, Mr. J. S. Stokes, the Chief Forester, Mr. E. L. Young, and officers of the Forest Service at all levels. Mr. D. R. Selkirk and Dr. H. V. Lewis made particularly heavy contributions to the Commission's work. Valuable information was provided by other branches of government as well, such as the Department of Finance, the British Columbia Assessment Authority, the Secretariat of the Environment and Land Use Committee, and other resource agencies.

Special studies were undertaken for the Commission by Dr. D. Haley, Mr. G. K. Bowden, and Dr. H. G. Baumann; and guidance on special problems was obtained from a number of external experts, particularly Mr. W. G. Hughes, Mr. W. G. Smith, and Mr. C. H. Gairns. My academic colleagues, Professors A. D. Scott and R. A. Shearer, also provided valuable criticism of some of my analysis. I called informally upon a large number of individuals for points of information and advice in preparing this report, and their willing assistance facilitated my task considerably.

A number of people and organizations in other provinces and countries responded generously to my requests for information, and in some cases I was able to benefit from visits with them. The distinguished Finnish forester Dr. Nils Osara, and Herr Rüdiger von Pezold of Austria both interrupted their domestic and business commitments for several days to acquaint me with conditions and public policies in their countries. Through the co-operation of Mr. G. V. Wellburn, I was also able to join, for a few days, a European tour organized by the Forest Engineering Research Institute of Canada.

The comprehensiveness of this report, and the speed with which it has been completed, owes much to the extraordinary effort of the Commission

staff—a small group who dedicated themselves to the success of the project. Miss S. Grauer, Messrs. C. W. Sanderson, E. J. Blewett, and D. K. Davies assisted in the preparation of material for specific parts of the report. Elizabeth Long and Colleen Robertson managed, somehow, to keep the Commission well organized throughout the hearings and subsequent work, and to prepare the typescript for this report. Mr. T. G. Wright and Mr. K. C. Murphy, Q.C., served respectively as my forestry and legal advisors during the hearings and provided valuable guidance in preparing my recommendations.

Two individuals assisted me closely and continuously throughout the inquiry. Mr. J. A. K. Reid, who was seconded to the Commission from the Forest Service, served as a source of information about policies and practices that was invaluable to me in gaining appreciation of the problems to be resolved, and his constant and patient advice assisted me immeasurably in formulating my recommendations. Mr. R. S. Campbell served as Secretary to the Commission, but his contribution extended well beyond that. He, as well as Messrs. Wright, Reid, and Murphy assisted me in examining witnesses at my public hearings; and the success of those hearings as well as the efficiency with which the Commission was able to carry out the rest of its work reflect his organizational skill. In addition, this report owes much to his perspicuous legal analysis and his incisive advice on nearly all the issues examined in this report.

In the course of this inquiry I have had an opportunity to visit most regions of the province and to travel by aircraft, automobile, and boat into remote areas to acquaint myself with the forests and forestry operations. Local chapters of the Canadian Institute of Forestry provided a valuable service in taking my advisors and me, with teams of experts, on extensive field trips in each of the regions we visited, and we made other tours as well. This was a unique experience, and valuable not only in helping me understand the specific problems I was shown on the ground, but also in a broader sense, in gaining a perspective of the magnitude and sweep of the province and its forest resources.

Most residents of British Columbia know that their province is a large and rugged land, but I venture to say that few, even among those of us who have called it home all our lives, have much sense of its enormity, its remarkable diversity, and its awesome wilderness. This is not surprising, because it is not an easy province to know beyond the few main highways, and not many have had even the opportunity I have had in recent months. It is probably safe to say that only a small fraction of the province's population has ever set foot in the northern half of British Columbia—that vast territory north of Prince George larger that the States of Washington and Oregon combined—or have more than a vague impression of what it contains. The same is true of the huge region west of the central Interior. This gives rise to difficulties in public policy formulation, because natural resource policies, particularly, must be sensitive to the full range of conditions they govern.

The experience of an investigation such as this forces one to reflect on the basic premises that govern our approach to natural resource development and use. Unlike those of more developed timber-producing countries, our forests are still mostly virgin—the legacy of natural processes virtually undisturbed by man through geological time. When one contemplates the rugged ex-

panse of this undeveloped land, the majesty of its mountains, the unspoiled beauty of its valleys and plateaus, one cannot escape some feeling of apprehension about the implications of our "progress". As we press further into this wilderness—building roads, logging timber, controlling fire and other natural forces, and managing the land to serve our needs— we must recognize that we are changing it permanently. In many respects we know we can make it more productive, but we nevertheless lack a full understanding of the impact of our activities on natural processes. More fundamentally, we must proceed on some assumptions about the needs and preferences of future generations, and these are uncertain.

Our range of choice is unusually wide. We are a sparse population of only 2.3 million people in an enormous province—more than twice the size of Sweden and seven times the size of England—with an endowment of natural resources unmatched in its variety and richness. And, being largely unencumbered by private property rights, the use of these resources is a matter of public choice.

We conduct our economic affairs within the framework of a mixed market system which will undoubtedly continue to shift and evolve; but no abrupt reorganization of the political economy is foreseeable. Our technology, particularly in the forest industry, is rapidly expanding our capacity to recover and utilize our bountiful stock of natural resources, which have already helped us become one of the most affluent regions of the globe. And we are in a position to make the irreversible choice, in specific situations, between wilderness preservation and resource development. All this means that we have an exceptionally wide range of options in our approaches to natural resource development.

The occasion of this inquiry has, I believe, already served a useful catalytic function in focusing public attention on these issues. The public hearings, particularly, provided a valuable medium for the interplay of different viewpoints and objectives. I hope that this report will further public discussion of these issues on which the future of the province rests so heavily, and that the recommendations herein will assist in the search for new policies to ensure that present and future generations can realize the full potential benefits of the province's forest resources.

Peter H. Pearse
September, 1976

CHAPTER 1

FOREST TENURE POLICY IN PERSPECTIVE

The landscape of British Columbia is dominated by vast, variegated forests, rich natural resources that play a role in economic life and in the natural environment unmatched elsewhere in the developed world. Thus the system of rules and procedures used to confer rights to forest land and timber—forest tenure policy—occupies an especially important place in the public affairs of this province. This forest tenure policy, with all its ramifications, is the subject of my report.

Under the constitutional arrangements governing British Columbia's entry into Confederation, the province was bestowed with ownership of nearly all of the land and forests then owned by the Crown, and with the jurisdiction to deal in these resources. Through most of British Columbia's short history successive provincial governments have refrained from alienating title to forest lands, and instead have devised methods for conveying rights to develop and use forest resources while retaining Crown ownership of them. As a result, only a small fraction of the forest endowment is privately owned, and most timber is harvested from public land under some form of contractual arrangements with the Crown.

For the most part, the initiative in developing and harvesting timber, manufacturing it into saleable products such as lumber and pulp and marketing them has been taken by private interests. Governmental authorities, who are charged with administering the Crown's resources on behalf of the public, provide these enterprises with access to timber through tenure arrangements: an aggregation of legislative provisions, regulations, contracts, and administrative practices. The forest tenure system is therefore the vital link between users of the province's forests and the public landlord which owns them. It determines the pattern of rights and responsibilities and shapes the form and pace of resource development.

Over more than a century, beginning with the early settlement of the province, innovations and evolution in tenure policy have accommodated industrial development and contemporary public objectives. As expanding world markets have increased demands for timber, as the technology for recovering and utilizing it has advanced, and as successive governments have redefined public goals, tenure policy has undergone continuous revision. Today, the arrangements that comprise forest tenure policy present a complicated panoply of legal provisions, procedures, and practices—considerably more complex, indeed, than is found in other Canadian jurisdictions. As instructed by my terms of reference, I attempt in this report to describe and dissect the main features of this policy, evaluate it in light of current circumstances and needs, and propose changes that will advance the broad public objectives that are also enumerated in my terms of reference.

The instruments of forest tenure policy have as their primary function the transfer of rights to resources, but they also provide the media for controlling forestry activities and for accomplishing a very wide range of other public objectives. Through the rights and responsibilities embodied in tenure arrangements, the Crown regulates not only the rate and pattern of timber harvesting but also such diverse matters as public resource revenues, the intensity of silviculture, the construction of roads and public works, provisions for the protection and enhancement of other forest values such as wildlife, recreation, and water supplies, certain manufacturing practices, export and marketing controls, and other matters that extend well beyond the conveyance of timber rights. Moreover, in indirect but important ways the forest tenure system moulds the structure of the forest industry, the broad pattern of economic and social development in the province, and the quality of the natural environment. In effect, the tenure system is the touchstone of the province's forest policy. A review of all its facets involves excursions into very disparate issues of resource management and industrial strategy which, because of the pervasive importance of forests in the economic and natural environment, profoundly influence the style and quality of life in the province.

It is also apparent that the design and implementation of forest tenure policy is an especially critical governmental responsibility in British Columbia. The high profile of the forest industry in the economy, the impact of timber production on the environment, and the predominance of the Crown as the forest landlord push forest policy to the forefront of public concern. At the centre of this are the tenure arrangements that provide the instruments of public control. The enormous impact of this policy not only imposes a special responsibility on the provincial government, but also provides it with unique economic power and the opportunity to shape the province's development and growth.

The Role of Commissions in Policy Reform

In recognition of the importance and complexity that has traditionally characterized forest policy, provincial governments have, on three occasions in the past, initiated formal external reviews in the form of Commissions of Inquiry, and each of these has led to significant shifts in forest tenure arrangements.

By the turn of the century the government had ceased issuing Crown grants (that is, the fee simple interest in land) as a means of conveying rights over timberlands, and had embarked instead on a policy of issuing licences and leases over Crown lands to authorize timber extraction. Between 1905 and 1907 economic circumstances and attractive licensing arrangements combined to generate feverish timber staking, reminiscent of the gold rush that had precipitated profound political changes in the region half a century earlier. Alarmed by these developments, the government appointed its first Royal Commission of Inquiry into forest policy, which produced the *Fulton Report* of 1910.[1]

With the meagre information available to them, the Commissioners estimated the province had already alienated two-thirds of its merchantable

[1] *Final Report of the Royal Commission of Inquiry on Timber and Forestry* (F. J. Fulton, Chairman), *1909–1910*, King's Printer, Victoria, 1910 (hereinafter, *Fulton Report*).

timber, and after concluding that this would meet the needs of the industry for several decades they prudently recommended that the remainder be held in reserve. To meet minor and special needs, they proposed competitive, short-term timber sales, variants of which are among the most important tenure forms in use today. Many other significant changes resulted from the recommendations of this influential Commission, including the passing of the first Forest Act in 1912, which provided for a provincial Forest Service and embodied the first significant efforts toward forest protection and management.

Through two world wars and the Great Depression there was little change in forest tenure policy, although circumstances changed considerably. Timber production increased irregularly, mostly from the private lands that had been granted in aid of railway construction in the last century and the old leases and licences alienated prior to 1907. But most of these early alienations gradually reverted to the Crown as the valuable timber was removed, as their owners defaulted on taxes and rentals, or for other reasons. By the mid-1940's it was clear that new arrangements were necessary. The only significant method for obtaining new rights to timber was through short-term timber sales; and while this system was now widely used, the expanding industry considered it inadequate to provide the dependable raw material supplies needed to secure investments in new manufacturing enterprises. Moreover, timber exploitation was largely unplanned, and apprehensions were growing about the lack of management and the prospects for future continuity of supplies.

A second Royal Commission was appointed, and the *1945 Sloan Report*[2] ushered in another major shift in policy. The *leitmotif* of this report, and of the policy changes that it triggered, was sustained yield management of the forests of the province, following the principles of classical European forestry. The government began to parcel the forest lands of the province into large units, each to be managed for perpetual timber yields. Some of these would be licensed in entirety to private firms, integrating any tenures the licensee already held; others would be managed by the Forest Service, which would provide harvesting rights through timber sales. The province thus embarked on a program of controlled forest development under sustained yield plans that aimed at maximizing the yield of timber and ensuring a steady rate of harvesting.

The new policies were pursued vigorously but not without controversy, and a decade later the same Commissioner was appointed to assess developments. The *1956 Sloan Report*[3] was less momentous than those of the earlier Commissions; with some qualifications, the Commissioner endorsed the tenure policies that had been adopted in the wake of his earlier inquiry.

It has been thus that major developments in forest policy have been given their direction: appointment of bodies of inquiry charged with examining them in the light of changing industrial conditions and newly defined public objectives. But while these Royal Commission reports provide landmarks in the development of forest policy, many important changes were introduced over

[2] *Report of the Commissioner Relating to the Forest Resources of British Columbia, 1945* (Honourable G. McG. Sloan, Commissioner), King's Printer, Victoria, 1945 (hereinafter *Sloan Report 1945*).

[3] *Report of the Commissioner Relating to the Forest Resources of British Columbia, 1956* (Honourable G. McG. Sloan, Commissioner), Queen's Printer, Victoria, 1957 (2 volumes) (hereinafter *Sloan Report 1956*).

the years without reference to a formal inquiry.[4] This has been especially pronounced during the twenty years that have elapsed since the last Commission reported in 1956. During this period the size and structure of the forest industry, its harvesting, transport, and manufacturing technology, and its impacts on other resource values have changed dramatically. So have public aspirations. Public policy has responded to and accommodated these changes through new innovations and modifications to established arrangements to an extent that has thoroughly altered the complexion of the forest tenure system in the province.

The present inquiry is therefore timely, if not overdue. The profound changes during the last twenty years in the circumstances surrounding forest policy, and in the policy itself, have not been subject to thorough public review or, indeed, to thorough documentation. Even those who closely follow forestry affairs often find present policies and procedures confusing or incoherent. Moreover, political changes, coupled with mounting pressures on the available timber supply and unprecedented demands for environmental protection, have created an atmosphere of growing apprehension about the capacity of forest tenure policy to meet its challenges.

Recent Developments

The circumstances confronted by the last Royal Commissioner contrast sharply with those of today. Two decades ago the framework for sustained yield forestry was established but only a modest fraction of the province's forests were so managed, while today most are subject to more or less intensive regulation. Through new inventory information and advanced utilization technology, estimates of merchantable timber have more than doubled. The forest industry has changed dramatically in size and structure; the yearly harvest has increased fourfold and rapid trends in industrial integration, consolidation, and concentration have increased the size of firms and manufacturing plants while reducing their number to a small fraction of their earlier levels. The industry of the south coastal region, which twenty years ago dominated the forest economy of the province, has grown; but that of the Interior has expanded so much faster that production there now exceeds that on the Coast. Moreover, the higher levels of processing are no longer confined to the Coast, as heavy investments in pulp, paper, and plywood manufacturing capacity have been made in other regions.

Thus not only the size, but also the geographical distribution and structure of the forest industry have changed markedly in the last two decades, broadening the range of processing and vastly increasing the scope for timber utilization. Significant also is the expansion that has occurred in forestry expertise, particularly in the professional staffs of private companies. The estimated limits to the yield capacity of forests have become critical in some regions, adding new strains on the processes for allocating timber rights. As operations have progressed into less attractive areas and stands, the quality of timber has steadily declined and harvesting has become more costly, posing new problems for the regulation of harvesting standards and for manufacturing and marketing.

[4] A federal Commission of Inquiry investigated the forest resources of Canada in 1918, and while it provided much information about the forests of British Columbia, it apparently had little direct impact on provincial policy. See H. N. Whitford and Roland D. Craig, *Forests of British Columbia, Committee on Forests of the Commission of Conservation of Canada (Sir Clifford Sifton, Chairman)*, Ottawa, 1918.

Forestry and the Environmental Problem

Perhaps the most conspicuous development has been the emergence of problems relating to protection of the natural environment. Industrial expansion during the last two decades has involved a massive assault on the province's forests; extensive road networks have been extended into hitherto wilderness areas, and up to 400 thousand acres of forest, previously undisturbed by man, is being logged each year. Its impact has increased not only because operations have expanded, but also because they increasingly take place on environmentally sensitive sites—on steeper terrain where soils are often unstable, at high elevations where regeneration and growth are slow, and on rugged ground where road-building leaves deep scars on the landscape.

Twenty years ago the environmental problem was not a major issue; partly because forest operations of the time did not, as a rule, cause much lasting ecological damage, and partly because of public indifference. But no longer; today the potential impact of industrial forestry can be enormous, and environmental protection has become one of the major concerns of our time. Strenuous efforts are being made to minimize the adverse effects of industrial activity on the natural environment, but this remains one of the most sensitive issues in forest policy today—an issue which, as will become clear, is not unrelated to tenure arrangements and the substance of this inquiry.

At the risk of some oversimplification it can be said that we have by and large succeeded in the great endeavour, begun after 1946, to establish the institutional framework and procedures for sustained yield forestry. In later chapters I criticize some of the criteria and techniques used in forest regulation, but the mechanisms now exist, the basic purpose is well accepted, and the directions of needed improvement are fairly clear. The new problem today is to rationalize "forestry", as it is traditionally understood in the context of timber production, with the protection of the environment and other social values. In this we have only begun to take the first, sometimes faltering, steps; and because there is little relevant experience elsewhere that can be transposed to conditions here, satisfactory solutions remain to be found.

The problem is not only that the efforts now being taken to provide for non-industrial values are insufficient (indeed, they often involve extremely high cost), but that they are unsuited to the task. Buffeted by new and conflicting pressures and lacking the resources to do otherwise, regulatory authorities have often responded by imposing new standards of harvesting and management to be applied indiscriminately over the diverse forest conditions in the province, and in spite of disparate regional needs. Aggravating this problem is a good deal of ignorance, both of the kind that requires expert research and the kind that calls for impoved public understanding.

In short, while forest managers have by no means completed the task begun three decades ago of designing methods of managing the province's forest for continuous timber yields, their most pressing challenge today is to develop effective means of reconciling industrial forestry with other forest uses and social objectives to realize the full range of potential values.

The future of forestry hinges on our ability to meet this challenge, because we can no longer parcel out the forest land for separate uses as the demand for all of them grows. In the analogy of Aldo Leopold, "Harmony with land

is like harmony with a friend; you cannot cherish his right hand and chop off his left." We must deal with this problem while preserving and developing the great advances that have already been made in timber management. We must not reverse direction but rather alter course and take a wider road, and be guided by other signposts as well as industrial timber production.

Foreseeable Trends

In view of these rapidly changing circumstances and needs, prognostications about the future are tenuous, and later I emphasize the prudence of policies designed to accommodate the unpredictable future. Nevertheless, policies must be forward-looking, and in a review such as this it is necessary to anticipate likely trends that will bear on forest policy during the next decade or so at least. It may be useful to note here a few of those that have influenced my recommendations in this report.

First, the problem I have already referred to, that of harmonizing forest operations and silviculture with the integrity of the natural environment, will almost certainly grow. There is every reason to expect the demands for outdoor recreation, protection of fish and wildlife, and preservation of the æsthetic quality of the natural landscape to increase, and the processes of forest planning, regulation, and control will be forced to respond appropriately to these needs.

A second development that concerns many observers is the closing of the gap between the rate of harvesting and the sustainable timber supply in certain parts of the province. For reasons I explain later I believe that this prediction must be treated with caution. Certainly similar assumptions in the past have proven unjustified because improved information and advancing technology have vastly increased the estimates of available timber. But the scope for those dramatic increases has undoubtedly diminished, and there can be little doubt that at least until increased growth can be realized through intensive silviculture, there will he heavy strains on the available timber supply in the more developed parts of the province. This closing circle will accentuate many problems in tenure policy; problems that were more tractable when there was plenty of scope for expansion.

Third, timber production in British Columbia has hitherto been based almost entirely on the recovery of virgin "old-growth" timber, and the implications of the inevitable adjustment to "second-growth" timber will be profound. The old-growth timber on which our industry has been built was often of exceptionally high quality, capable of manufacture into products that command premium prices in world markets. As this stock is depleted (and it is appropriate to refer to it as a stock, since it is not reproducible within any meaningful planning horizon), much of the special advantage this province's timber has enjoyed will be lost. On the other hand, the old-growth stock poses many problems. Vast tracts are overmature, decadent, and so defective that they cannot be recovered except at a loss; yet they often occupy growing sites that are potentially very productive—a potential that can be realized only if present stands are removed.

Many of the most aggravating problems of forest management today arise from the process of opening up and extracting old-growth timber. The difficulties of reliably estimating the merchantable inventory, enforcing utilization

standards, slash disposal, controlling the size of cut-blocks and deferred patches, road construction with its immense environmental and financial implications—are all linked to the process of developing access into new territory and removing the original old-growth stands, and they will be substantially alleviated when the industry turns to the next crop. Although the transition to second-growth timber is not expected for several decades in many regions, it is planned to begin sooner in the most developed areas, and I suggest later that it may, or should, occur sooner than we now plan. It will pose quite different problems for both the industry and the government, and public policy must prepare for this change.

These trends should be viewed in the full context of the world forest economy. Huge investments in forest crops and in manufacturing plants have recently been made, and continue to be made in both advanced and developing countries. These, and the vast undeveloped softwood reserves remaining in some temperate regions (particularly the Soviet Union) are sufficient to significantly alter world patterns of supply of wood products in the coming decade or so. Other regions often enjoy considerable advantages over British Columbia in terms of rates of forest growth, production costs, and proximity to markets. Our own strength has been almost entirely in the quality of our virgin timber stock, an advantage which will inexorably decline as the stock is liquidated, as timber production increases elsewhere, and as technology broadens the raw material alternatives for final products.

Fourth, it seems likely that there will be increasing governmental and public interest in the pattern of development of the forest industry itself. The remarkable changes that have been taking place in industrial structure are not the result of any obvious governmental design, but public policy has been influential nevertheless. Hitherto, the consolidation of manufacturing and resource rights into fewer, larger enterprises has been regarded with acquiescence, if not approval, in the belief that this will enhance industrial efficiency and productivity. This is, in part, justified; but there is growing concern about the implications of this process for the viability of smaller firms, for opportunities for new enterprises, for competition for timber and intermediate products, for the geographic dispersion of economic activity, and for the stability of smaller communities. In this report I try to draw attention to elements in the forest tenure system that tend to distort the structure of the industry, and I conjecture that the influence of public policy on industrial development will be a matter of increasing concern in the future.

Finally, it can be safely predicted that there will be a growing need for an expert and efficient public forest administration. Over the years the provincial Forest Service has built up an impressive capability, but it has not been able to keep pace with its rapidly expanding responsibilities. As a result, means have been found to shift responsibilities for resource management from the public service to operating companies, so that today we depend on licensees to develop and manage the public forests to an extent that (as far as I am aware) is unique in public forest administration. The role of the Forest Service has perforce been relegated to administrative surveillance; and according to its critics it attempts even that from too great a distance. Nor have the province's other resource agencies been capable of providing adequate assistance in coping with the impacts of forestry on resource uses other than timber. Further, because forest operations are typically the vanguard of development,

the Forest Service has been compelled to accept responsibilities well beyond its special expertise in forest management—such as the development of roads and highways, product marketing, and decisions about the regional distribution and pace of industrial growth.

The appropriate division of responsibilities between the private and public sectors is a fundamental issue that should be resolved not by default or on purely philosophical grounds, but rather in terms of efficiency in achieving the desired results. Some of the trends I have already mentioned will undoubtedly put an increasing burden on public administrators. And if the public objectives as I perceive them are to be realized, I see no alternative to more active governmental participation in resource development— not so much in fastidious surveillance of responsible private operators as in direct management of the public forests.

By this I do not mean to imply a need for expanded governmental participation in entrepreneurial ventures. So long as government-controlled companies behave like, and are treated on the same terms as their private competitors, their ownership is a secondary and largely political issue which I do not consider necessary or appropriate to address directly in this report. Resolution of the matters within my terms of reference will not be greatly affected, as far as I can see, by possible shifts in the balance between public and private ownership of forest enterprises.

Policy Implications of Unpredictable Change

These few broad trends seem likely enough to warrant an effort to anticipate them in designing our forest policy today. However, there will be changes that we cannot foresee, and in considering the issues addressed in this report I believe it is most important to acknowledge that forest policy must cope with an uncertain future.

The forest economy of this province has never been static, and there is no prospect of it becoming so in the foreseeable future. Many want public policy to be explicitly directed toward stabilizing forestry and the forest industry. However, notwithstanding the impact of provincial forest policy, it must be recognized that many of the forces at work in shaping the future are beyond the control of the provincial government. For example, the demand for timber and hence its value is determined largely in competitive world markets. The development of technology which has had such a profound impact on forestry and manufacturing is not subject to governmental control. Nor can the provincial government exercise much influence over matters such as capital markets, immigration, and public attitudes towards resource management and industrial development. Yet our opportunities and constraints in developing our natural resources are largely determined by these essentially external factors. It is within this constantly shifting context that provincial forest policy must be framed; and it follows that if the people of the province are to be assured of the full potential benefits from their forest endowment, our policies must be flexible enough to respond to unpredictable changes in external conditions. In spite of the arguments of modern millenarians, we do not face the task of administering a steady state.

I confess to some anxiety about our present policies in this respect. Many of the most intractable problems which I address in subsequent chapters relate

to policies that seem to have been based on the presumption of constancy, or at least certainty about the future. Certain policies and commitments, though refreshing and innovative when they were introduced, were adopted without leaving sufficient scope for accommodating changes in industrial needs, public objectives, and new approaches to forest management. There is a dangerous temptation to assume that good arrangements, once established, can endure forever—an attitude buttressed by some of the tenets of traditional forestry doctrine. The danger is that the advanced ideas of one period will take their place in conventional wisdom and be allowed to ossify public policies at a later time. ". . . in the field of economic and political philosophy", warned the eminent Lord Keynes, "there are not many who are influenced by new theories after they are 25 or 30 years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest.".

These considerations suggest to me that we must be cautious and flexible in formulating the long-term objectives of forest policy. In particular, in designing a forest tenure system, a delicate balance must be struck between the need to maintain governmental flexibility for adapting to changing circumstances and the need to provide security and stability for efficient long-term resource management and use. The search for this fine balance underlies many of my recommendations in this report.

Prudence calls also for policies that will preserve options for the future. This does not imply that we must reduce our forest production (on the contrary I suggest later that there is scope for expansion), but rather that there is a strong argument for containing resource development rather than stimulating its spread unnecessarily. Our pioneering traditions were concerned with pushing back the frontier, taming nature, and converting the land to our use but there is already a distinct new public attitude that emphasizes the value of restraint, of reconciling our demands with nature rather than the reverse, and of protecting the integrity of the natural environment.

There is a great danger in assuming that future generations will have the same priorities that we have, and that our goal should therefore be to convert our forests as expeditiously as possible to crops that will yield the kind of products, decades hence, that we value most today. As we plan forest crops that will take a century to mature, we should recall that history contains many examples of technological and other changes that have undermined economic dependence on particular natural resources. Clearly, we should manage and use our forests to the best of our ability, but one of our concerns should be to leave as many options as we can to our successors who, with more knowledge than we, and in light of their priorities, will be better placed to determine how the forests of this province should be further developed.

Organization of This Report

The scope of this report is dictated by my terms of reference, but the emphasis and my proposals for policy changes are coloured by the circumstances and needs of today and the foreseeable future. I have sought to propose arrangements that will, beyond that, enable the government to accommodate the new and unforeseen circumstances that inevitably will arise in the more distant future.

Those who are familiar with the complicated interrelationships in forest policy will appreciate the difficulty of organizing the issues in this report in an orderly sequence. Their ramifications are so entwined that they fall into no neat order, and so I must call on the reader's indulgence in following the structure I have chosen. My attempt at brevity has been somewhat frustrated by the dearth of other documentation of many of the problems reviewed here. As a result, in order to put the arguments and recommendations in their needed context, I have often found it necessary to describe and explain at some length the current policies and practices, which are often quite complicated.

The report is divided into seven parts. The first provides descriptive background on the province's forests, the forest industry, and the prevailing pattern of resource rights, all of which are necessary for an understanding of the policy issues that follow. Some readers will already be familiar with much of this description, but the industrial structure described in Chapter 4 has not been documented elsewhere and is important to my later recommendations. The five chapters of Part II deal with the main elements of the forest tenure system. The major forms of rights to Crown timber are reviewed in turn and evaluated in terms of current priorities and problems, leading to my recommended changes. Part III deals with a variety of issues relating to tenure arrangements in general: policies aimed at allocating, terminating, and transferring rights; the division of responsibilities for resource management and development; and taxes and other public charges. Part IV considers some separable problems—provisions for small-scale forestry, special forms of rights, and policies affecting private lands.

Following this analysis of the tenure structure itself, the series of chapters in Part V deals with fundamental issues of resource management that bear directly on forest rights and govern the efficacy of the tenure system in serving economic needs and in protecting the public interest in harmonious natural resources development. Here I discuss the policies relating to regulation of the rate of harvesting, the design of standards of recovery and utilization, the processes of resource planning for integrated use, and related matters. I have found that these issues, which concern more the procedures and practices involved in public administration than the legal form of forest rights, nevertheless give rise to many of the most basic problems in the design of an appropriate forest tenure policy.

Part VI is concerned with markets and industrial development. It deals in separate chapters with controls on the marketing of intermediate forest products (mainly logs and pulp chips), export restrictions, and influences on the pattern of industrial growth; all of which find expression through the forest tenure system and warrant thorough re-evaluation. The concluding section, Part VII, contains a rather lengthy review of administrative arrangements and problems, and a chapter dealing with approaches to policy reform and future review. I have not attempted a detailed summary of all the recommendations in the report, but the final chapter provides a brief retrospective overview with reference to the priorities for reform as I have perceived them.

Throughout the main body of the report I have endeavoured to support my observations and conclusions with essential information and argument, but I have tried to avoid encumbering the text with lengthy detail. However, a thorough documentation of several of the policy issues considered is not elsewhere available, and so the second volume of the report contains a series

of appendices which present, among other things, more comprehensive reviews of the structure of the forest industry, the current forest tenure system, forest taxation and other levies on resources, the method of harvest regulation, and export control policy. I have also appended some comments on my public hearings.

Obviously, I have had to be somewhat selective in my choice of issues for detailed discussion and emphasis, a selection which, I fear, will disappoint some of those who participated in my public hearings. Thus, for example, because of the limitations of my own expertise, my terms of reference, and the feasible scope of my report, I have not dealt with many technical forestry and other environmental matters which some regard as the most urgent questions of public policy. Nor have I been able to investigate properly matters of forest research and education or detailed administrative organization in the public agencies. At several junctures, however, I recommend that other means be adopted to investigate problems which appear to call for expert review but fall outside the scope of this inquiry.

Certain other matters are currently being examined under other auspices. Another Commission of Inquiry has simultaneously investigated questions of property assessment and taxation. A task force report on range management has been submitted to the government, and a third group is currently examining the question of marine log salvage. In deference to these other investigations I have considered these problems in less detail than otherwise would be needed.

In drafting this report I have refrained from citing the testimony of individual participants at my public hearings who provided excellent arguments on most questions. Nevertheless they will, I trust, recognize the influence of their contribution on my conclusions, both where I have endorsed and rejected their arguments. Their written submissions to the Commission, and the transcripts of their oral evidence remain available and provide a valuable source of reference. In this report I have also avoided, for the most part at least, discussion of individual cases, in order to keep on the plane of general public policy.

The language of forestry is peppered with jargon—technical words, measures, abbreviations, and terms of the trade—which are rather bewildering to the uninitiated; and so (again at the expense of brevity), I have tried to avoid them. But certain esoteric terms are unavoidable or at least convenient, and to minimize the clutter of explanatory footnotes in the text I define those I have used in the glossary. There, also, all the statutes mentioned in the report are referenced.

I have already emphasized the enormity of a comprehensive review of the forest tenure policy of the province. Had I found existing policies and procedures generally satisfactory, the task of writing this report would have been considerably simpler; instead I have become convinced that rather substantial reforms are required over a wide range of policy. The result is a rather lengthier report than would otherwise have been necessary. I hope that, regardless of the acceptance of my specific recommendations, it will serve to stimulate informed debate on this important area of public policy.

PART I

THE RESOURCE AND THE INDUSTRY

Chapter 2. The Resource Base

Chapter 3. Rights to Forest Land and Timber

Chapter 4. The Industry

CHAPTER 2

THE RESOURCE BASE

Forest policy must be moulded to accommodate both the characteristics of the resource base which it is meant to regulate and the demands that are put on it. In British Columbia these circumstances are, in important respects, unique. It follows that the forest policy suitable for Ontario, Sweden, Oregon, or Alabama is not likely to be suitable for this province. The resources of most other jurisdictions do not compare with ours in terms of their vastness, their diversity, their state of development, their ownership pattern, or the range of values that they produce. This chapter provides a sketch of the main features of the province's forest resources to set the context for the public policy reviewed in the remainder of this report.

THE LAND BASE

British Columbia is estimated to contain 22 per cent of the forest land in Canada but, being the most productive, it supports roughly 43 per cent of the volume of merchantable timber. One of the most notable features of this large province is its almost continuous covering of coniferous forest, extending into every region and nearly every valley. Of the 234 million acres within provincial boundaries, 11 million are water and swamp, 90 million are alpine rock, barren, or otherwise non-productive. Of the remainder—the "productive" land—97 per cent is forest land, according to its statutory definition. All but about five per cent of the forest land is in public ownership. The composition of these lands is indicated in more detail in Table 2-1.

Another conspicuous feature of the province is its extreme terrain. The full range of topographic conditions, from flat river deltas to rocky alpine peaks is found; but the land is dominated by a series of rugged mountain ranges aligned northwest-southeast. These bracket extensive Interior plateaux; major river systems bisect them; and in the west, sinuous fiords cut deep into the coastal mountains. This configuration of mountains and valleys has had a strong influence on the development of access routes which have shaped the geographic pattern of forest development and use. The mountains have posed the unique challenge of the region ever since Alexander Mackenzie first threaded his way to the Pacific; and our ability to cope with the engineering and environmental problems of steep slopes, high elevations, unstable soils, and rock will continue to govern the values we can realize from our forest resources.

The climatic patterns of the region combine with these extremes of topography to produce the most varied forest environment on the continent. In some places the forest changes over just a few miles from coastal rain forest to semi-desert conditions with completely different vegetation. Sequences of

Table 2-1

AREAS OF MAJOR LAND CATEGORIES IN THE PROVINCE

	millions of acres	*per cent*
forest land		
parks and reserves	4.5	*2*
other	124.2	*53*
	128.7	*55*
other productive land		
open range and meadow	2.1	*1*
agricultural, urban, cleared	2.0	*1*
	4.1	*2*
non-productive land		
alpine forest and scrub	31.0	*13*
alpine rock and barren	54.6	*23*
brush and lowland scrub	4.8	*2*
	90.4	*38*
other		
water	6.4	*3*
swamp	4.5	*2*
	10.9	*5*
total: all land and water	234.1	*100*

Source: B.C. Forest Service.

environments are ordered by latitude, elevation, aspect, and distance from the Pacific, which generates the weather systems that undulate eastward over the mountain ranges.

The community of flora and fauna in each forest type is in a constant state of change. The natural processes of change are sometimes extremely slow and subtle, as organisms grow and die. The life cycles of forest trees span centuries, and the soil itself is constantly evolving. Other processes are violent and spectacular, like the fires that produce the essential ecological conditions for some forest species. Such disturbances are typically followed by a succession of forest types, each taking hundreds of years until a climax community is reached or, more often, another devastation starts the process anew. Today, these dynamic processes have been significantly altered by human activities, especially logging, the control of fire, and artificial reforestation.

Together, these influences produce a rich mosaic of forest types and ecosystems, each of which calls for a different resource management strategy. In any resource policy for forests as diverse as this, uniformity of management procedures and practices must give way to flexibility in planning and administration if the full benefit of commercial and environmental values is to be realized.

Forest Values

Over the province as a whole, the overwhelmingly important commercial value derived from forests is industrial timber. Of the twelve major "bio-geoclimatic" zones that have been described in the province, ten are dominated by commercially important coniferous forest associations. Timber is recovered in a wide range of species, sizes, and qualities, reflecting the diversity in natural forest types; this in turn governs the way it is utilized in response to world demand for forest products.

The forests of British Columbia produce many products and services other than timber. In varying patterns and combinations the forest lands of the province support wildlife and livestock; they comprise watersheds that produce flows for hydroelectric power, industrial and domestic requirements, and dispersal of wastes; they provide vegetative cover essential for the protection of rich sports and commercial fisheries; and they represent a vast recreational resource. Forests, more than anything else, influence the æsthetic character of the province's landscape. Some of these values, like timber, are industrial and commercial. Others, like recreation, and the often ephemeral environmental benefits, are typically unmarketed and difficult to evaluate. Through the compounding influences of growing appreciation of non-commercial values and increasing industrial pressures, the demand for protection of recreational and environmental benefits of forests is burgeoning. The quest for the optimum balance in resource planning is the new challenge facing forest managers and policymakers.

In practice, the pressure for integrated planning of forest uses is manifested most pervasively in the overlapping interests of industrial forestry and fish and wildlife management. This is because fish and wildlife management involves the manipulation of natural habitats which can be significantly altered by industrial forestry. As a result of their concern for natural habitats as well as for the fauna and the recreational values they generate, fish and wildlife authorities in this province have assumed much of the responsibility for bringing environmental expertise to bear on forest development planning.

The fish and wildlife resources of British Columbia are among the most varied and prolific in the world. Their habitats are dependent on forest cover, so they are sensitive to changes in it through either natural processes or human activity. Forest watersheds provide the critical habitat and migration routes for Canada's most valuable commercial fishery as well as for varied sports species. Sudden alteration of the forest cover, through its effects on the hydrological regime and water quality, has often been detrimental to these fisheries. The works associated with industrial forestry, especially roads, are particularly important, and these impacts are probably the greatest concern of fisheries managers.[1]

On the other hand, some forest operations and natural disturbances such as fire often benefit wildlife populations. Species such as deer, moose, and grouse are often enhanced by periodic removal or disturbance of the forest canopy. However, there are important exceptions in some species—such as caribou, Roosevelt elk, grizzly bears, and many smaller animals and birds—that rely seasonally on mature forest cover. The effects of forest disturbance

[1] For an excellent review of the impacts of forest operations on fisheries, see Department of Environment, Fisheries and Marine Service, brief submitted to this Commission, November, 1975.

on wildlife cannot be generalized as they depend heavily on the pattern and character of the change.

The concern of fish and wildlife managers with industrial forestry derives not only from its direct impact on the habitat of wildlife species but also from its effect on human access. Management of sports fish and game populations, like silviculture, involves regulation of both the natural habitat and the harvest. In this province the pressures on fish and game from fishermen and hunters are governed importantly by the pattern of access developed through timber extraction.

The extensive rangelands of the province are mostly forested lands. Only about 2 of the 18 million acres of natural forage land are open grasslands; the rest is pine savannah and drybelt fir forest range in the central Interior, seral aspen forests of the Bulkley and Peace River regions, and minor rangelands in most other districts. Most of the province's rangelands are thus jointly used for grazing and timber production, and they are, in addition, critically important in wildlife management. As a result, the management of these lands calls for particularly careful integration of uses.

British Columbia's prodigious endowment of forests is paralleled by its water resources, and the two are inextricably interdependent. While the province contains only four per cent of the water area in Canada, it has been estimated that the province's large and fast-flowing river systems constitute one-third of the annual water flow. Its uses vary widely over the province, serving the needs of industry, domestic and agricultural uses, and transportation in addition to supporting fisheries and nourishing the forests. The special value of the province's rivers in hydroelectric generation derives from their vertical fall from the mountains to the sea. Managing these water resources calls for regulation of forest watersheds; and disturbances to the forest cover can have important effects on the quantity of runoff, its flow regime, and its quality. Most sensitive are the drier areas of the Interior, where water management adds another dimension of integrated resource use to forestry, grazing, wildlife, and recreation.

The forest and water resources of the province provide an exceptional variety of outdoor recreational opportunities; and the trends in income, mobility, leisure time, and population are accelerating participation in these activities. The growth of many forms of recreation radiates from the major population centres and transportation routes, though some of the less intensive pursuits like mountaineering, that favour pure wilderness, also show extremely rapid growth. Both sorts of recreational activity bear on forest management; preservation of wilderness constrains the scope for industrial use of resources, and accommodation of compatible forms of recreation requires modification of operations to preserve æsthetic values and to provide suitable access and facilities.

Designation of Uses

A conspicuous feature of natural resource policy in British Columbia is the great variety of systems used for allocating rights to Crown property. Special licences, leases, permits, and area designations have been developed to make different values available to users, and these are administered by the separate resource agencies. As a result, a single tract of forest land may

simultaneously be covered by one or more forms of timber licence, water rights, grazing permits, guiding territories, trapline licences, and special use permits; and all may be within some form of reserve. These overlapping rights and designations over forest land, and the allocation of responsibilities for their administration, have extremely important consequences for the pattern of forest use.

Some provincial lands have been designated for special purposes other than timber production; these include Parks, Wilderness Areas, Recreation Areas, and Ecological Reserves. The numbers and estimated areas of each of these categories are indicated in Table 2-2. Timber operations, and other forms of industrial resource extraction, are permanently excluded from National Parks, Wilderness Areas, and Ecological Reserves, as well as from Provincial Parks, except for a few areas over which timber rights were granted before the park was created, or where timber in parks has been exchanged for other lands.

Table 2-2

PARKS AND RELATED RESERVED AREAS

	number	total area	forest land
		thousands of acres	
National Parks	4	1,092.3	433.0
Provincial Parks	324	8,619.2	3,376.1
Wilderness Areas	2	2,335.0	506.1
Recreation Areas	20	562.6	224.7
Ecological Reserves	75	198.3	
total	425	12,807.4	4,539.9

Source: B.C. Forest Service and Department of Recreation and Conservation.

Identification and protection of sites of special æsthetic, recreational, and scientific value is continuing. Some 2,700 small areas of high recreational value have been identified by various agencies, approximately one hundred potential Ecological Reserves are being evaluated, and new Parks and Wilderness Areas are being considered. Expansion of these reserves inevitably reduces the resource base available for forestry, as does the accommodation of non-timber values in areas developed for forestry.

The Timber Inventory

Unlike some other natural resources such as minerals, petroleum, and fisheries, forest resources are amenable to rather precise inventory. But, as with other resources, the portion of the inventory that is economically valuable is constantly changing. The forest stock itself is continuously being reduced by fire, insects, disease, and logging, and supplemented by regeneration and growth. Historically, however, the physical changes in the resource itself have been less important in altering the volume of commercial timber available than the changes in economic and technological conditions that determine the scope for economic recovery and utilization. And in recent years the reservation of forest for special non-industrial purposes has become a significant influence on the timber supply.

The continuous physical, economic, and technological changes frustrate precise measures of the merchantable timber inventory, and any such measure would be meaningful only at a particular moment in any event. Instead, recourse must be taken in physical measures of acres and cubic feet of standing timber, based on explicit assumptions about what is valuable or potentially so.

These forces of change are reflected in historical estimates of the forest inventory of the province. The *Fulton Report* of 1910, which contained the findings of the first Commission of Inquiry into the province's forest resources, refers to the classic study in 1907 by Dr. Bernhard E. Fernow in which he discounted earlier estimates of 182 million acres of forest in the province and conjectured that the true merchantable forest was "somewhere between 30 and 50 million", but the Commission considered even that excessive, and estimated only 15 million acres of merchantable timber outside the Dominion Railroad Belt. In 1918, Whitford and Craig, in their study for a federal inquiry into Canada's forest position, put the figure at 96 million acres, although they apparently did not attempt to distinguish merchantable and unmerchantable timber. The first detailed estimates of forest cover by Forest Districts were made by F. D. Mulholland in 1937, and although he excluded some northern regions of the province he found 64 million acres of productive forest.[2]

In 1958 the first of the present series of continuous inventory statistics based on aerial surveys and field sampling were published, and the sequence of reports every three years since then has shown greater consistency and comparability. The latest of these, published in 1975, indicates 129 million acres of productive forest land—down 5.4 million acres from the 1972 estimate.

From the point of view of timber supply, the area of forest land is less important than the volumes of standing timber, the types of forest cover, and the rates of forest growth. The major forms of forest cover and the estimated volumes of merchantable timber are summarized for each Forest District in Table 2-3.

It will be noted that although the coastal Districts contain only about one-seventh of the total area of forest land in the province, they support 41 per cent of the standing timber—reflecting the generally heavier stands on the Coast than in the Interior.

As I describe in the next chapter, most of the province's forest land is divided into large sustained yield units; for each, an allowable annual cut is calculated and harvesting rights are granted within those limits. Leaving aside certain unregulated lands and the harvesting on them, the total allowable annual cut in 1975 for the major sustained yield units (Tree-farm Licences and Public Sustained Yield Units) was approximately 29.7 million cunits. In 1975, outstanding harvesting rights in these two main tenure forms authorized cutting in the area of 21.4 million cunits, or 72 per cent of the allowable limit during that year. The actual harvest in 1975 of 15.2 million cunits was 51 per cent of the calculated allowable cut or slightly more than one-half of one per cent of the estimated volume of merchantable timber available in those land classes. However, as I will explain in subsequent chapters, these relationships vary widely from year to year and between different regions of the province.

[2] F. D. Mulholland, *The Forest Resources of British Columbia*, King's Printer, Victoria, 1937, 153 pp.

Table 2-3

MAJOR FORMS OF FOREST COVER BY FOREST DISTRICT

District	mature	immature	not satisfactorily restocked	non-commercial cover	residual stands[1]	total forest land	mature volume
	thousands of acres						million cunits[2]
Coast							
Vancouver	7,464.7	4,275.6	734.5	216.6	25.7	12,717.0	727.1
Prince Rupert (Coast)	6,060.9	579.0	114.5	68.6	.5	6,823.6	456.9
total Coast	13,525.6	4,854.6	849.0	285.2	26.2	19,540.6	1,184.0
Interior							
Prince Rupert (Interior)	13,706.1	7,416.6	2,131.6	612.5	33.1	23,899.8	487.2
Prince George	18,595.7	20,866.5	2,048.5	3,355.2	61.4	44,927.3	591.1
Kamloops	5,972.5	5,940.6	548.9	121.9	244.6	12,828.5	216.5
Nelson	3,787.1	6,701.7	639.6	219.3	187.1	11,534.8	162.6
Cariboo	7,797.8	7,305.9	423.2	290.6	200.1	16,017.7	212.8
total Interior	49,859.2	48,231.3	5,791.8	4,599.5	726.3	109,208.1	1,670.2
total all Districts	63,384.8	53,085.8	6,640.8	4,884.7	752.6	128,748.6	2,854.2

[1] Areas within which 25 to 75 per cent of the stand has been disturbed or removed by logging, fire, or other causes.

[2] Estimated to "close utilization" standards, which include live stems over 7 inches d.b.h. between 1-foot stumps and 4-inch tops.

Source: B.C. Forest Service, *Forest Inventory Statistics of British Columbia,* Queen's Printer, Victoria, 1975.

CHAPTER 3

RIGHTS TO FOREST LAND AND TIMBER

Through its influence on development of the province's largest single industry, forest policy has been a major instrument in shaping the form and pace of British Columbia's economic growth. Undoubtedly the most critical aspect of this policy has been the means devised for conveying rights over Crown forest land and timber to industrial users. These arrangements not only provide the forest industry with its raw material supplies but also provide the media for regulating harvesting rates and methods, payments to the Crown, forest protection, and resource management. Public objectives have been pursued through a mixture of statute law, regulations, contracts, administrative practice, and governmental discretion which collectively comprise forest policy.

Tenure policy forges the essential links between the Crown as public landlord, the legislature as overseer of the public interest, and those who seek to develop and use forest resources. Historically it has reflected governments' attempts to accommodate the development of the forest industry while reconciling increased levels of economic activity with other policy objectives.

The industrial demand for timber has changed dramatically over the decades in response to trends in world markets for wood products, technological advances in logging and wood conversion processes, and other economic stimuli. Moreover, public policy objectives concerning forest-based activities have gradually been redefined under the stewardship of successive governments. Thus forest tenure policy has been subject to more or less continuous reform and frequent innovation, with new forms of rights being devised to meet fresh public and industrial challenges. Each time policies have taken new directions the government has recognized existing rights, and it has usually added new forms of tenure without significantly disturbing the old. The result is a somewhat bewildering mixture of rights, some of which have their roots in the province's colonial infancy.

The present complicated structure of forest tenures can be most readily understood by considering the origins of the various forms of rights in their historical context. Appendix A to this report traces the evolution of each of the major tenure forms, together with other relevant information concerning them. In this chapter I will attempt to sketch only their most conspicuous features and to indicate their relative importance as a prelude to the detailed examination of specific problems associated with each, and my proposals for reforms.

CROWN GRANTS

When the colony of British Columbia entered Confederation in 1871 the provincial Crown was vested with ownership of, and jurisdiction over, all

lands in the new province which had not already been granted to private interests. During most of the pre-Confederation period the only means available to colonial administrators for conveying timber rights from the Crown to private parties was through *Crown grants* of the fee simple interest in land, with the recipient being entitled to all rights incidental to land ownership, including forest growth, in perpetuity.

During the colonial period and early years of provincial status, grants of forested land were not restricted, and it was in this era when significant tracts of rich timberlands were alienated by the Crown, largely in aid of railway construction. The 1883-84 grant of 1.9 million acres on Vancouver Island in aid of the Esquimalt and Nanaimo Railway, containing some of the province's finest stands of virgin timber, is the dominant remaining example of these early grants, although its ownership has since become fragmented. A number of other large blocks of public lands were alienated in connection with railway projects, but most of these reverted to the Crown with the failure of these enterprises. The "Railway Belt" grant of 14.5 million acres to the Dominion government made at the same time as the Esquimalt and Nanaimo Railway transaction was intended to induce completion of the transcontinental railway through British Columbia, but it too was returned to the provincial Crown in 1930 after 50 years of federal control.

Over a period of several decades beginning in 1884, restrictions against granting the fee simple interest in forest land were gradually introduced and alternative methods for disposing of Crown timber evolved. As a result, today only about 6.5 million acres, or less than 5 per cent of the productive forest land in the province, remains in private title and only 2.1 million acres of this is used for forestry purposes. But, as a comparison of Tables 3-1 and 3-2 indicates, the production of timber from Crown-granted lands figures much more importantly in the provincial total than their area suggests; during the 3 years, 1972 to 1975, timber cut from private land accounted for an average of about 15 per cent of the total provincial harvest. Because they are located in more highly developed regions and comprise superior timberland, the value of the timber is generally higher than average.

Of all forms of tenure in the province the public's financial stake is generally the most modest, and the weight of public regulation the lightest, on Crown-granted land. Much of it was granted before timber royalties were introduced, and the Crown exacts nothing from the timber cut from these properties. Grants made during subsequent years have attracted various royalties depending on the policy in effect at the time of alienation and governments' royalty policies over the years. Similarly, the province's timber export restrictions apply only to the later grants.

As a general rule owners of Crown-granted forest lands may harvest their timber and manage their lands according to their own wishes. However, since the late 1940's the government has encouraged them to adopt sustained yield management techniques, through two forms of incentives. First, amendments to the Taxation Act passed in 1951 give preferential property tax treatment to owners who harvest and regenerate their lands according to approved sustained yield criteria, as *Taxation Tree Farms*. Second, through the Tree-farm Licence programme they have been offered harvesting rights over Crown land in return for committing their private holdings to sustained yield forestry in an integrated management unit. Some parcels of Crown-granted forest

land on Vancouver Island are subject to both forms of incentive, being Taxation Tree Farms included within Tree-farm Licences.

As the combination of more restrictive legislation and tighter enforcement gradually eliminated Crown-granting as a means of making timber available, the government introduced policies whereby rights to harvest timber could be conveyed while the Crown retained ownership of the land. Thus, tenures conceived in the early decades embodied two related themes which would thereafter govern British Columbia forest policy: an increasing reluctance to alienate the Crown's title to and financial interest in forest land and timber; and a growing effort to control and improve the use of the province's forest land endowment. The foundations of these strategies were first laid before Confederation, with the introduction of the old temporary tenures.

OLD TEMPORARY TENURES

The policy of granting rights to harvest timber without alienating title to the land originated in a Land Ordinance proclaimed by the Governor of Vancouver Island in 1865—one year before that colony united with its sister colony of British Columbia, on the mainland. The Ordinance conferred on colonial administrators the authority to grant rights to cut Crown timber in the form of *Timber Leases* to individuals or companies engaged in lumbering. Beyond this statutory qualification the form and extent of these early leases was left to official discretion. Initially the Crown retained no financial interest in the timber. The Timber Lease tenure continued to be used until 1905: first by the unified colonies and later by the province following its entry into Confederation in 1871. During the interval new legislation imposed ground rents, maximum terms, royalties, and, for a time, requirements that lessees own and operate sawmills. Significantly, a legislative amendment passed in 1891 introduced cash bonus bidding for leases, a thread of policy which was to be woven into later tenure arrangements.

Three other forms of provincial tenure followed quickly on the heels of Timber Leases. In 1888 *Timber Licences,* which were limited to 1,000 acres each and allocated on a first come, first served basis, were introduced to serve the needs of independent loggers, and eventually came to be the most ubiquitous form of old temporary tenure. Some of these were eventually converted into *Pulp Licences,* which gave their holders certain relief from Crown charges on low quality timber harvested from them. Then, between 1901 and 1903, the government granted a number of very large *Pulp Leases,* which were designed to accommodate the expected needs of the pulp industry the province was endeavouring to attract.

By 1907 an estimated 10 million acres of Crown forest land had become committed under these four types of tenure, 90 per cent under Timber Licences. The government of the day, realizing that the volume of timber on this vast area would satiate industry's appetite for timber for years to come, suspended further allocations.

In the meantime and for some years thereafter the Dominion government, in the course of administering the Railway Belt granted by the province in 1883-84, was pursuing a parallel course. Extensive *Timber Berths* were issued to sawmills, conveying rights to harvest standing timber in the Belt. Like the province, the Dominion retained ownership of the forest land itself.

When in 1930 the Dominion conveyed back to the province those portions of the Railway Belt which had not been granted outright, the province for its part agreed to honour the berths and has administered them as part of its own tenure system ever since.

All these forms of tenure—Timber and Pulp Leases, Timber and Pulp Licences, and Timber Berths—comprise the so-called *old temporary tenures.* Most of them have since expired, so that the total acreage now outstanding is less than one-fifth of that in 1910: some 1.7 million acres. They tend to be located in areas of high quality virgin timber close to low-cost water and rail transportation routes on Vancouver Island, the lower Coast, and along the C.P.R. mainline in the Interior. Owing to the relatively high cost of transporting bulky logs, early timber conversion plants—sawmills, pulp mills, and newsprint mills—most often were built close to these sources of wood supply; communities serving these localized ventures were born, and many matured into towns and cities in the southern part of the province.

Thus the remaining old temporary tenures, like the Crown-granted lands, are generally in relatively accessible locations and better timber, and the contrast between their contribution to the total harvest and the proportion of the forest area they cover is even more pronounced, as shown in Tables 3-1 and 3-2. The location of Crown-granted lands and old temporary tenures has had an important influence on the pattern of development of later forms of tenure.

Having been designed to meet particular needs perceived when it was originally introduced, each form of the old temporary tenures is unique in some respects, but they have several important features in common. First, they confer rights to harvest one crop of timber only, namely the original old-growth. As this crop is removed from the licensed areas, the tenures (or portions of them) are cancelled and the lands revert to Crown control. The duration of the different forms varies but in the past they have invariably been renewed as long as timber has remained on them. Thus Timber and Pulp Licences and Timber Berths carry 1-year terms which have been renewed until the timber has been removed. Timber and Pulp Leases carry 21-year terms, which have been renewed in similar fashion. This approach to renewals has given holders of those tenures rights for an indefinite duration—as much time as they choose to take to remove the standing timber.

Second, holders of old temporary tenures have certain common financial obligations to the Crown. In order to retain their rights they are required to pay annual rentals (in the case of the leases) or renewal fees (for licences and berths), which vary according to the tenure and the acreage covered. In addition the Crown has reserved to itself a financial interest in timber harvested from the old temporary tenures, in the form of royalties. These rates attach to the volume of timber removed, and have varied according to species, grade, and region. Since their inception in the nineteenth Century, royalties have been adjusted through statutory amendment from time to time.

Third, since 1907 timber cut from the old temporary tenures has been subject to provincial export restrictions. Without the consent of government it may not be shipped out of the province in an unmanufactured state. Finally, the old temporary tenures may not be transferred without Ministerial consent.

Table 3-1

TENURE STATUS OF FOREST LANDS, 1975

	in regulated sustained yield units						
	Public Sustained Yield Units	Tree-farm Licences	Taxation Tree Farms[1]	Farm Wood-lots	outside sustained yield units	total	*per cent*
	thousands of productive acres						
Provincial Crown land							
old temporary tenures	—	913.3	—	—	768.6	1,681.9	*1.3*
Tree-farm Licences "Schedule B" lands	—	9,085.1	—	—	—	9,085.1	*7.1*
christmas tree permits	87.7	—	—	—	—	87.7	*.1*
minor forms of licence	—	—	—	8.7	—	8.7	—
reserved lands[2]	—	—	—	—	4,106.9	4,106.9	*3.2*
other forest land	79,474.0[3]	—	—	—	26,659.5[4]	106,133.5	*82.4*
total Provincial Crown	79,561.7	9,998.4	—	8.7	31,535.0	121,103.8	*94.1*
Crown-granted land	—	476.6	857.8	1.4	5,211.6	6,547.4	*5.1*
Federal land[5]	—	—	—	—	1,097.4	1,097.4	*.8*
total forest land	79,561.7	10,475.0	857.8	10.1	37,844.0	128,748.6	*100.0*
per cent of total	*61.8*	*8.1*	*.7*	—	*29.4*	*100.0*	

[1] Excluding Taxation Tree Farms included in Tree-farm Licences.
[2] Includes Class "A" Provincial Parks and other reserved areas.
[3] An unknown fraction—in the order of 5 per cent—of this area is authorized for harvesting under Timber Sale Licences and Cutting Permits at any particular time.
[4] Includes special sale areas, proposed sustained yield units and unregulated units.
[5] Includes Indian Reserves and National Parks.

Source: Compiled from B.C. Forest Service, *Annual Report Statistics, 1975,* Queen's Printer, Victoria, 1975, and Forest Inventory Statistics of British Columbia, Queen's Printer, Victoria, 1975.

Table 3-2

ORIGIN OF HARVEST BY TENURE[1]

	in regulated sustained yield units						
	Public Sustained Yield Units	Tree-farm Licences	Taxation Tree Farms[2]	Farm Wood-lots	outside sustained yield units	total	*per cent*
	thousands of cunits						
Provincial Crown land							
old temporary tenures	—	1,744.7	—	—	1,361.4	3,106.1	*14.6*
Timber Sale Harvesting Licences	6,699.9	—	—	—	—	6,699.9	*31.6*
Other Timber Sale Licences	3,746.8	111.2	—	—	354.4	4,212.4	*19.8*
Tree-farm Licences "Schedule B" lands	—	3,508.6	—	—	—	3,508.6	*16.5*
Farm Wood-lots	—	—	—	2.2	—	2.2	*.1*
beachcomb, trespass, miscellaneous	421.6	—	—	—	175.8	597.4	*2.8*
total Provincial Crown	10,868.3	5,364.5	—	2.2	1,891.6	18,126.6	*85.4*
Crown-granted land	—	254.6	456.9	.3	2,269.7	2,981.5	*14.0*
Federal land[3]	—	—	—	—	116.0	116.0	*.6*
total harvest	10,868.3	5,619.1	456.9	2.5	4,277.3	21,224.1	*100.0*
per cent of total harvest	*51.2*	*26.5*	*2.2*	*0*	*20.2*	*100.0*	

1 Three-year average of volumes scaled in 1973, 1974 and 1975.
2 Excluding areas included in Tree-farm Licences.
3 Includes Indian Reserves.

Source: Compiled from data provided by the B.C. Forest Service.

These are the basic features of the old temporary tenures, but many have undergone a degree of refinement under the Tree-farm Licence programme, discussed in a later section of the chapter. The last of the old tenures was granted in 1907; but in 1912, following the Report of the Fulton Royal Commission, a new form of tenure over Crown timber—the Timber Sale Licence —was introduced.

TIMBER SALE LICENCES

The *1910 Fulton Report* marked a turning point in forest policy. Three years earlier, further alienations of old temporary tenures had been suspended. The Fulton Commission, with the crude information available at that time, estimated that there were 240 million Mfbm of merchantable timber in the province and about two-thirds of it had already been alienated in Crown grants and old temporary tenures. With a current harvest of less than one million Mfbm the Commissioners concluded that enough had been taken up to meet the industry's need for several decades, and so the rest should be held in reserve. However, the Commissioners recognized that it might be expedient to make small parcels of Crown timber available to supply the needs of some localities where old temporary tenures had not been staked, to rationalize operations, or to forestall monopolistic tendencies, and for these purposes they proposed sales by competitive auctions.

Ordinary Timber Sale Licences

The Commission's proposals were embodied in the first Forest Act, passed in 1912, which provided that anyone could initiate a sale of timber on a defined tract of Crown land. The timber was cruised and put up to public auction, where it was open to all comers to bid bonus prices in excess of a floor (or "upset") price determined under the Forest Service's stumpage appraisal procedures. The criteria used to determine this upset price were designed to yield a more discriminating estimate of the value of Crown timber than the royalties applicable to the old temporary tenures and some Crown grants. Rights carried a definite term, after which they would expire absolutely. This was the origin of the *Timber Sale Licence* which, although greatly modified over the decades, remains one of the principal instruments for granting rights to Crown timber today.

The 1912 Act made two further innovations in forest policy. It authorized establishment of the Forest Service and the designation of Forest Reserves which comprise areas of Crown land under exclusive Forest Service jurisdiction. The number of Forest Reserves has since grown to 94, and they cover some 75 million acres.

Modifications under Sustained Yield Policy

Because Timber Sale Licences were the only means available for making Crown timber available after 1907 (with the minor exception of Handloggers Licences), this form of tenure became increasingly important as the demand for timber grew. By 1945 Timber Sale Licences accounted for 25 per cent of the total provincial harvest and half the cut in the Interior.

But by that time apprehensions had arisen over the unbalanced pattern of timber harvesting in the province, the lack of secure timber supplies for new

industrial ventures, and the inadequate provisions for future forest crops. The old temporary tenures still accounted for most of the harvest, concentrating cutting in the best stands and in accessible parts of the lower Coast. Timber Sale Licences, too, were generally clustered around the more developed areas. Meanwhile, vast regions of more remote mature and over-mature timber were untouched. These and other circumstances raised concern that the manufacturing establishments and communities which had grown to depend on them would become isolated from their fibre supply, so in 1943 the second Royal Commission of Inquiry was appointed to find solutions.

The *1945 Sloan Report* proved to be another turning point in provincial forest policy, because the government adopted the Commissioner's central recommendation—namely that the province embark on a policy of sustained yield harvesting and management of forests. This would be accomplished by designating sustained yield units over large tracts of forest land: some, which later became known as Tree-farm Licences, would be managed by forest companies; others, which eventually became Public Sustained Yield Units, would be managed by the Forest Service, and regulated harvesting would be authorized under Timber Sale Licences. There are now 81 Public Sustained Yield Units in the province, covering nearly 80 million acres, or nearly 60 per cent of all forest lands.

The government's efforts to regulate harvesting within the constraints of the calculated allowable annual cut for each Public Sustained Yield Unit led to profound changes in the Timber Sale Licence system. For the most part, licences ceased to authorize harvesting of all the timber on a specified tract of land, and instead conveyed a right to an annual volume, to be cut within a Public Sustained Yield Unit in places to be designated by the Forest Service at intervals during the term of the licence. More important, new policies were introduced that had the effect of virtually eliminating competition for rights to Crown timber; licensees gradually assumed informal "quota positions" which implied that their licences would be replaced as they expired without competition and more or less indefinitely. This oblique arrangement rests mainly on Ministerial and administrative practice rather than statutory rights and contracts, but it has far-reaching implications for tenure policy, as I explain in a later chapter. Finally, efforts to achieve closer harvesting control and improved standards of timber utilization led to the introduction of new types of Timber Sale Licences which have since largely replaced the traditional or "ordinary" type.

Timber Sale Harvesting Licences

The Public Sustained Yield Units were initially to be managed directly by the Forest Service, with respect to planning, reforestation, protection, and so on. But as the industry consolidated and demands for more sophisticated resource management increased, the government sought means of involving licensees to a greater extent in management functions. The upshot in the late 1960's was a new variant of Timber Sale Licence, called the *Timber Sale Harvesting Licence*. Each licensee was encouraged to consolidate the rights he held under Timber Sale Licences in any Public Sustained Yield Unit into one of these larger and longer-term tenures. The new system was adopted quickly, and Timber Sale Harvesting Licences became the chief vehicle for

maintaining "quota positions". Today, over 60 per cent of the timber harvested in Public Sustained Yield Units is cut under this form of licence.

Timber Sale Harvesting Licences typically carry terms of 10 years, although some are longer. They convey a right to an annual cut in a given Public Sustained Yield Unit without specifying the areas to be logged, but the Forest Service recognizes informal *chart areas* for planning purposes within which short-term Cutting Permits are issued to authorize harvesting of specific stands.

Another important development during the last decade was spurred by advances in technology that enabled sawmills to manufacture lumber and pulp chips from timber that was previously regarded as waste and from stands that had been regarded as unmerchantable. This led to closer standards of utilization, and when new inventories were compiled to the new standards the calculated allowable annual cuts in the Public Sustained Yield Units indicated that a considerably larger harvest could be taken each year. The "quota" arrangement provided the mechanism for allocating much of this additional volume to established licensees whose mills were equipped to utilize this marginal timber. "Quotas" were increased across the board, in the Interior by one-third, and on the Coast by one-half. For the most part these increases were embodied in the new Timber Sale Harvesting Licences.

"Third Band" Timber Sale Licences

The distribution of additional harvesting rights through the "quota" system did not exhaust all the increases in allowable cuts that resulted from closer utilization standards, particularly in the Interior, where timber stands contain a large volume of small diameter and defective wood. These surplus volumes were not directly allocated through the "quota" system, but were made available to operators who could show a "need" for additional timber to meet the capacity requirements of their mills and who had the facilities (that is, log barkers and chippers) to utilize this timber. To convey these rights, a special form of tenure was introduced, called (for obscure reasons) the *"third band" Timber Sale Licence.*

A hybrid of the traditional Timber Sale Licence and the new Timber Sale Harvesting Licence, this new variant carries short terms of one to five years, exacts some management responsibilities, and allocates an annual volume in a Public Sustained Yield Unit. As a rule Cutting Permits setting out areas to be harvested are required. Most Timber Sale Licences are now of the "third band" variety; they account for about 20 per cent of the current harvest, and up to 55 per cent in some Interior Forest Districts.

TREE-FARM LICENCES

The sustained yield policy adopted in the late 1940's consisted of two main facets: one involved the structuring of Public Sustained Yield Units; the other was the *Tree-farm Licence* system. Tree-farm Licences were designed to enable owners of Crown-granted forest lands and old temporary tenures to combine these with enough unencumbered Crown land to form self-contained sustained yield management units. These licences commit the licensee to manage the entire area for their duration, according to sustained yield principles and under the general supervision of the Forest Service. In return for tempering their cutting rates on their own holdings, licensees

obtained rights to harvest additional timber included in the licence area, without competition.

After the enabling legislation was passed in 1948 the response of the industry was enthusiastic. Since then 41 Tree-farm Licences have been issued; but because several have been amalgamated their number today stands at 34. This programme has been successful in bringing large areas of unregulated forest land under sustained yield management. In 1975, about 54 per cent of the area covered by old temporary tenures and 7 per cent of Crown-granted forest lands were incorporated into these licences, designated "Schedule A" lands. In total, they account for 13 per cent of the productive lands under Tree-farm Licences, but the proportion varies widely among licences. The remaining 87 per cent consists of the Crown's contribution to these units, called "Schedule B" lands.

Licensees' management responsibilities are extensive. They are obliged to compile inventories, conduct reforestation programmes, and assume other obligations including road construction and fire suppression. On timber cut from the "Schedule A" lands the same royalty rates are payable as on old temporary tenures and Crown-granted land lying outside Tree-farm Licences. The harvest from the remaining "Schedule B" lands attracts appraised stumpage calculated using the same formula that applies to Timber Sale Licences. From these latter levies are subtracted many of the costs associated with the licensees' management responsibilities, so that they receive some measure of financial compensation for assuming these extra obligations.

By the time the third Royal Commission on forest policy was appointed in 1955, the Tree-farm Licence system had become the subject of vigorous public debate. The licences issued to date had carried perpetual terms and an important recommendation in the *1956 Sloan Report* was that they should no longer be issued in perpetuity, but instead should bear renewable terms of 21 years. This recommendation was adopted in subsequent legislation.

The dramatic increases in the allowable annual cuts in Public Sustained Yield Units during the past decade were matched and sometimes even surpassed in the Tree-farm Licences. As new inventories were compiled, taking into account smaller and more defective wood under closer recovery standards, licensees' allowable annual cuts were boosted by up to several hundred per cent.

The last Tree-farm Licence was granted in 1966, the government apparently having found the new forms of Timber Sale Licences more suitable for further allocations of Crown timber. Of the 34 licences currently in force one is held by a municipality—the City of Mission—and the remaining 33 rest with forest products companies. As Tables 3-1 and 3-2 portray, Tree-farm Licences cover 10.5 million acres of productive forest land—8 per cent of the provincial total—but they contribute more than a quarter of the total harvest. They are particularly important on the Coast, where Crown-granted forest land and the old temporary tenures are concentrated, although there are several large licences in the Interior comprised mostly of "Schedule B" lands.

FARM WOOD-LOT LICENCES

Closely akin to Tree-farm Licences, but on a relatively minute scale, are *Farm Wood-lot Licences*. A 1948 amendment to the Forest Act empowered the Minister to issue rights over very small tracts of Crown forest to farmers,

to supplement the timber production from their own holdings of Crown-granted lands. The combined acreage is to be managed on a sustained yield basis by the farmer subject to Forest Service supervision.

Use of this tenure has not been widespread, and participation in the programme has fluctuated, principally in response to changing patterns of rural land use. There are now 36 Farm Wood-lots, comprising a modest 8,700 acres of Crown land. As Table 3-2 illustrates, their contribution to the provincial timber harvest is insignificant.

PULPWOOD HARVESTING AREA AGREEMENTS

The trend toward close utilization of timber in the Interior has been closely linked to the development of the pulp industry in that region. In the early 1960's the Interior sawmilling industry, through "quota" arrangements, had to a large extent pre-empted the annual allowable harvest available in the more accessible Public Sustained Yield Units, but only as it was then calculated, to standards of utilization based strictly on lumber recovery. Timber falling below this standard, as well as chips that could be produced from sawmill residues, offered a potential source of wood fibre for pulping; and *Pulpwood Harvesting Area Agreements* were devised to provide proposed pulp mills with assured supplies of this material. These contracts confer options on pulp companies to obtain Timber Sale Licences over Crown timber falling below sawmilling standards, usually up to a stated maximum annual volume; and they impose obligations to construct pulp mills and to utilize logging and sawmilling residues in the manufacture of pulp.

There are now five Pulpwood Harvesting Area Agreements in force—all in the Interior. Each designates a number of Public Sustained Yield Units as the object of the option, and four of the agreements grant rights over timber in the unregulated Prince George Special Sale Area as well. Shortly after these contracts were executed the Interior sawmill industry, as it moved to close utilization standards, began to produce enough residual chips to meet the requirements of the pulp mills, with the result that the latter have generally found it unnecessary to exercise their options for standing timber.

THE CURRENT PATTERN OF RIGHTS

Since introduction of sustained yield policies in 1947, more than 92 million acres—more than two-thirds of the total forest land in the province—have been incorporated into one of the forms of sustained yield management units, mainly Public Sustained Yield Units and Tree-farm Licences. Several new Public Sustained Yield Units are planned. Table 3-1 summarizes the status of forest land in the province, but it must be read with caution. In particular, the large area shown as "other forest land" should not be regarded as totally uncommitted, because most Timber Sale Licences and Timber Sale Harvesting Licences—both extremely important tenure forms—cover timber in this category which is not excluded because they license a volume to be harvested rather than a geographical area.

In any event, as far as the timber resource commitment is concerned, areas are less relevant than volumes. Table 3-2 summarizes the contribution of each tenure category to the total provincial harvest during 1973 to 1975. It should be emphasized that these figures show the harvest, not the volume

that is authorized for harvest, (which is significantly larger as I explain in a later chapter). Comparison of Tables 3-1 and 3-2 shows that the share of the harvest originating from Crown-granted lands and old temporary tenures, in particular, considerably exceeds the proportion of forest land area that they represent. The same is true for Tree-farm Licences which, as Table 3-1 shows, include many of these older tenures. Timber Sale Licences and their variant, Timber Sale Harvesting Licences, together account for more than half the total harvest, but for reasons mentioned above it is not appropriate to compare this with any particular area shown in Table 3-1.

As the forest economy of the province developed and spread outward from the early centres of commerce, the innovations in forest tenure arrangements that were introduced from time to time tended to be applied to progressively more remote areas and to stands of lower quality. There are many exceptions to this generalization, but it is evidenced in the pattern of rights that prevails today. The Crown-granted timberlands are heavily concentrated in the rich forest areas on southern Vancouver Island, along the first railroad routes, and near the early agricultural and mining centres of the southern Interior. The old leases and licences are found mostly on readily accessible coastal areas and near Interior rail routes, and cover relatively choice forest land. In contrast, the newer forms, such as Pulpwood Harvesting Area Agreements and many of the Timber Sale Licences, are more often found in the more remote stands of marginal timber. This broad pattern can be seen in the map included with this report, but it has little to do with the relative importance of different tenure forms today.

CONTROL MECHANISMS

An important part of tenure policy is the form and method of public control over the exercising of rights to timber and forest land. Many of these controls and regulations are the subject of detailed discussion and recommendations in subsequent chapters; here, to complete this brief sketch of the tenure system, the most important regulatory procedures governing the major tenure arrangements are outlined.

Crown-granted lands not included in either Tree-farm Licences or Taxation Tree Farms are subject to very little regulation. The Forest Act provides that owners take precautions against fire, and the Minister may require them to dispose of slash and snags and to reforest denuded areas (although the latter has never been enforced). Such lands comprise about 43 per cent of all Crown-granted forest land and apart from several large holdings on Vancouver Island consist mostly of relatively small parcels in the more developed regions of the south Coast and farming districts of the Interior.

The management of private lands included in Taxation Tree Farms is controlled through a sustained yield management plan that must be approved by the Forest Service. That plan prescribes not only the rate and pattern of timber harvesting but also such things as road development, fire protection, and reforestation. The owner of the Taxation Tree Farm must submit an annual report to the British Columbia Assessment Authority and the property is inspected periodically by the local assessor.

The licence documents pertaining to the old temporary tenures (except Pulp Leases) contain provisions that require the licensee to submit logging

plans for the approval of the Forest Service. Generally these plans are approved only if they conform to currently acceptable practices, such as environmental guidelines established by the Forest Service for the region.

Tree-farm Licences are subject to much more rigorous and continuous control. They oblige the licensee to submit for Forest Service approval a *management working plan* for the entire licence area, covering any Crown-granted land and old temporary tenures as well as all "Schedule B" lands. These plans include a complete forest inventory and an allowable annual cut calculation, and describe in general terms protection and reforestation methods as well as the intended pattern of development and harvesting, over a 5-year period. More detailed *development plans,* also covering 5-year periods but updated annually, describe proposed cutting patterns and access routes with much greater precision.

The management working plan and development plan thus embody statements of the licensee's management responsibilities over his licence area and his plan for its development; and these documents represent the principal means available to the Forest Service for supervising his stewardship. Beyond approval of these general plans, the licensee is required to obtain specific authority to actually harvest the timber from any of the public or private lands within a Tree-farm Licence, in the form of *Cutting Permits.* These supplementary authorizations define specific geographical areas to be harvested over one to five-year periods in conformity with the plans already sanctioned by the Forest Service; and, as the final and most detailed approval given by the Forest Service before logging begins, they play an important role as instruments of public control over forest land practices.

Before he may obtain a Cutting Permit the licensee must first compile a detailed inventory of the proposed area by means of a timber cruise which meets Forest Service standards, and submit detailed plans and reports dealing with such matters as areas proposed for logging and the location of roads, landings and other installations, silvicultural treatment, slash disposal, and the information needed by the Forest Service to appraise the stumpage values of the timber. Once the terms of the permit have been settled the licensee may begin his harvesting activities.

Timber Sale Harvesting Licences do not call for an overall management working plan, but in other respects the requirements are much like those of Tree-farm Licences. The licensee must submit 5-year development plans, normally within his chart area, and obtain Cutting Permits for specific operations. The arrangements for other Timber Sale Licences are extremely variable, ranging from requirements similar to Timber Sale Harvesting Licences to cases where the licence itself serves the purposes of a Cutting Permit.

CHAPTER 4

THE INDUSTRY

The forest industry constitutes the largest and most important segment of British Columbia's industrial economy. Throughout most of the province's history economic growth and rising standards of living have been attributable in large part to the developing forest-based industries, and from all appearances future prosperity, also, will depend heavily on the forestry sector.

Forest policy must explicitly recognize the importance of this industry to the provincial economy. More specifically, forest tenure policy must be designed to meet the raw material needs of the forest industry while at the same time reconciling the industry's demands on the resource with the broader public interest. The policies chosen provide the instruments for shaping the industry's geographical and structural development as well as its rate of growth, and they must, therefore, be carefully chosen to ensure an industrial structure consistent with public objectives regarding resource use and economic development.

This Commission is charged to concern itself with both the structure of the forest industry and its ownership and control in designing recommendations relating to tenure policy. Accordingly, in order to provide essential background information, the Commission attempted a rather comprehensive examination of the province's forest industry. This chapter provides a summary of the findings and is supplemented by additional information in Appendix B. Marketing structures and patterns for final and intermediate products are examined later, in Chapter 21.

The task of assembling the information about the industry that I considered important to this inquiry has proven surprisingly difficult. Such data as are available have been collected in different ways for a variety of purposes, and are not always consistent. They are also often out of date. As a result, some of the findings reported here and in Appendix B are estimates or approximations, and while I feel confident that they are as accurate as the best available information permits, the statistics relating to such matters as the position of individual companies cannot be regarded as precise.

An attempt to depict the structure of the forest industry is hampered not only by the limitations of reliable data but also by the fact that statistics relating to one year may not be entirely representative of the normal or average picture, because of the cyclical nature of industrial activity. To overcome this, the analysis in this chapter has not concentrated on the production of the industry or individual firms but rather on measures of resource control and production capacity. Thus I try to show the distribution of harvesting rights, the holdings of unregulated stocks of timber, and the ownership of manufacturing capacity. This is supplemented, however, with some information about aggregate industrial production.

Dimensions of the Industry

Timber production and manufacturing in British Columbia have maintained long-term secular growth throughout this century. During the five years from 1970 to 1975 the industry produced an average of 20 million cunits of timber annually (a cunit being 100 cubic feet of wood; about the volume in a large telephone pole). This timber is almost all coniferous softwoods—spruce, hemlock, lodgepole pine, Douglas fir, the true firs and cedar in that order, as illustrated in Figure 4-1. Until about five years ago, the largest part of the provincial timber harvest was produced on the Coast but, as a result of rapid industrial expansion in the Interior, that region now produces more than half of the total provincial harvest.

Nearly all the timber harvested in British Columbia is manufactured in the province, log exports averaging only about one per cent of total production. By far the most important product in terms of the volume of timber consumed is lumber. The pulp and paper industry is the next largest wood user, with approximately two-thirds of its raw material in the form of chips produced as a by-product of sawmilling. The third major manufacturing process, considerably smaller than the other two, as illustrated in Figure 4-2, is the veneer and plywood industry.

Table 4-1 shows the value of the products produced and the labour employed in each of these divisions of the forest industry in 1974. The $3.5 billion in total shipments of forest products in 1974 represents about half of the province's total manufactured shipments, and the 85 thousand people directly employed in the forest products industry amounts to about 9 per cent of the labour employed in the province in that year.

Table 4-1

DIMENSIONS OF THE FOREST INDUSTRY, 1974

	value of shipments	employment	
		in production	total[1]
	(millions of dollars)	(thousands of employed)	
logging	1,557.6	18.1	21.7
lumber manufacture	1,536.3	27.3	31.6
pulp and paper	1,418.8	13.2	18.4
plywood and veneer	307.6	7.0	7.8
other wood products	226.3	4.5	5.5
total	3,489.0[2]	70.1	85.0

[1] Includes those employed in both production and administration.
[2] Excludes the value of logging production, which is reflected in the value of the manufactured products (except for logs exported).

Source: Statistics Canada, Forestry Division.

Depicting Ownership and Control

In the following pages I attempt to portray, in broad terms, the pattern of timber holdings and log production and the industrial structure of each of the three main manufacturing sectors. It is important to bear in mind that each of these segments of the production process are closely linked, both in physical terms and in terms of ownership and control.

FIGURE 4-1 Timber Production by Species

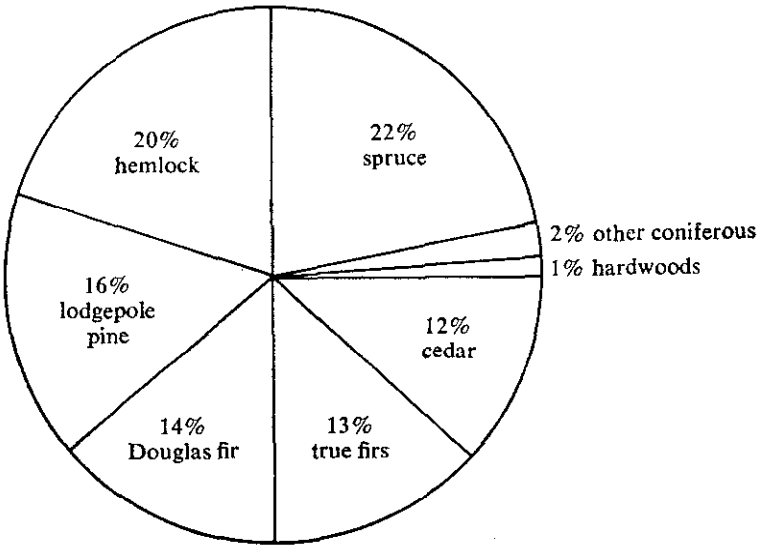
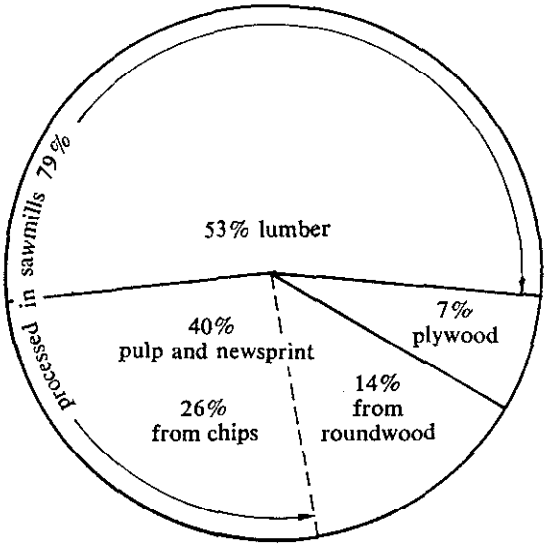


FIGURE 4-2 Timber Utilization by Major Products



Source: B.C. Forest Service.

The pattern of ownership and control—one aspect of industrial structure—is important for the purposes of this inquiry. During my public hearings it became apparent that the growing concentration of timber holdings and manufacturing capacity in the hands of a diminishing number of large corporations is giving rise to concern in several quarters, including some sectors of the industry itself. Unfortunately, these trends have not attracted much empirical analysis, and as a result I encountered considerable difficulty in obtaining the data necessary to show the degree of concentration in the different sectors. Nevertheless, a special effort has been made to analyse industrial structure because of its importance to my recommendations.

Examination of the ownership of companies involves an investigation of shareholdings. The concept of corporate control (as distinct from ownership) is somewhat more evasive and to deal statistically with it involves a certain degree of arbitrariness. In this review, I have assumed that a shareholder controls a company if he holds 50 per cent or more of that company's outstanding voting stock. This is, admittedly, a conservative assumption insofar as effective control can often be exercised through a smaller proportion of shares when the remainder is widely distributed among other shareholders; but any other assumption would misrepresent the seat of control of at least some firms. Accordingly, for purposes of portraying corporate control in the following discussion, holdings have been compiled by what I refer to as *controlling companies*. The holdings attributed to each controlling company include both those held directly by that company as well as those of other companies in which it owns a majority of voting shares.[1]

Timber Rights and Timber Production

As explained in the previous chapter, most of the forest lands in the province are divided into sustained yield units, mainly Public Sustained Yield Units and Tree-farm Licences, and for each there is an allowable annual cut approved by the Forest Service. Various kinds of licences convey rights to harvest timber within the limits of the allowable cut in each unit: in the case of Tree-farm Licences the right to the entire allowable cut is held by the licensee; in Public Sustained Yield Units several companies typically hold rights under the different forms of Timber Sale Licences. In this review, I refer to the annual rate of harvesting authorized under current licences as the *committed* allowable cut; and I have summarized each controlling company's timber supply position in terms of the allowable cut committed to it under all its licences in sustained yield units. Some rights are not subject to regulated harvest rates however, and for these the best measure is either acreage or the volume of timber actually harvested from them.

Tables 4-2 and 4-3 summarize the distribution of annual cutting rights and actual harvests from all holdings for the Coast and Interior respectively.[2] In each case, the holdings of the 10 largest controlling companies, in terms

[1] Exceptions have been made in the cases of Canadian Forest Products and B.C. Cellulose. The companies affiliated with Canadian Forest Products in the Prince George area are included under the name of that company in the compilations that follow even though it owns less than half of their voting shares, because they are all controlled by nearly the same Directors. B.C. Cellulose is not a shareholder in two of the companies included under that name, but in all of them the provincial government is either the sole or majority shareholder.

[2] It is important to note that all figures represent the distribution of cutting rights *as of July 2, 1975*. The distribution will have changed since that time as new allocations are made, transfers and withdrawals take effect, and so forth.

TABLE 4-2

DISTRIBUTION OF COMMITTED HARVESTING RIGHTS AND TIMBER HARVE AMONG CONTROLLING COMPANIES ON THE COAST

controlling company	committed allowable cut in 1975[1]				harvest in 1		
	Public Sustained Yield Units	Tree-farm Licences	total	*share of Coast total*	Public Sustained Yield Units	Tree-farm Licences	unregula
	thousands of cunits			*per cent*	thousands of cunits		
MacMillan Bloedel	93.3	2,686.4	2,779.7	*32.0*	62.1	2,106.4	878.
B.C. Forest Products	490.7	508.1	998.8	*11.5*	300.4	465.6	174.
Rayonier	44.1	859.4	903.5	*10.4*	34.3	710.0	44.
Crown Zellerbach	115.4	485.7	601.1	*6.9*	63.8	239.7	488.
Canadian Forest Products	138.8	404.0	542.8	*6.2*	105.7	348.8	67.
Tahsis	216.0	302.0	518.0	*6.0*	126.0	286.2	133.
Weldwood	233.4	157.0	390.4	*4.5*	212.8	85.1	94.
Eurocan	—	312.0	312.0	*3.6*	—	140.6	–
Bay Forest Products	246.4	—	246.4	*2.8*	211.0	—	2.
B.C. Cellulose	82.2	72.0	154.2	*1.8*	24.4	110.7	–
total above 10	1,660.3	5,786.6	7,446.9	*85.7*	1,140.5	4,493.1	1,882.
next 10 largest	717.9	—	717.9	*8.3*	595.0	—	460.
remaining 10[3]	187.4	—	187.4	*2.2*	99.2	—	36.
total: 30 companies	2,565.6	5,786.6	8,352.2	*96.2*	1,834.7	4,493.1	2,379.
Coast total	2,893.1	5,798.0	8,691.1	*100.0*	2,118.5	4,505.7	3,220.
% of above 30 companies in Coast total	*88.7*	*99.8*	*96.2*		*86.6*	*99.7*	*73.*

[1] The harvest from Taxation Tree Farms outside Tree-farm Licences is included in the "unregulated" cut.
[2] Volume scaled and billed in 1974.
[3] Includes all others with allowable annual cut of 25,000 cunits or more.

Source: Compiled from various data provided by the B.C. Forest Service.

Table 4-3

DISTRIBUTION OF COMMITTED HARVESTING RIGHTS AND TIMBER HARVESTED AMONG CONTROLLING COMPANIES IN THE INTERIOR

controlling company	committed allowable cut in 1975[1]				harvest in 1974[2]				
	Public Sustained Yield Units	Tree-farm Licences	total	*share of Interior total*	Public Sustained Yield Units	Tree-farm Licences	unregulated[1]	total	*share of Interior total*
	thousands of cunits			*per cent*	thousands of cunits				*per cent*
B.C. Cellulose	534.4	1,063.0	1,597.4	*12.4*	333.4	1,014.9	29.3	1,377.6	*12.1*
Northwood	958.7	178.3	1,137.0	*8.8*	698.7	172.1	5.1	875.9	*7.7*
B.C. Forest Products	902.7	—	902.7	*7.0*	577.0	—	1.6	578.6	*5.1*
Canadian Forest Products	698.6	—	698.6	*5.4*	498.9	—	3.7	502.6	*4.4*
Netherlands	436.5	—	436.5	*3.4*	313.9	—	—	313.9	*2.8*
Evans Products	428.3	—	428.3	*3.3*	222.6	—	63.9	286.5	*2.5*
West Fraser	422.7	—	422.7	*3.3*	389.5	—	.8	390.3	*3.4*
Eurocan	404.2	—	404.2	*3.1*	243.7	—	—	243.7	*2.1*
Cattermole/Finlay	400.0	—	400.0	*3.1*	125.6	—	—	125.6	*1.1*
Weldwood	341.3	44.0	385.3	*3.0*	355.2	39.8	18.7	413.7	*3.6*
total above 10	5,527.4	1,285.3	6,812.7	*52.7*	3,758.5	1,226.8	123.1	5,108.4	*44.7*
next 10 largest	2,150.6	356.8	2,507.4	*19.4*	1,712.8	362.9	54.2	2,129.9	*18.7*
remaining 39[3]	2,973.9	22.7	2,996.6	*23.2*	2,152.6	17.2	132.7	2,302.5	*20.2*
total: 59 companies	10,651.9	1,664.8	12,316.7	*95.2*	7,623.9	1,606.9	310.0	9,540.8	*83.9*
Interior total	11,267.6	1,664.8	12,932.4	*100.0*	8,609.6	1,606.9	1,158.3	11,374.8	*100.0*
% of above 59 companies in Interior total	*94.5*	*100.0*	*95.2*		*88.6*	*100.0*	*26.8*	*83.9*	

1 The harvest from Taxation Tree Farms outside Tree-farm Licences is included in the "unregulated" cut.
2 Volume scaled and billed in 1974.
3 Includes all others with allowable annual cut of 25,000 cunits or more.

Source: Compiled from various data provided by the B.C. Forest Service.

of their allowable annual cut, are shown individually (these are not quite the same as the top 10 producers of timber). The tables also show the aggregate holdings of all controlling companies that have rights to an allowable annual cut of at least 25 thousand cunits (roughly the minimum volume required to maintain a normal full-time logging enterprise) which cover some 95 per cent of all timber holdings in the province.

On the Coast, there are only 30 controlling companies with significant timber holdings.[3] But even within this 30, control is heavily concentrated. The largest 10 controlling companies hold rights to 85.7 per cent of the committed allowable annual cut on the Coast, including virtually all of that under Tree-farm Licences and 57.4 per cent of that in the Public Sustained Yield Units. They also hold a majority of the unregulated rights. Their production in 1974 represented 76.3 per cent of the total coastal harvest.

In the Interior, holdings are somewhat more widely dispersed, with 59 controlling companies holding significant cutting rights. Of these, the largest 10 control 52.7 per cent of the committed allowable annual cut and in 1974 produced 44.9 per cent of the total harvest.

It should be noted that several of the largest companies have timber holdings in both regions: B.C. Forest Products, B.C. Cellulose, Canadian Forest Products, Eurocan, Cattermole, Weldwood, Crown Zellerbach and Triangle Pacific all have significant timber rights both on the Coast and in the Interior. When the data for the two regions are combined (as in Appendix B) it emerges that there are 75 controlling companies with significant timber holdings in the province. The largest 10 account for 58.6 per cent of the committed allowable cut with the largest 25 accounting for nearly 79 per cent.

Only 4.7 per cent of the committed harvesting rights are held by firms with rights to less than 25 thousand cunits per year. There are 280 such small licensees in the province: 185 of them with an allowable annual cut of less than one thousand cunits.

The unregulated rights are held in the form of Crown-granted lands and old temporary tenures outside of Tree-farm Licences and Timber Sale Licences on Crown land not included in Public Sustained Yield Units. The latter are small, short-term rights of minor importance. Table 4-4 shows the major controlling companies' holdings of Crown-granted land and old temporary tenures outside Tree-farm Licences. Available information suggests that unregulated private forest lands not in Taxation Tree Farms but used for timber production amount to about one million acres, and that the 167 thousand acres unaccounted for are found mostly in small holdings. The 86 thousand acres in old temporary tenures not identified by controlling company are held by licensees with less than 10 thousand acres each. Again, holdings are concentrated in a relatively few large firms, most of which are also among the largest holders of regulated cutting rights.

The concentration of timber holdings has been increasing for many years. The bulk of the Crown-granted forest lands has always been held by a few companies, because of their origin in railroad land grants. In contrast, the old temporary tenures were originally widely held. Even by 1940, of the four million acres outstanding in Timber Licences, 52 per cent was held by 58

[3] Tables 4-2 and 4-3 include holdings of some companies with less than 25 thousand cunits of allowable cut in the relevant region, where they control that much or more in both regions combined.

Table 4-4

HOLDINGS OF PRIVATE FOREST LAND AND OLD TEMPORARY TENURES OUTSIDE TREE-FARM LICENCES

controlling company	Crown-granted land: unregulated[1]	Crown-granted land: in Taxation Tree Farms	old temporary tenures outside Tree-farm Licences
	thousands of acres		
Pacific Logging	300.4	—	25.4
MacMillan Bloedel	150.0	337.0	178.0
Crown Zellerbach[2]	158.2	—	206.0
B.C. Forest Products	65.3	22.2	46.2
Scott Paper[3]	84.7	—	—
Crestbrook	16.2	19.4	—
Rayonier	14.3	33.5	28.7
Crows Nest Industries	9.3	236.1	—
Weldwood	9.2	33.5	32.8
Northwood	7.8	—	10.5
Weyerhaeuser	4.6	—	28.6
B.C. Cellulose	4.2	—	—
Pope & Talbot	3.4	—	—
Clearwater Timber	3.0	—	—
Canadian Forest Products	.9	2.6	52.3
Triangle Pacific	.7	—	—
Tahsis	.3	—	27.5
Evans Products	—	—	28.6
Federated Co-Op	—	—	16.2
Darkwoods Forestry	—	139.3	—
Other	167.0 (approx.)	143.5	86.0[4]
total	1,000 (approx.)	967.1	768.1

[1] Includes some small holdings of Crown-granted lands held as regulated "Schedule A" lands in Tree-farm Licences.
[2] Includes one-third of the holdings of Elk River Timber.
[3] Includes two-thirds of the holdings of Elk River Timber and all of the holdings of Northern Developments.
[4] Includes small holdings of B.C. Cellulose, Crestbrook, and Triangle Pacific.
Source: Compiled from various data provided by the B.C. Forest Service.

licensees, and the rest by 2,800 others.[4] Just 14 years later, more than half the acreage was held by only four licensees, and nine held two-thirds of the total. By 1965, four firms held two-thirds and eight controlled 82 per cent.[5] Unpublished data collected by the Task Force on Crown Timber Disposal indicate that in 1974 one firm held nearly half of the 1.1 million acres outstanding in Timber Licences. For all forms of old temporary tenures approximately 80 per cent of the total acreage was held by only five firms and their subsidiaries in that year.[6]

The introduction of the Tree-farm Licence system provided an opportunity for those holding Crown-granted forest land and old temporary tenures to add to these holdings substantial tracts of additional Crown land. As a result,

[4] D. M. Carey, "Forest Tenure in British Columbia" in *Transactions of the Ninth British Columbia Natural Resources Conference*, Colonist Printers, Victoria, 1956, p. 271.

[5] M. R. McLeod, *The Degree of Economic Concentration in the British Columbia Forest Industry*, unpublished B.S.F. Thesis, The University of British Columbia, 1971, p. 116.

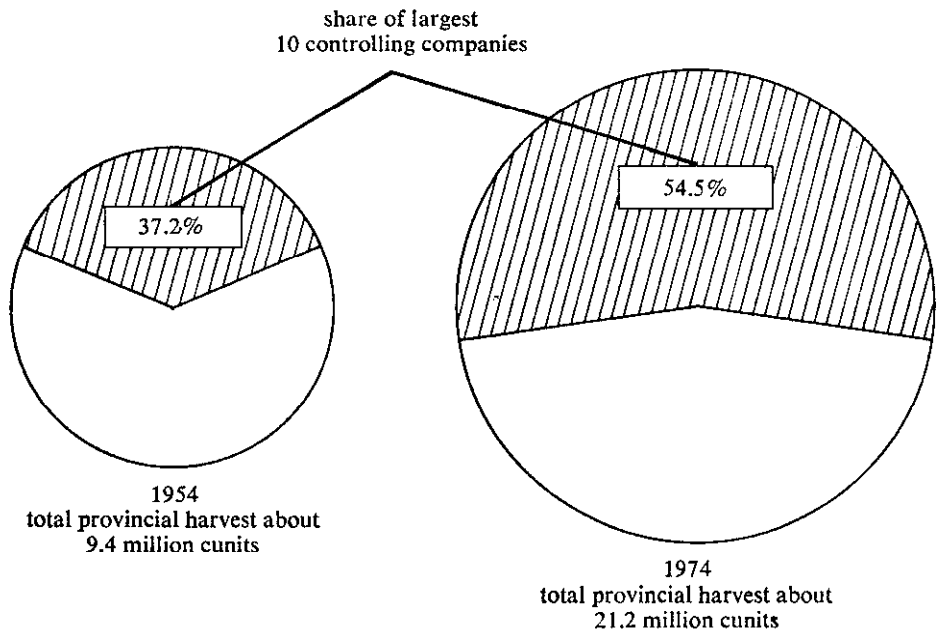
[6] Task Force on Crown Timber Disposal, *Crown Charges for Early Timber Rights*, Victoria, February 1974, p. 66 (hereinafter, *Task Force 1st Report, 1974*).

some 913,272 acres of old temporary tenures and 476,600 acres of Crown-granted land have been placed within Tree-farm Licences and their contribution to allocated allowable annual harvests is incorporated in the data in Tables 4-2 and 4-3.

Control over timber rights has become increasingly concentrated in the hands of a few large corporations in spite of the dramatic growth of the forest industry over the last twenty years. For example, data presented in Appendix B indicate that, while the committed allowable annual cut in Public Sustained Yield Units more than doubled between 1968 and 1975, the distribution of control over harvesting rights in these units narrowed substantially.[7]

Figure 4-3 depicts the trend in concentration in total provincial timber production. In subsequent chapters of this report I describe several features of forest tenure policy that appear to have supplemented economic forces in generating this concentrated pattern of timber rights and production.

FIGURE 4-3 Growth in Total Timber Production and Share of the Largest 10 Controlling Companies 1954–1974



Lumber Manufacturing

The bulk of the provincial timber harvest is manufactured into lumber, which makes British Columbia one of the world's greatest lumber-producing centres. This province has consistently accounted for at least two-thirds of Canadian lumber production. In 1975, 7.5 billion board feet were manufactured in the province, two-thirds of it in the Interior. Most of this lumber is produced in 344 sawmills which, in the aggregate, have a production capacity of 30 million fbm per shift.[8] Of these mills, 72 per cent of the number, and 63 per cent of the productive capacity is located in the Interior.

[7] It should be noted that the degree of concentration indicated by the kind of measures used here depends critically on the size of the area covered in the compilations. Analysis by Forest District or by individual Public Sustained Yield Unit often reveals a much greater dominance of a few firms, and in some regions of the province a single firm controls an overwhelming share of the timber rights.

[8] Another 456 small mills operate irregularly, and contribute an insignificant share of total production.

The structure of the lumber industry has changed dramatically during the last three decades; aggregate manufacturing capacity has tripled, although the number of mills has steadily decreased since 1951. Table 4-5 ranks the largest controlling companies in terms of their control of lumber manufacturing capacity. The lumber manufacturing sector appears the least concentrated, although approximately the same group of large companies heads the list in each of the other sectors. In the province as a whole, a quarter of the lumber manufacturing capacity is owned by 5 controlling companies; half is owned by 18; and three quarters by 57 controlling companies. Statistical measures of concentration of control are roughly the same in the Interior and Coast regions.

Pulp and Paper

There are now 22 pulp mills in British Columbia, with a total productive capacity of 18,300 tons per day. Two-thirds of this capacity is located on the Coast, where the MacMillan Bloedel company is by far the largest owner. In the Interior, the Canadian Forest Products group of companies at Prince George occupies the dominant position. Table 4-5 shows the distribution of capacity among controlling companies for the province as a whole. Half the provincial capacity is controlled by three controlling companies—MacMillan Bloedel, B.C. Forest Products and Canadian Forest Products—who operate 8 of the 22 mills.

Table 4-5

DISTRIBUTION OF MANUFACTURING CAPACITY AMONG LARGEST CONTROLLING COMPANIES (RANKED BY CONTROL OF LUMBER MANUFACTURING CAPACITY)

controlling company	lumber	pulp	paper	veneer and plywood
	per cent of total manufacturing capacity			
MacMillan Bloedel	7.2	28.4	56.6	11.8
B.C. Forest Products	6.4	11.5	12.2	6.1
Northwood	4.3	4.4	—	—
Canadian Forest Products	3.6	10.9	5.1	14.4
Weldwood	3.4	4.1	—	19.7
Crown Zellerbach	3.4	5.5	15.2	9.0
B.C. Cellulose	3.1	10.4	4.9	2.2
Weyerhaeuser	2.2	6.8	—	—
West Fraser	2.2	—	—	—
Triangle Pacific	1.9	—	—	—
Netherlands	1.9	—	—	—
Evans Products	1.9	—	—	5.3
Rayonier	1.8	5.5	—	—
C. Itoh	1.6	—	—	—
Crestbrook	1.6	2.2	—	2.6
Doman	1.4	—	—	—
Tahsis	1.3	4.1	—	—
Whonnock	1.3	—	—	—
Cattermole/Finlay	1.1	.8	—	—
Integrated Wood Products	.8	—	—	4.6
Merrill & Wagner	.5	—	—	6.6
Eurocan	.3	5.0	—	—
total of above 22 companies	53.2	99.6	94.0	82.3

Source: Appendix B.

Paper is produced in nine mills, six of which are integrated with pulp plants. The total productive capacity in the province is now 6,180 tons per day, of which nearly all—96 per cent—is in the Vancouver Forest District. Well over half of this is controlled by MacMillan Bloedel; and this company, Crown Zellerbach and B.C. Forest Products together control 84 per cent of the paper capacity.

The most conspicuous development in this sector in recent years has been the expansion of the pulp industry into the Interior. Within the decade preceding 1972, nine mills were constructed in the region, and this had a profound impact on both the structure of the forest economy and on forest tenure policy, as described in later chapters.

Veneer and Plywood

Production of veneer and plywood began on the Coast early in this century while the Interior industry has developed more recently, following important technological developments. There are currently 28 veneer and plywood mills in British Columbia and their total input capacity of some 3,000 cunits per shift is roughly equally divided between the Coast and Interior. Over half of the total capacity is controlled by the largest four controlling companies, as shown in Table 4-5; and the largest eight control 80 per cent.

Concentration and Integration

I should emphasize that the criterion of control used throughout this chapter probably underestimates the degree of concentration because some companies control others through less than 50 per cent of their voting shares. Moreover, two of the largest firms, B.C. Forest Products and Northwood, are treated as separate controlling companies here, although they are controlled by the same corporate shareholders located outside the province.

These compilations also help to reveal the pattern of integration across these various sectors, insofar as the same large firms tend to be dominant in each sector. Table 4-6 draws together some of the preceding statistics to illustrate this inter-sectoral integration of the major controlling companies, which are ranked in order of their shares of regulated cutting rights in the province as a whole. In preparing this table the initial aim was to portray those companies which controlled 80 per cent of the committed allowable cut, and this involved some 27 controlling companies. To these, two companies have been added: Scott Paper, to incorporate important holdings of Crown-granted land and paper production capacity; and Pacific Logging to reflect substantial holdings of Crown-granted land.

The companies listed in Table 4-6 represent a very large portion of the province's forest industry. They control over 80 per cent of the committed allowable cut and a roughly similar proportion of the Crown-granted lands and old temporary tenures outside Tree-farm Licences. In terms of manufacturing control, the controlling companies shown account for 56 per cent of the total capacity to produce lumber, 100 per cent of pulp, 96 per cent of paper, and 90 per cent of the plywood and veneer production capacity.

The participation of these companies in the several sectors of the industry varies considerably. The first eight firms listed stand out by virtue of their

Table 4-6

DISTRIBUTION OF TIMBER RIGHTS AND MANUFACTURING CAPACITY AMONG THE LARGEST FIRMS

controlling company	share of rights to timber and forest land				share of manufacturing capacity			
	committed allowable cut[1]	acreage of Crown-granted lands outside Tree-farm Licences		acreage of old temporary tenures outside Tree-farm Licences	lumber	pulp	paper	plywood & veneer
		unregulated	Taxation Tree Farms					
	per cent of provincial total				per cent of provincial total			
MacMillan Bloedel	12.8	15.0	34.8	23.2	7.2	28.4	56.6	11.8
B.C. Forest Products	8.8	6.5	2.3	6.0	6.4	11.5	12.2	6.1
B.C. Cellulose	8.1	.4	—	—	3.1	10.4	4.9	2.2
Canadian Forest Products	5.7	.1	2.7	6.8	3.6	10.9	5.1	14.4
Northwood	5.2	.8	—	1.4	4.3	4.4	—	—
Crown Zellerbach	4.5	15.8	—	26.8	3.4	5.5	15.2	9.0
Rayonier	4.2	1.4	3.5	3.7	1.8	5.5	—	—
Weldwood	3.6	.9	3.5	4.3	3.4	4.1	—	19.7
Eurocan	3.3	—	—	—	.3	5.0	—	—
Tahsis	2.4	—	—	3.6	1.3	4.1	—	—
Cattermole/Finlay	2.2	—	—	—	1.1	.8	—	—
West Fraser	2.0	—	—	—	2.2	—	—	—
Netherlands	2.0	—	—	—	1.9	—	—	—
Evans Products	2.0	—	—	3.7	1.9	—	—	5.3
Weyerhaeuser	1.6	.5	—	3.6	2.2	6.8	—	—
Triangle Pacific	1.4	.1	—	—	1.9	—	—	—
Crestbrook	1.4	1.6	2.0	.1	1.6	2.2	—	2.6
Bay Forest Products	1.1	—	—	—	.9	—	—	—
Integrated Wood Products	1.1	—	—	—	.8	—	—	4.6
The Pas Lumber	1.1	—	—	—	.5	—	—	—
Pope & Talbot	1.0	.3	—	—	1.1	—	—	—
Merrill & Wagner	.9	—	—	—	.5	—	—	6.6
Whonnock	.9	—	—	—	1.3	—	—	—
Carrier Lumber	.8	—	—	—	1.0	—	—	—
Clearwater Timber	.8	.3	—	—	.8	—	—	—
North Central Plywood	.7	—	—	—	—	—	—	7.3
Babine Forest Products	.7	—	—	—	.9	—	—	—
Scott Paper	—	8.5	—	—	—	.4	2.4	—
Pacific Logging	.4	30.0	—	3.3	.4	—	—	—
	80.7	82.2	48.8	86.5	55.8	100.0	96.4[2]	89.6

[1] Includes Tree-farm Licences and rights in Public Sustained Yield Units.
[2] Remaining 3.6 per cent held by Belkin Packaging.

Source: Compiled from various data supplied by the B.C. Forest Service, and from information presented in Appendix B.

size, and their breadth of integration across the various sectors. Four other firms also control significant pulp capacity and are broadly integrated—Eurocan, Tahsis, Weyerhaeuser and Crestbrook. Together, these dozen large integrated controlling companies clearly dominate the entire industry.

Domestic and Foreign Ownership

The Commission's terms of reference with respect to the forest industry include an instruction to formulate recommendations ensuring "that domestic participation in its ownership and control is adequate". I have accordingly attempted to throw some light on this question in analysing the composition of ownership of forest industry companies. Although this is an issue that has attracted increasing public interest in recent years, there have been no investigations of foreign ownership of the provincial forest industry, and so the Commission has had to investigate the nationality of shareholders of companies. I have already noted the difficulties of data and the lack of a consistently reliable definition of corporate control. Nevertheless, some broad indications of the extent of foreign participation are possible.

In my review of the industry's structure, I identified all companies with regulated harvesting rights of 25 thousand cunits or more, with significant unregulated Crown-granted land or old temporary tenures, or with significant manufacturing capacity. Altogether, 250 controlling companies where thus identified and analysed. This is not exhaustive, but those companies omitted are very small and account for an almost insignificant share of timber rights and manufacturing capacity. For this discussion it can reasonably be assumed that this residual group is domestically owned and controlled.

Of the 250 controlling companies analysed, four include firms in which the degree of foreign ownership differs; and so these were separated out for purposes of classifying companies by nationality of ownership. Thus 255 separate entities were examined, and the nationality of their share ownership is as follows:

all Canadian	213
majority Canadian	13
majority foreign	14
all foreign	15
	255

Those companies that are entirely foreign owned are almost all subsidiaries of foreign corporations, which obviously implies foreign corporate control. For reasons mentioned already, it is somewhat tenuous to assume that all those with majority foreign ownership are foreign controlled (as some are managed and "controlled" by British Columbia residents) or, indeed, that all those with minority foreign ownership are domestically controlled. However, bearing this in mind, it is informative to examine the share of the industry accounted for by the 29 controlling companies in which all or a majority of the equity is owned by foreigners. In terms of the measures used earlier in this chapter these 29 controlling companies control the following proportions of the industrial totals:

committed allowable annual cut	35%
acreage in Crown-granted lands and old temporary tenures outside Tree-farm Licences	41%
sawmill capacity	29%
pulp capacity	37%
paper capacity	18%
veneer and plywood capacity	43%

Thus, while the companies with all or majority foreign ownership comprise only 11 per cent of the total number of companies, they control between 30 and 40 per cent of the timber rights and manufacturing capacity (except for paper where control is less than 20 per cent). They tend to be among the larger firms in the industry, and do not show the same diversity of size as domestically-owned companies. None are among the five controlling companies with the largest shares of allowable annual cut, although four of those have a minority foreign ownership. However, 14 of the next 17 largest controlling companies in this ranking have a majority foreign interest. Thus they dominate the top twenty in terms of timber holdings.

Several of the controlling companies with all or majority foreign ownership are specialized in the production of lumber, pulp, paper or plywood, and only one firm with majority foreign ownership is in all of these manufacturing processes. A review of the data indicates little apparent structural difference between the firms with majority foreign ownership and others of comparable size.

It is almost impossible, with available data, to draw many conclusions about the trends in foreign investment and control. Undoubtedly the size and capitalization of foreign-owned companies have increased, but interest in this question usually focuses on the *proportion* of foreign ownership or control, and the trend in this respect is much less clear. First, it should be noted that foreign interests have figured importantly in the province's forest industry since the earliest days: British, American and European capital having initiated many, if not most, of the larger pioneering ventures.[9] Although several new multinational corporations have become established in the province in the last decade or so, other trends have had an offsetting impact on the balance between domestic and foreign participation. Some of the large corporations with majority Canadian ownership have purchased the timber and manufacturing assets of foreign companies in the province. And in the last few years the provincial government has acquired, in its own right, significant corporate assets previously owned by foreign interests. In view of this it seems unlikely that there has been any expansion in the proportion of foreign ownership over the long-term.

Financial Performance

In the course of my public hearings, many spokesmen for the forest industry and the financial community expressed alarm over the forest industry's poor financial performance in recent years, and the serious implications

[9] See D. G. Paterson, "European Financial Capital and British Columbia: An Essay on the Role of the Regional Entrepreneur", *B.C. Studies*, Spring 1974, pp. 33–47.

of this for the future health and vigour of the industry. A good deal of evidence was presented on this question and the Commission has examined other information as well, the general implications of which warrant some comment here.

At the outset, it must be said that although statistical information on rates of return in the forest industry is profuse, interpretation of it is often difficult. Accounting criteria vary, aggregate data often omit smaller firms and some of the large closely-held corporations, and comparisons with the forest industry elsewhere and with other industries are confused by varying tax arrangements. I do not intend to try to summarize these numerical calculations which are readily available elsewhere, but rather to indicate the general conclusions that I think can be drawn from them. I consider that the most important question from the point of view of public policy is whether the industry as a whole, and the separate sectors that comprise it, are sufficiently profitable to be able to attract the capital necessary to maintain investment at a level adequate to ensure the most beneficial use of the province's timber resources. And the measure of profitability I find most relevant is the return on invested capital.

First, there can be no doubt that the rate of return on capital invested in the forest industry has, in the aggregate, been low in recent years. Since the industry must compete for capital with other industries in the economy, the most relevant comparison is with other industrial sectors, and most analyses show the after-tax return on invested capital in the British Columbia forest industry ranks among the lowest of all Canadian industries. The persistence of rates of return that are low in both absolute and relative terms, in an industry that is also characterized by instability, undoubtedly portends increasing difficulty in attracting new capital.

Second, this poor financial performance of the industry is not unique to British Columbia; it is observable in the forest industry throughout Canada over the past decade. If anything, rates of return in the forest industry in this province have been lower than in the rest of Canada, but nowhere has the forest industry shown returns equal to those in industries like mining, petroleum or general manufacturing. The performance of comparable firms in the United States also appears to have been better.

Third, meagre returns have been earned in all sectors of the industry. Some individual sawmilling firms appear to have fared reasonably well, and better than many pulp and paper operations. But the aggregate performance of the sawmilling sector has not been appreciably different than that of the pulp and paper sector, and the sawmilling sector has also been less stable.

Finally, it is relevant to note with reference to the earlier discussion of industrial concentration that there is no consistent evidence to indicate that large companies in the British Columbia forest industry are more profitable than small firms. The rates of return in both categories vary widely and permit no generalization about relative performance; and in any event any observed difference would have to be interpreted in light of the more diversified manufacturing activities of the large companies.

The cause of this poor financial performance is a matter of some debate. Some industrial spokesmen attribute it to excessive charges for public timber in British Columbia, but this is, at best, an oversimplification. One cause, at

least, was periodic over-expansion, particularly in the pulp and paper industry, during the last 15 years, which resulted in excess capacity. This over-expansion can, in turn, be attributed to a number of factors: over-optimism on the part of investors, fostered by some prosperous years in the late 1950's; unexpected expansion in competing countries; and, in this province, government policies that required mill construction as a condition of timber rights.

It must also be acknowledged that investment planning in the industry itself has not been faultless. According to last year's President of the Canadian Pulp and Paper Association, ". . . strategic planning of the industry has been singularly inept . . ."[10]. This is not inconsistent with the findings of an independent study of general investment behavior which reported ". . . a striking (and, to me surprising) difference between the strenuous efforts to forecast capital expenditures correctly and the rather careless methods used to forecast the cost and revenue consequences of the same projects."[11] Certainly some large forest products ventures in this province appear to have been poorly planned or poorly managed.

At the beginning of this discussion I suggested that governments should be concerned that the profitability of the industry is sufficient to attract the desired amounts of new capital. In this light, the behavior of the industry appears as something of a paradox, insofar as it has continued to expand and make massive capital investments in the face of low rates of return. As one investment analyst put it:

> The historical record of the forest industry in Canada would indicate that it has not provided an attractive level or consistency of profitability compared to many other Canadian industries. At the same time it is a *still expanding* industry . . .[12]

This is a difficult phenomenon to explain. It probably has its roots in the pervasive optimism which is so often reported to be a trait of those engaged in the forest industry, coupled with the availability of funds generated internally or supplied by parent companies and not subject to the screening processes of the capital market. But there have undoubtedly been other causes, having to do with market cycles, the timing of new capacity, and the environment encouraged by government:

> Expectations have not always been realized and most of the mills established in British Columbia in the 1960's have faced depressed markets soon after start-up resulting in negative profits, delays in expansion plans and cut-backs. The large size of the pulp increments, the upward revisions in capacity, the impossibility of predicting the extent of fluctuations in consumption patterns, Government deadlines, the competition among firms and the close reinforcing association between go-ahead decision-making and market cycles have contributed to this situation.[13]

While these observations refer mainly to the pulp and paper sector, they apply also to sawmilling, particularly stud mills.

In a stable economic climate, the continuation of poor financial performance can be expected to produce a period of consolidation in the industry,

[10] Address to the annual convention of the Canadian Pulp and Paper Association, 1975.

[11] J. D. Helliwell, *Public Policies and Private Investment*, Clarendon Press, Oxford, 1968, p. 68.

[12] Dominion Securities Corporation Harris & Partners Limited, brief submitted to this Commission, Vancouver, 1975 p. 2 (Emphasis added).

[13] R. Hayter, *An Examination of Growth Patterns and Locational Behavior of Multi-Plant Forest Product Corporations in British Columbia*, Ph.D. dissertation, University of Washington, 1973, p. 224.

with phasing out of the less efficient operations until capacity is more consistent with profitable market opportunities. But the inflation of the last few years has raised a new spectre for the industry, because of its heavy dependence on capital not only for expansion but simply to maintain its assets.

These serious financial problems arising from inflation can ultimately be resolved only by controlling inflation itself or by adapting to it, such as through replacement cost accounting. The former is, of course, a happier solution, but both go well beyond forest policy. In terms of provincial forest policy, these industrial circumstances add to the importance of ensuring that public forest administration does not impose unnecessary expenditures in resource development, burdensome capital requirements and carrying costs, or impediments to efficient resource recovery and manufacture beyond those necessary for proper resource management. In these respects the financial condition of the industry is relevant to the substance of this report.