PLANNING THE AGRICULTURAL DEVELOPMENT
OF CROWN LAND
IN THE MARGINAL FRINGE

By
ALLAN BERTRAM LIDSTONE
B.Sc., The University of Guelph, 1976

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE

in
THE FACULTY OF GRADUATE STUDIES
(School of Community and Regional Planning)

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA
October 1985
©Allan Bertram Lidstone, 1985
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.
ABSTRACT

The marginal fringe region of Canada is an agricultural area which is near the environmental and economic limits for commercial agricultural production. Combinations of physical factors and social and economic influences result in an area that experiences dramatic shifts in land use and agricultural development. Government policy is, however, a potentially significant controlling and stabilizing factor in the region's development. It is therefore fundamentally important that government plan its diverse functions and responsibilities in the marginal fringe to ensure an effective, equitable and efficient allocation of society's scarce resources.

This thesis analyses existing planning programs for the development of agriculture on Crown land in Canada's marginal fringe region. It seeks to determine whether these programs have the potential to ensure the efficient and equitable development of agricultural land. This thesis also addresses the problem of how we should effectively develop our shrinking supply of undeveloped arable land and whether existing planning programs adequately address the major issues in the development process.

The methods of investigation include a series of three case studies: St. John's, Newfoundland; Fort Nelson, British Columbia and; Fort Vermilion, Alberta. The case studies are analysed using a framework based on an idealized planning process developed in the first chapter. This framework is applied to representative planning exercises in each case in order to illustrate the overall planning program's strengths and weaknesses. Based on this broad analysis, I present, in
conclusion, the most crucial questions for developing effective planning programs in the marginal fringe and apply these questions to the cases studied. Official reports and surveys, detailed correspondence, personal and telephone interviews, and first-hand experience form the basis for analysis in the case studies. A literature review is the basis for the contextual elements developed in Part I of this thesis.

The results of this study raise a number of concerns about existing planning programs for the agricultural development of Crown land in the marginal fringe, particularly in British Columbia and Newfoundland. The crucial issues for developing effective planning programs in the marginal fringe include the need for a clearly articulated, stable yet flexible, program focussing on the marginal fringe region. The agricultural lead agency's involvement is crucial for these programs. Further questions consider how well environmental factors are inventoried, evaluated and communicated to decision-makers; whether adequate socio-economic assessments are permitted; if alternative resource development options to agriculture are considered; whether government programs related to agricultural development are effective or whether they are inconsistent with planning program objectives, and whether the public understand and support the planning program.

Planning the agricultural development of Crown land in the marginal fringe is in its infancy. Sudden changes to programs, as in British Columbia, and funding deadlines, as in Newfoundland, are harmful to the efficient and effective development of frontier resources and they erode government
credibility. Some jurisdictions, such as Alberta, are making rapid strides in applying many of the traditional planning techniques, although social and economic assessment is very weak or absent altogether in each of the programs studied. Usually, decisions are based on a narrow assessment of environmental factors and there are often significant gaps in essential data, especially climate. Alternative resource development options to agriculture are seriously considered only in British Columbia. Only in Alberta has the vital element of public support begun to be appreciated. Elsewhere, public involvement is, more or less, neglected or mishandled.

In conclusion, this thesis raises a number of issues requiring future research, related mainly to socio-economic assessment and planning program development. Also a series of more detailed normative principles are offered for the improvement of planning programs for the agricultural development of Crown land in the marginal fringe.
PART I SETTING THE CONTEXT

Chapter 1 The General Planning Process for Agricultural Development on Crown Land

Introduction
<table>
<thead>
<tr>
<th>Chapter 4</th>
<th>Case Study Number Two: Fort Nelson, British Columbia</th>
<th>95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Structuring and Scoping the Planning Program</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>The Identification of Planning Process Objectives</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>Environmental Factors for Planning</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>The Assessment and Relevance of Socio-economic Factors in the Planning Exercise</td>
<td>114</td>
<td></td>
</tr>
<tr>
<td>Alternative Strategies and their Selection</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>Implementation of the Plan</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>The Significance of Public Participation in the Planning Exercise</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>Case Summary</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>References</td>
<td>129</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 5</th>
<th>Case Study Number Three: Fort Vermilion, Alberta</th>
<th>130</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Structuring and Scoping the Planning Program</td>
<td>136</td>
<td></td>
</tr>
<tr>
<td>The Identification of Planning Process Objectives</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>Environmental Factors for Planning</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>The Assessment and Relevance of Socio-economic Factors in the Planning Exercise</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>Alternative Strategies and their Selection</td>
<td>153</td>
<td></td>
</tr>
</tbody>
</table>
PART III CONCLUSION

Chapter 6 A Comparative Analysis of Canadian Planning Programs for the Agricultural Development of Crown Land in the Marginal Fringe

Introduction

Is There a Clearly Articulated Program for Planning?

How Well Are Environmental Factors Inventoried, Evaluated and Communicated to Decision-makers?

Do Planning Programs Permit Adequate Socio-economic Assessments?

Are Alternative Resource Development Options to Agriculture considered?

Are Related Government Programs Effective?

Does the Public Understand and Support the Planning Program?

Implications for Future Research

Conclusion

Planning Program Principles for the Agricultural Development of Crown Land in the Marginal Fringe

References
TABLES

1.1 Elements of the Planning Process for Agricultural Development on Crown Land ...............17

1.2 Environmental and Socio-economic Factors for Agricultural Development on Crown Land ...............29

II.1 Table of Concordance—Elements of the General Planning Process and the Analytical Framework ........................................63

5.1 The Sub-Regional Planning Program .........................143
FIGURES

1.1 Structuring and Scoping the Planning Program ............25
3.1 Planning Program for Agricultural Development Areas ....74
4.1 Schematic Outline of the Crown Land Planning Hierarchy .............................................103
4.2 Crown Land Planning Program Sub-District Plan Land Designations and Implementation .............106
4.3 Advertising Crown Land Dispositions ......................122
5.1 Integrated Resource Planning Approval Process ..........140

MAPS

1.1 The Marginal Fringe Regions of Canada .........................7
3.1 The Development Area of St. John's ..........................68
3.2 Cochrane Pond Farmland Development Project ................72
4.1 Fort Nelson Deferred Planning Area Provincial Setting .................................................97
4.2 Fort Nelson Deferred Planning Area Location of the Plan Area .......................................100
5.1 Regional Location Map of Fort Vermilion ....................132
5.2 Jean D'Or Prairie Study Area .................................135
5.3 Public Lands Classification ..................................137
5.4 Jean D'Or Prairie Planning Area Resource Management Areas ........................................146
5.5 Jean D'Or Prairie Planning Area Yellow/Green Areas ....................................................147
5.6 Resource Management Policy of Jean D'Or Prairie ........156
ACKNOWLEDGEMENT

This thesis would not have been possible without the assistance and generosity of many people throughout the country. I wish to thank Norman Dale for persevering under a barrage of drafts and for his timely suggestions. Gary Runka is owed a special debt of gratitude for his able assistance. Thanks also go to Craig Davis and Brahm Weisman of the School of Community and Regional Planning. Across the country, I would like to thank Keith Valentine, now in Ottawa, Wim Kok in Fort St. John, Rick Klippenstein in Fort Vermilion, Jim Rivait in Edmonton, Arthur Petch in Ottawa and Bill Merritt in St. John's. Janny Holmes contributed an heroic editing effort. My deepest gratitude and warmest thoughts are reserved for Helga who made this task possible.
PART I

SETTING THE CONTEXT
INTRODUCTION
The objectives of this thesis are to analyse existing programs for planning the agricultural development of Crown land in Canada's marginal fringe region and to develop a series of recommendations for program improvement. The marginal fringe is the only place in the country where agricultural land use is expanding. A recent study by the Lands Directorate (McCuaig and Manning, 1981) reveals that the Peace River region of northern British Columbia and Alberta, north-central British Columbia, the northern prairies and, to a lesser extent, Newfoundland are all undergoing agricultural land use expansion. Agricultural development in these areas has led to considerable debate over the environmental, economic and social consequences of such activity.

A fundamental tenet of our economic system is that resources are scarce. The efficient and equitable distribution of scarce resources will, theoretically, lead to a better society. Consequently, several questions arise about the development of Crown land in the marginal fringe for agriculture— is development occurring in an efficient and equitable manner, or are we being profligate in the allocation of scarce financial, human and land resources for agricultural development? How should we develop our shrinking supply of undeveloped arable land? Do planning programs adequately address the major issues in the development process? A review of existing planning programs for the development of agriculture on Crown land in Canada's marginal fringe region will help to answer these questions.

The physical margins for commercial agriculture are
variable and can be influenced by changes in commodity prices, technological advances, climatic changes, environmental modification, government policy and changes in local non-agricultural economic conditions. In the marginal fringe, combinations of physical factors and social and economic influences result in an agricultural area that experiences dramatic shifts in land use and agricultural development. Instability caused by highly fluctuating development patterns combined with the possible inappropriate allocation of land, human and financial resources can lead to significant costs for the individual and for society. These are not only opportunity costs but also the costs of environmental degradation and human suffering. Such costs influence both the prospective farmer and the surrounding community.

Agricultural development of Crown land in the marginal fringe is subject to the vagaries of nature, the dictates of the international marketplace and to a multitude of individual decisions. Government policy, however, is a potentially, significant controlling and stabilizing factor in the region's development. Government owns the land to be developed, it is responsible for agricultural development policy and support programs, and it is in charge of rural infrastructural supports such as roads and servicing. The hand of government rests very heavily on agricultural land use expansion as a form of economic development. It is therefore fundamentally important that government plan its diverse functions and responsibilities to ensure an effective, equitable and efficient allocation of society's scarce resources.
The major assumption of this thesis is that wisely planned agricultural development taking into account environmental, social and economic conditions is desirable. Due to the special problems associated with the development of agricultural land in the harsh and isolated environment of the marginal fringe, comprehensive and efficient planning programs are critical to the sustained economic viability of new agricultural areas. Planning programs must not involve only resource and economic analysis but also public consultation, interagency coordination, and integration or coordination of programs affecting agricultural development. Planning, if it is well done, will result in an equitable and efficient allocation of scarce resources.

The Marginal Fringe

The southern part of the marginal fringe is an agricultural region with frequent episodes of agricultural advance and retreat, often occurring simultaneously. The northern areas of the marginal fringe still lie undeveloped yet arable, awaiting changing economic conditions or increasing population pressures. The marginal fringe is then a region with a dual nature. Boundaries are set in the north by the limits to arability and in the south, generally, by a change in land use patterns. Attempts have been made to quantify these land use changes and to delineate the advancing or retreating fringe on the basis of gains or losses in farmland (McCuaig and Manning, 1982). A definition for the southern boundary based primarily on land use patterns is more realistic than one based on economic forces,
for these patterns are an expression of all the forces at work in the region — social and environmental as well as economic.

Canada's marginal fringe regions are shown on Map 1. The advancing fringe is an area where there has been a net gain in farmland over the last twenty years, while the retreating or twilight fringe has displayed a net loss of farmland. The remaining areas are undeveloped, yet it has been determined that these more northerly areas contain large tracts of arable land. This thesis deals with planning the agricultural development of Crown land in these marginal fringe regions of Canada.

Conflicting Perspectives

Conflict between man and nature in the marginal fringe is mirrored by the contrary views held by different groups over the agricultural development of the region's Crown land resources. In reply to those opposed to agricultural development such as Bentley (1982), it has long been said that, in rural Canada, every man has the right to starve to death on his own piece of land. This often heard refrain encompasses the idea of the pioneering spirit and the concept of the frontier mentality. The right to starve to death also displays a recognition by the potential pioneer of the difficult nature of his task, farming in the wilderness. Agricultural development of the marginal fringe is also supported by scientists such as Laut (1973) who, in analyzing the climate of the northern parts of the western provinces and the southern Yukon and Northwest Territories, found "an agricultural potential to be realized" (p.76). Laut's opinions are further substantiated by the findings of
MAP 1.1: THE MARGINAL FRINGE REGIONS OF CANADA*

LEGEND
ADVANCING FRINGE
UNDEVELOPED ARABLE
RETREATING FRINGE

*Source: McCuaig and Manning (1982) and Nowland and McKeague (1977)
(See References Ch1)
Exploratory soil surveys (Valentine, 1971).

Both the provincial and federal governments actively promote development in the fringe. The Agri-Food Strategy for Canada (Agriculture Canada, 1981) recommends the development of new land to expand the total cultivated area as an important method of strengthening the supply base. The Strategy recognizes that the few areas left in Canada for agricultural expansion are in the north, but with increasing world food demands, these areas will have to be developed. The Strategy's production potentials are determined by assuming an increase of six million to seventeen million additional acres of grain in the West by the year 2000. Some of this expansion could come from reducing the acreage in summer fallow, but a significant proportion is expected to come from new land in marginal fringe regions.

In contrast to the optimism of Agriculture Canada, agrologists such as Bentley (1982) express serious misgivings about further development in the marginal fringe. Government incentives for cultivating marginal land are seen as leading to farmers being trapped into inferior lifestyles with little hope of improvement. Bentley asserts that land in the marginal fringe is less productive, and therefore it is much less capable of supporting economic viability. In terms of economics, Peterson (1972) states that developing the marginal fringe makes little sense, especially in these times when North American farmers are being paid to take land out of production because of an oversupply of foodstuffs depressing prices. He believes that these new developments will not be viable and will be abandoned or maintained as part-time operations.
It is also necessary for provincial and federal governments to subsidize transportation and production as well as to undertake major capital programmes in order to maintain the economic viability of the marginal fringe region (Ironside, et al., 1974).

Is Planning Necessary for the Agricultural Development of Crown Land in Canada's Marginal Fringe Region?

In most rural areas, there is relatively little government resource agency planning (Lassey, 1977; Ironside, et al., 1974a). Coordination, a central element of planning, is also largely absent from public management in the marginal fringe (Fairbairn and Ironside, 1974). The lack of public sector planning and coordination in the marginal fringe may be a result of the hostility rural dwellers feel towards planning. They perceive it as the extension of a non-applicable urban approach to rural issues (Runka, 1982; Friedman, 1980). When planning does occur, confrontation often results as individuals and groups pursue single purpose objectives and are unprepared to compromise (van Vuuren, 1980). However, with the growing scarcity of resources and the increasing competition within an expanding consumer base, 'rugged individualism', like other romantic concepts of rural life, may have to adapt to a modern world.

The spillover effects that individual actions may have on others are often mitigated through the planning process (Barlowe, 1979). As well, the planning process can deal explicitly with the often neglected concept of opportunity costs
through the design of development alternatives

Agricultural land development planning will permit the detailed and comprehensive consideration of complex proposals whose impact often goes well beyond stated desired objectives. Lassey (1977) defines planning as "the systematic application of knowledge to establishing and achieving publicly defined goals" (p.5) Traditionally, a typical agricultural land development planning exercise involves several planning process elements including the establishment of objectives and problem definition, detailed assessment of environmental, social and economic factors, development and selection of alternatives and, implementation (Jones, 1981; Mollett, 1984; see also Chapter 1 for my detailed consideration of planning process elements).

The marginal fringe is a region with numerous problems which demand good planning. There is a wide range of objectives pursued by various interest groups. There is a dearth of information on the critical environmental, economic and social factors. The interest groups concerned with agricultural development in the marginal fringe have proposed time and again in public debate three main alternatives: development, no development and maybe development. Public costs for servicing are substantial as are the opportunity costs for developing a finite resource base under increasing competition among resource users.

Planning programs are well suited to achieving publicly defined objectives for the agricultural development of Crown land in the marginal fringe. Francis (1970) states in support of planning that:
Often it is necessary for the government to intervene directly or indirectly into competition to maintain the economic viability of the economic fringes and certainly careful planning is of high priority. (p.27)

Government's ambivalent approach and its lack of precise information is seen by Ironside, et al. (1974a) as leading to haphazard development which increasingly requires compensation for economic losses. Ironside and other Canadian geographers have been at the forefront in requesting an enlightened comprehensive planning approach for Canada's large marginal fringe region (Wonders, 1975).

For the purposes of this study, land development planning is classified into three main components. A planning program is defined as the broad administrative and procedural framework within which individual planning exercises are conducted. A planning exercise is a site specific application of aspects of the planning program using the planning process. The planning process (see Table 1.1) is primarily a sequential series of steps conducted in the application of each planning exercise. Planning process elements are substantially shaped by the overall planning program but can be modified to fit the circumstances of individual planning exercises.
The Nature and Organization of This Study

My analysis in subsequent chapters is both broad and comprehensive. Detail is sometimes sacrificed to provide the reader with a sense of order in the variety of superficially dissimilar programs and to identify key aspects of these programs which are common to all. The resulting analysis provides the basis for more specific research and the improvement of specific aspects of marginal fringe development.

Chapter 1 will deal with a more detailed description of the most widely used norms for a generalized planning process for agricultural development on Crown land. This description will include an outline of the structure and scope of overall planning programs and the elements of the planning process used in individual planning exercises within the overall program. This will be followed in Chapter 2 by an assessment of the special environmental, economic and social factors related to agricultural development in Canada's marginal fringe.

In Part II, I develop an analytical framework based on the normative material in Part I. Part II also contains Chapters 3 through 5 in which I apply the analytical framework to three case study areas: St. John's, Newfoundland; Fort Nelson, British Columbia and; Fort Vermilion, Alberta. In essence, each case includes an analysis of the structure and scope of the overall provincial planning program for the agricultural development of Crown land in the marginal fringe and an analysis of representative planning exercises conducted as a part of this program.

Part III contains Chapter 5, a comparative analysis of the
planning programs conducted in the three case study areas. In conclusion, I propose a series of principles or guidelines for improving existing planning programs and for developing new programs.
CHAPTER ONE

THE GENERAL PLANNING PROCESS

FOR AGRICULTURAL DEVELOPMENT ON CROWN LAND
1.1 Introduction

Agricultural development on Crown land is the focal point for the following discussion of a general planning process. A considerable degree of compatibility exists among the various resource planning models regarding a general framework for the planning process on Crown or publicly owned land. The traditional rational or synoptic model of planning is presented almost invariably in the literature on public land planning. In practice, planning, while following the general structure of the rational model, tends to be incremental and contains a strong element of advocacy (Hudson, 1979).

Crown land is located in extensive tracts in rural areas and is largely undeveloped, with a diverse untapped resources. Unlike planning in urban areas, there is only one owner and usually only one or two agencies primarily responsible for Crown land planning. The decision-maker is also the owner and the legislator. Therefore, the modified model of planning, as proposed by Hudson (1979) is the predominant underlying structure in planning the agricultural development of Crown land. This approach will be outlined in the following sections.

However, before the planning of any resource sector can commence, it is important to understand what it takes to make a viable resource industry. Land development, in this context, goes beyond an analysis of the land base and incorporates a host of issues related to the needs of a viable agricultural industry.
1.2 Prerequisites for Commercial Agricultural Production

Commercial agricultural production, in this case, refers to agriculture where outputs are treated as commodities. Agriculture requires suitable soils and topography in a climate which receives adequate amounts of heat and moisture for the commodity being produced (Williams, 1974). Markets must exist for the sale of commodities, and effective transportation modes are required to get products to these markets. Major supplies and equipment must be available locally. Financial and information services, especially credit, must be readily accessible. If production costs periodically exceed gross revenues, subsidies will be necessary to maintain production, especially during initial development (Kellogg, 1975).

1.3 The Planning Process for the Agricultural Development of Crown Land: an Outline

The generalized and idealized planning process for agricultural development on Crown land is summarized in Table 1.1. The process elements presented in the table are drawn from the literature on agricultural development planning. It must be emphasized that the process in Table 1.1 represents an idealized one. Lead agencies sometimes adapt and change the approach deliberately. Perhaps, more often, their actions simply fall far from the ideal. In the cases studied (Ch. 3-5), these variations will be examined fully. To understand how agricultural land development planning is conducted in the case study areas, it will be necessary to use the elements of
Table 1.1: Elements of the Planning Process for Agricultural Development on Crown Land (relevant sections of text in parentheses)

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>Structuring and scoping the planning program. Before a site specific planning exercise can be conducted, it is necessary to have an overall planning program with appropriate structure and scope in which to operate. If this program already exists, it may have to be modified to specific circumstances.</td>
</tr>
<tr>
<td>1.4</td>
<td>Identification and definition of objectives. Setting targets or the identification of specific problems to be resolved.</td>
</tr>
<tr>
<td>1.5</td>
<td>Assessment of environmental and socio-economic factors. Inventory and evaluation of the environmental, social and economic factors critical to agriculture.</td>
</tr>
<tr>
<td>1.6</td>
<td>Preparation and evaluation of alternative strategies. This includes techniques such as benefit-cost analysis, comparative cost analysis and other more intuitive methods used for comparing possible actions.</td>
</tr>
<tr>
<td>1.6</td>
<td>Selection of preferred strategy. This is essentially a political decision based, to varying degrees, upon the planner's recommendations.</td>
</tr>
<tr>
<td>1.7</td>
<td>Implementation. This involves the development of policies, programmes and projects. Implementation transforms the objectives into reality.</td>
</tr>
<tr>
<td>1.8</td>
<td>Monitoring and evaluation. Monitoring measures and records results. Evaluation draws on the information from monitoring and assesses the degree of achievement of objectives and the reasons for the outcomes.</td>
</tr>
<tr>
<td>1.8</td>
<td>Feedback and iteration. Information from monitoring and evaluation is continually fed back into the earlier stages of the planning process at the appropriate step and the process repeats itself.</td>
</tr>
<tr>
<td>1.9</td>
<td>Public participation. A supportive public is necessary for the success of the planning process.</td>
</tr>
<tr>
<td>1.10</td>
<td>Coordination. Coordination requires the involvement in the process of all government agencies and major organized groups affected.</td>
</tr>
</tbody>
</table>
the idealized planning process to analyse both the overall program structure and scope and how representative planning exercises are, in fact, conducted. The following sections give a more detailed description and rationale for each of the elements outlined in Table 1.1.

1.4 Structuring and Scoping the Planning Program

In the following sections, we will consider the requisite elements of the agricultural land development process; however, specific planning exercises using the idealized planning process must operate within a program containing clearly defined responsibilities among and within governments. As well, there must be an understanding and integration of the various levels of land development planning from that of broad policy down to the individual project level. In this section, consideration is given to the needs of structuring and scoping the overall program.

Several aspects of structuring and scoping of planning programs are discussed below initially in relation to government organization and then in terms of approaches to land development planning carried out by these various government agencies. The overall planning program's structure and scope determine the design and application of all the other elements discussed in the idealized planning process. Structuring and scoping are the organizational and often procedural aspects of planning which, once established, remain relatively constant throughout the application of specific planning exercises. The application of
elements in the idealized process occur repeatedly in a variety of specific planning exercises conducted within the framework established by the overall planning program. The structuring and scoping of the overall planning program should not be monolithic. Planning programs should be flexible and adaptable to the circumstances of individual planning exercises. This is why the step of structuring and scoping the planning program is included at the top of Table 1.1. At the beginning of each exercise, it must be reviewed and modified accordingly.

Agricultural land development planning programs can be designed to include varying levels of comprehensiveness. Comprehensiveness, in this case, refers to the extent of the political or geographical unit covered in the planning exercise. These levels vary in scope and in the length of the planning period. Planning programs can deal with a single project or an entire sector of the national or provincial economy. Even at a specific level of comprehensiveness, the detail in planning programs can vary according to objectives, political priorities or financing (Cochrane, 1974). Individual planning programs can deal with several different levels of comprehensiveness. These different levels, and even different elements of the idealized process conducted in a planning exercise at a selected level, can be allocated to separate strata in the bureaucratic hierarchy of the planning agency.

Planning programs may specify that various elements of the idealized planning process for all planning exercises must be undertaken at a regional planning level. Frequently, a provincial agency's staff at headquarters develops regional or
project plans without planning involvement by the region (McAllister, 1977). Even if the region is the lead agency in developing regional sector or project plans, objectives and selection of the preferred strategy as well as other elements of the process can be completed by headquarters staff or politicians. As well, the overall planning program often dictates how various elements of the planning process are to be carried out in all individual planning exercises. Programs differ in almost every jurisdiction; nevertheless, a general illustration of possible levels of comprehensiveness in agricultural land development planning programs is possible and is provided in Figure 1.1.

Planning programs which allow the formulation of regional agricultural land development plans at the regional level, in contrast to the provincial level, allow government and individuals to take advantage of rapidly changing development opportunities as they occur. There is less bureaucracy and greater incentive to achieve quick results. Lassey (1977) promotes the regional approach to sectoral planning because:

The regional unit may have the best potential for establishing an effective formal communication and exchange network among these agencies, while providing for coordination and collaboration with local units (p.82).

Despite traditional opposition, increasing decentralization of planning responsibility may be warranted. Regional development objectives are an increasing focus of government attention in
Canada (OECD, 1978). Given the size of the impact on regional development of government's normal expenditure policies, increased consideration of government actions in a regional planning context is necessary (Fairbairn and Ironside, 1974).

1.4.1 Land Development Planning Programs

The preceding discussion covered the more procedural aspects of structuring and scoping of the agricultural land development planning program. Another aspect of program structuring and scoping is more substantive and deals with the actual subject emphasis or classification of land development planning programs. The subject emphasis of land development planning programs dealing with agriculture is discussed below.

Land development planning programs can be classified into three categories—land use planning, land management planning, and project planning programs. Land management planning programs deal with land which an individual agency manages, controls or owns. Project planning programs, which may be a sub-category of a land management planning program, are aimed at constructing capital improvements. Land use planning programs, on the other hand, encompass public policies and regulations, such as agricultural zoning, which guide other people's land use (Sampson, 1975). Agricultural land development planning is most often related to land management programs and project planning programs.

Land management planning programs tend to concentrate more on resource assessment and are more involved in administrative rather than social choices. This category includes the
allocation or use of resource lands (Sampson, 1975). In Canada, agricultural land management planning and project planning programs are conducted by line agencies such as agriculture or by the agency responsible for the administration of Crown lands.

Crown land management planning programs usually involve developing plans for the allocation of Crown land to various resource uses such as forestry, wildlife, recreation and agriculture. These plans may be developed for the provincial, regional, sub-regional or local levels.

Land management planning programs also involve land management within a specific sector such as agriculture or forestry and the development of related projects. If the agricultural agency has an agricultural land management planning program for Crown land, plans developed under this program are linked to overall agricultural plans and policies which involve a variety of factors, beyond land, related to agricultural development at the provincial or regional levels.

There are four main approaches to conducting project planning programs. One approach to agricultural land development projects on Crown land is a project-by-project program with no foundation in an agricultural land management plan. Alternative projects are not considered and efficiency in resource allocation is not reviewed (Weeks, 1977). A second approach to project planning is to link it to the provincial sector plan, which therefore allows for a broadened perspective in considering resource allocations. The lack, however, of regional input and poor coordination are major problems with this approach.
The small-scale area program approach, which has a regional focus, is suggested by McAllister (1977) as the best method of opening up new agricultural area with development projects. This approach involves the careful coordination of all the agencies involved in the region to give the right mix of effort to make a project operational. The usual approach, however, to a project planning program in agriculturally developing areas is the opportunity planning program. It is similar to the project by project program, but it may be more narrowly focussed on pioneering issues. It is a 'full steam ahead' approach with little heed to opportunity costs.

One of the main pitfalls of project planning programs is accurately expressed by Mollett (1984):

Those who are responsible for project formulation are attempting to satisfy two objectives simultaneously, and they may well be in conflict. One objective is to produce an unbiased assessment of what they think will happen as a result of the project. The other is to produce a sufficiently attractive description of the outcome to ensure that the project will be implemented (p.225).

Avoiding this pitfall requires the integration of project planning programs with the agricultural land management planning program for Crown land. In application, the agricultural development of suitable unalienated areas, including alternative project planning proposals, would be the major component of the region's agricultural land management plan. Finally, the agricultural land management planning program should be
integrated into the overall Crown land management planning program (see Figure 1.1).

1.5 The Identification and Definition of Objectives

Identifying and defining clear objectives and goals is critical to the success of agricultural land development planning. (Vlasin and Bronstein, 1979). Without clear objectives, resource assessment and implementation mechanisms can be misdirected. For example, land may be cleared just to create high figures for total acreage, but with none of the other programs in place to complete development, soil erosion may quickly destroy the resource.

Mollett (1984) states that agricultural planners do not decide on objectives: rather they provide guidelines to those who do decide so that the decision-makers have the opportunity to make rational choices. This is particularly true at a broader policy level. He suggests:

Planners must realize that economic objectives should conform to social and political realities and aims rather than the other way around... the main purpose of planning is not to maximize cost-effectiveness but to achieve social and political objectives(p.43).
Figure 1.1: Structuring and Scoping The Planning Program

- Provincial Crown Land Management Planning and Policy Statements
- Provincial Agricultural Land Management Planning and Policy Statements
- Regional Crown Land Management Planning and Policy Statements
- Regional Agricultural Land Management Planning and Policy Statements
- Sub-regional Crown Land Management Planning
- Sub-regional Agricultural Land Management Planning
- Agricultural Production Project Planning
- Provincial, Regional, Sub-regional Agricultural Planning and Policy
Mollett proposes that objectives for agricultural development be substantive, limited in number and that the ends be distinguished from the means. To achieve self-sufficiency in food production is an objective, while subsidizing land clearing is an implementation program or means.

Guidelines for the identification and definition of objectives can come from a variety of sources:

- major policy statements;
- policy statements of other agencies;
- assessment of local population and industrial requirements, dependencies, trends and problems;
- consultation of various public and private groups involved; (Roberts, 1979).

After the initial objectives have been defined, they may be adjusted at a later date.

1.6 Assessment of Environmental and Socio-economic Factors

Agricultural land development plans will succeed only if they are physically and biologically possible, economically feasible, and institutionally and socially acceptable (Barlowe, 1979). Changes, trends and conditions both within the spatial or sectoral area and without these areas but having an impact on the area being studied are important for planning (Hobbs, 1974). Allocating benefits and costs to different people makes the planning process inherently political (Vlasin, 1974). Cartner
and Richards (1983) state:

Planners... must be equipped to deal with technical questions of supply-demand and land conditions as well as with the value-laden questions of social equity and political feasibility. This requires political awareness in addition to technical competence (p.80).

It is through the assessment stage that the planning process attempts to crystallize and integrate social, economic and environmental factors.

Table 1.2 summarizes the main points pertaining to the environmental and socio-economic factors to be reviewed in most agricultural land development planning processes. Issues and methods in assessing the more critical factors will be reviewed now in greater detail.

1.6.1 Environmental Factors

Climate, topography and soils determine the absolute limits of cultivability (Williams, 1974). For example, hardy crops such as barley and forage require a minimum of 50 to 59 freeze-free days (the mean number of days between last spring-frost and first fall-frost) at interior locations and 80 to 98 days on the coast and a range of growing degree days above 5° of 1030 to 1169. (Air Studies Branch, 1981).

Climatic conditions are important in both the macroclimatic or regional context and the microclimatic or local context. Wide variations can occur among microclimates within the same
macroclimatic region. Therefore, it is desirable to study generalized microclimatic conditions to define this variability and, consequently, determine an area's suitability for crop production. As well, climatic limitations, especially precipitation, should be evaluated in the context of specific crops.

Soil map units identified in a soil survey can be very useful to the planner by bringing together a wide variety of factors which influence the land's ultimate capability (Johnson and Bartelli, 1974). The better soils for general agricultural development are mineral soils which are level, well-drained, non-stony, deep, highly fertile, non-erosive, and which have a pH that is neutral to slightly basic and which have no restrictions for normal tillage.

Existing vegetation must be considered when developing agricultural land. If forests exist in the area to be developed, they can create a considerable expense for the farmer during land clearing. This expense may be offset by the sale of timber if property rights to the timber are conveyed to the farmer upon acquisition of the land. The extent of forage suitable for grazing livestock is another basic element of the resource inventory. Wildlife information, such as predator density and ungulate distribution, will give the planner data for calculating the cost of wildlife control measures and potential impact.
Table 1.2: Environmental and Socio-economic Factors for Agricultural Development on Crown Land* (relevant sections of text in parentheses)

<table>
<thead>
<tr>
<th>ENVIRONMENTAL FACTORS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical base capable of supporting sustainable agriculture- soils, water, climate (1.5.1)</td>
<td></td>
</tr>
<tr>
<td>Biological resources- plants and animals, indigenous and introduced (1.5.1)</td>
<td></td>
</tr>
<tr>
<td>Ecological relationships and capacities (1.5.2)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIO-ECONOMIC FACTORS (1.5.3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance with legal requirements, political practices, traditions and objectives</td>
<td></td>
</tr>
<tr>
<td>Compliance with accepted customs, attitudes and beliefs of society</td>
<td></td>
</tr>
<tr>
<td>Adaptable existing administrative institutions</td>
<td></td>
</tr>
<tr>
<td>Demand for land and products</td>
<td></td>
</tr>
<tr>
<td>Effective marketing, transportation, storage and other infrastructural arrangements</td>
<td></td>
</tr>
<tr>
<td>Efficient and ultimately profitable input-output relationships</td>
<td></td>
</tr>
<tr>
<td>Equitable distribution of income and other benefits</td>
<td></td>
</tr>
</tbody>
</table>

*Adapted from Barlowe (1979); Roberts (1979); Box and Dwyer (1979)

Determining potential vegetation is important for both range and crop uses on agricultural land. Yield and variety trials should be conducted in areas of major new land
development before land clearing starts in order to determine the most suitable crop varieties, if any (Box and Dwyer, 1979).

1.6.2 Resource Inventories and Evaluations

Several methods are used in modeling ecological relationships and capacities for environmental systems. Land classification is the most important method for planning agricultural land development. Land classification involves the identification, description, analysis and evaluation of land resources. In agriculture, one of the most widely used land classification formats is the soil survey. Climatic surveys are also conducted but climatic data are often consolidated into the soil survey or combined with soils information to develop capability classifications.

Soil surveys are conducted at five different survey intensity levels, from a level five survey suitable for broad provincial or regional planning down to a level one survey suitable for intensive research. Map scales vary with 1:250,000 most widely used at level five to 1:5000 at level one (Valentine and Lidstone, 1984). Soil surveys, as primary inventories, can be interpreted so as to provide a number of secondary inventories or evaluations within land classification such as yield potentials, Storie index, and capability classification for each map unit.

The most commonly used land classification system in Canada is the Canada Land Inventory. The Canada Land Inventory (CLI) for agriculture is a soil capability classification based on:
the effects of combinations of climate and soil characteristics on limitations in use of the soils for agriculture and their general production capacity for common field crops (Environment Canada, 1972, p.5).

The CLI capability classification makes several assumptions including the completion of certain improvements and a highly mechanized level of modern agriculture. Limitations are not cumulative (Singer, Tanji and Snyder, 1979; Ministry of Environment, 1983). That is, a class is based on the most restricting factor and not combinations of factors. Bearing these assumptions in mind, the agricultural planner should use any capability classification map in conjunction with the original soil survey.

Resource inventories and evaluations are also available from other sectors for forestry, wildlife, minerals and recreation. The Canada Land Inventory has mapped capability classifications for recreation, forestry and some species of wildlife. Resource information from these sectors is important for evaluating the impacts of any associated activities on agriculture and for determining opportunity costs associated with agricultural development. Opportunity costs are, however, discussed more appropriately in a consideration of economic factors (see below).

Ecological land classification techniques are an approach to primary inventory of resources which bring together several of the major environmental factors in an ecological approach to classification. Terrain, hydrology, vegetation, wildlife and
climate are combined to produce ecological map units which display common ecological features. Map units are not restricted to a narrow range of soil properties as they are in soil surveys. Surveys are conducted at five different intensity levels, similar to those in the soil survey. The advantage of ecological land classification lies in the range of information provided for each map polygon and the possibility of evaluating the same polygon for a full range of resource uses.

1.6.3 Socio-Economic Factors

The social system affecting a planning area provides the legal structure and political mandate for planning action. Local community members' support or animosity often influences the success or failure of a planning process. In developing Crown land for agriculture, the agencies involved often deal with the creation of new farming communities. Pressures for development frequently come from adjacent communities and intense political lobbying is commonplace. These agencies must ensure that development corresponds to their legislative mandate but is also politically and socially acceptable. It is important to assess the impact of potential development scenarios on the social structure of an area. It is also important to assess the social factors required for development to proceed.

Frequently, economic factors receive little attention in planning agricultural land development (Mollett, 1984). Often, if funding is available and the land is more or less suitable, projects are implemented. Economic factors are significant in the context of the costs and benefits of implementing the
agricultural land development plan and developing the associated infrastructure which is often external to the specific plan.

Among the economic factors which warrant assessment in agricultural land development planning are:

- infrastructure and servicing;
- market and transportation costs and facilities;
- demand and production associated with various combinations of inputs;
- farm size, tenure and expansion;
- economic impact (Barlowe, 1979).

Some of these aspects may be in the purview of an agency's land development planning program, such as developing an associated marketing system, or they may be external to that agency's program and may be linked to another planning program in another Ministry, such as developing and expanding a provincial marketing system. Whether a direct aspect of the land development planning program or not, these economic aspects must be integrated into individual planning processes. This is where coordination is so important.

Many infrastructural requirements must be subsidized by government, especially in the early stages of development. Often the development of other industries such as forestry or petroleum is the only way to provide services such as transportation, electricity, schools and health-care (Kellogg, 1975; Peterson, 1972). Many services and essential
infrastructure such as credit, irrigation water, extension and agri-business can only be provided when the total number and production of farms is large enough to support them. The agricultural land development planning system must evaluate costs and benefits of the required infrastructure both to the farming community and to society as a whole, for the economic viability of developing new areas often hinges upon its provision (Cochrane, 1974).

Other economic considerations include the need for demand and supply projections for the outputs of any new agricultural development. The system of tenure can mean the difference between tying up scarce capital in freehold acquisition or investing it in other aspects of management when land is held leasehold. The size of an operation influences the ultimate commercial viability of any farm. Farm size should be studied in the context of traditional regional farm sizes, demand projections, costs, returns on investment, type and yield of commodity and land quality. Flexibility in future expansion of new farm units should be a consideration in initial land dispositions and the creation of reserve areas.

The ranges of government programs at various levels to promote and subsidize agricultural development are often inadequate, overlapping or contradictory. Frequently, these programs have to be restructured to become more effective (Lassey, 1977).

Many methods are available to the agricultural planner in economic impact assessment. The most important method in impact analysis are economic base, income expenditure and input-output
analysis as well as computer simulation. In evaluation analysis, the most common method is benefit-cost analysis, but other approaches such as the planning balance sheet and comparative cost analysis may be appropriate (Roberts, 1979). These techniques can be used to assess one project in isolation or to assess entire alternative strategies. Techniques have been devised to integrate parameters from the various systems to provide a more comprehensive approach to land classification. These techniques are relatively complex and probably useful only over a short timeframe due to fluctuating economic conditions (Vink, 1975).

In summary, the inventory and evaluation of environmental and socio-economic factors is described by Roberts (1979) as an exercise which:

... aims fundamentally at improving understanding of the amount and character of demand that will be placed on the land resource and the capacity of the land to support various uses... The character and depth of inventory and analysis undertaken in a particular land use planning effort will depend upon professional judgement, the resources available, the type of land being planned... and the demands of those with an interest in the planning effort... (p.54)

1.7 Preparation and Evaluation of Alternative Strategies and Selection of the Preferred Strategy

An agricultural land development strategy integrates the various implementation measures — policies, programs and projects — in an approach to achieving objectives (Mollett,
Agricultural land development strategies compromise among the conflicting aspirations of participants in the planning process. They must also optimize the use of scarce resources and take advantage of more plentiful resources. An agricultural development strategy must answer the questions regarding what action is needed to achieve objectives, how actions are to be implemented, who will implement specific actions and the timing of implementation (Mollett, 1984).

Alternative strategies are based usually upon the planning exercise's objectives. They draw predominantly upon the inventory and evaluation of environmental factors and are confined by the level of financial resources available for implementation. Generally, a range of three or four alternatives are developed, varying only incrementally from each other. Resource development is, however, a common theme.

Alternative strategies to agricultural development may exist such as forestry or recreation, and this is where opportunity costs play an important role in comparing the benefits of one resource use to another. Alternative strategies can also exist within a plan for agricultural development between policies, programs and projects to provide various mixes and alternative outputs. One cost-effective alternative to developing new land is the investment of public funds to intensify production in established farming areas with existing infrastructure (World Bank, 1978).

Planners or administrators may select the preferred strategy, however, elected officials are the usual decision-makers. It is during the selection of alternatives as well as
the setting of objectives that the inherently political nature of the planning process can be perceived best (Vlasin, 1974). At this stage, the process has been criticised frequently because of perceived manipulation. The possibility of manipulation can be decreased by designing effective public participation and by ensuring a high degree of coordination.

1.8 Implementation

The three main elements used in implementing an agricultural development strategy, as defined by Cochrane (1974), are policies, programs and projects. A policy is a course of action pursued by government and involves the statement of a purpose and the taking of actions to realize that purpose.

Programs are defined as a set of procedural steps for implementing a policy. Programs can be fiscal, such as low interest loans to farmers, regulatory, such as supply management, administrative, such as extension, or promotional such as a 'buy local' program.

A project is a self-contained activity which is usually location-specific, often involves the construction of capital structures or the making of capital improvements and has a limited life span. Cochrane (1974) terms projects the "building blocks of development" (p.126) as many of government's land development programs and policies are focussed at the project level. Projects tend to be attractive to decision-makers for two reasons. First, tangible results are often achieved in a short time and, second, capital funding is easier to obtain than
increased current or operational funding. Whether the project fits in with an overall strategy for agricultural development or, conversely, obstructs an overall strategy, is sometimes not considered.

Production projects should be preceded by experimental, pilot or demonstration projects. In actually developing projects, the first step is a preliminary assessment of the nature, size and number of potential projects. Projects must then be listed in order of priority, because it is usually not feasible or realistic to try to implement the whole range of potential projects at the same time. This is accomplished in an agricultural land management plan (see Section 1.3.1). Mollett (1984) recommends that the implementation agency be involved in both plan and project formulation to ensure that the objectives are agreed upon and understood.

Within specific projects, critical elements must be flagged to ensure eventual success (McAllister, 1977). Many projects flounder because technical feasibility has often been the only precondition in project implementation (Mollett, 1984).

1.9 Monitoring, Evaluation, Feedback and Iteration

Monitoring, evaluation, feedback and iteration should be built into the agricultural land development planning exercise from the beginning (Mollett, 1984). These elements are linked, with monitoring preceding evaluation which then leads to feedback, and then the relevant elements of the process are repeated based on the new information.
A monitoring system observes, records, analyses and presents relevant events and results to process managers (Casley and Lury, 1982). In defining evaluation vis-a-vis monitoring, Casley and Lury (1982) state:

> Evaluation will draw on the data generated by the monitoring system to help explain the trends in effects and impact of the project [or plan]. Monitoring data may reveal significant departure from expectations which may warrant the undertaking of an on-going evaluation exercise... (p.4)

The success or failure in the implementation of agricultural land development plans is often difficult to measure. Projects, programs and policies are not ends in themselves and can be evaluated only in terms of farmers' profitability and productiveness in response to particular initiatives. Evaluative standards or criteria often used in planned agricultural settlement include the value of increased output in comparison to the costs of the development strategy and, second, the degree to which the plan's socio-economic objectives are achieved.

1.10 Coordination

The farm is the single unit of operation on which the activities of all the various institutions affecting agriculture converge (Mollett, 1984). Agricultural land development requires competent and effective action from a broad set of interrelated economic and social forces. A critical aspect of planning the
agricultural development of Crown land is coordinating these various influences to achieve successful and sustainable agricultural development (Cochrane, 1974). A lack of coordination is often a result of several factors (Mollett, 1984):

- competition among agencies at various levels;
- misperception of potential benefits;
- unwillingness to share risks;
- heavy time requirements;
- negative experience with past collaboration;
- shifting or misunderstood responsibilities and lack of a precise mandate.

A lack of coordination may result in a seemingly successful single program eventually causing more problems than it solves. Adequate coordination can hinder maximum efficiency in one activity or sector, but it can maximize efficiency in the pursuit of broader social, economic and environmental objectives involving many sectors (Lassey, 1977). This is especially true in Canadian agriculture where constitutional powers are shared between the provincial and federal governments.

Methods such as environmental mediation or bargaining show promise in achieving improved coordination among various levels of government and among various agencies within government (Dorcey, 1983). This method is used to a certain extent through
the planning team approach discussed in the case studies (Chs. 4 and 5).

1.11 Public Participation

Public participation can be expressed in terms of a continuum from an organizational-expert system with minimal public involvement to a democratic-participatory system which involves the public directly throughout the entire planning process (Erickson, 1980). Erickson (1980) lists the arguments commonly raised against broad public participation in the planning of agricultural development on Crown land. These include:

• the highly technical, complex nature of resource issues;
• the fostering of confrontational attitudes;
• cost and time;
• lobbying for local interests and special privileges;
• the difficulty of assigning weight to public input;
• the potential for manipulation of public involvement by the planning agency;
• the value-laden and subjective manner in which objective setting and data collection and other steps of the planning process will occur with public participation.
However, opponents of the organizational-expert system hold that technocratic decisions are often based on unclear objectives, that data are often insufficient as a sole rationale for decisions, and that resource agencies tend to select alternative strategies consistent with narrow agency values (Erickson, 1980). The public can present a wider range of alternatives and can offer critical support for a process with which it identifies and in which it has been involved in (Nichols, 1967) If the public is not involved, antagonism may arise between the public and the planning agency.

I concur with the views of Hendee, et al., (1974) that the main purpose of public participation in resource management is to obtain a measure of public opinions and values, not to dictate decisions to be taken. In most planning processes, there are a wide range of diverse interests. The values represented by these interests can often be conflicting and, if public participation is poorly managed, lead to confrontation. Values are not only held by the public but also by the various resource sector agencies involved. One of the most valuable contributions of public participation is to inform the participants of the magnitude of frequently divergent values involved. As a result of this knowledge, necessary compromise may be achieved more readily.

1.12 Summary

The idealized planning process as applied to the agricultural development of Crown land creates a complex array of issues and concerns which should be addressed. All of the
elements of the process are interdependent. Assessment of environmental and socio-economic factors, for example, influences the design of implementation mechanisms, public participation, objective setting, development of alternative strategies and so on. The structure and scope of the overall planning program must be flexible and adaptable to local circumstances. These circumstances may also dictate the emphasis of certain process elements over others in specific planning exercises. Yet, it is reasonable to assume that the neglect of key elements will affect the integrity of the entire process. Thus if socio-economic factors, for example, are inadequately addressed, alternative strategies and implementation mechanisms may be inappropriate.
REFERENCES


Fairbairn, K.J. And Ironside, R.G. 1974. An Appraisal of


CHAPTER TWO

PLANNING THE AGRICULTURAL DEVELOPMENT OF CROWN LAND IN THE MARGINAL FRINGE
2.1 Introduction

The planning process outlined in the previous chapter presents a general approach to planning agricultural development on Crown land. However, in each particular planning exercise, the general planning process must be adapted to regional conditions which distinguish one planning area from another. The potential and problems of planning for agricultural development in an urban, generally southern, area of Canada are different than planning in a more northern, rural region.

For some of the elements of the idealized planning process, marginal land development may demand no more or less attention than in planning the development of land in the agricultural heartland. In this section, I focus on the assessment of environmental and socio-economic factors, for it is the status of these which determines whether the land is marginal or non-arable. This places a special onus on those responsible for the initial inventories. How the planning process is adapted to marginal fringe conditions is analysed later in several case studies.

2.2 Assessment of Environmental, Economic and Social Factors in the Marginal Fringe

Climatic restrictions in southern agricultural areas as opposed to the marginal fringe are not such an overriding factor in determining crop type, yield and, therefore, the economic viability of farm units. The generally harsher climate of the marginal fringe, when combined with adverse soil conditions,
makes farm viability an increasingly tenuous proposition. Transportation and marketing obstacles also increase costs for the marginal fringe farmer as opposed to his southern counterpart. Infrastructure, often taken for granted in the agricultural heartland, may never be provided in the marginal fringe. While 20 hectares producing strawberries in the urban fringe of Vancouver may be a lucrative business for a farmer, 200 hectares in forage or barley near Fort Vermilion, Alberta may mean a subsistence standard of living for the marginal fringe farmer.

The land management planning process in the marginal fringe region must first address itself to which, if any, crops can be grown in this environment that will provide a sufficient return on public and private investment to warrant development. A sufficient return on investment may still be a loss if the political and private decision-makers deem a certain level of losses acceptable. Usually, this is when government subsidies are introduced. An inventory and evaluation of the environmental system which displays potential for development is a prerequisite for detailed economic analysis.

2.2.1 Environmental Factors

Climate and soils are the two critical environmental elements in determining the agricultural capability of land within the marginal fringe. Geomorphological aspects, such as topography, are usually reflected in the climatic or soil capability of a region for agriculture. Both soils and climatic conditions are not as well known in the marginal fringe region
as in the agricultural heartland (Williams, 1974). This is due to the lack of climatological stations and less detailed coverage by soil surveys. The lack of resource information is important because the combination of microclimate and soils with the management techniques of the farmer will determine the yield of each farm unit. In the marginal fringe, conditions can change dramatically from year to year and yields can vary just as dramatically (Ironside, et al., 1974b).

Arable soils in the marginal fringe tend to be more disrupted by non-arable, mineral or organic soils than in the southern heartland. This means that the highly mechanized, large-scale commercial operations typical of Canadian agriculture are at an added disadvantage in farming around these non-arable areas. As well, infrastructure costs become even higher per hectare of land farmed. Among the many soil limitations for agriculture in the marginal fringe are poor drainage; steep, long or complex slopes; low fertility and low water retention capacity; salinity; acidity; flooding; stoniness; shallow depth to bedrock or compacted layer and; susceptibility to wind and water erosion. These restrictions must be identified in sufficient detail to aid in accurate delineation of viable farm units. To become economically viable in the marginal fringe, farms are becoming highly mechanized and farmers are working increasingly larger acreages as quickly as possible to allow the economies of scale to offset generally lower yields and higher costs. This approach causes severe erosion, particularly on the more erosion prone soils.

Unfavourable climatic conditions are often compounded in
marginal fringe regions. Heavy precipitation in the spring, combined with a short growing season and a late snowmelt, is a frequent occurrence. The short growing season and often shorter freeze-free period are the most important climatic limitations (Beattie, Bond and Manning, 1981), although longer periods of daylight during the growing season can compensate for these limitations and allow the production of hardy, fast-growing and fast-maturing crops such as barley, forage and oilseeds (Ironside, et al., 1974b). The lack of soils and climatic data can make the job of economic analysis even more difficult and uncertain.

2.2.2 Economic Factors

In terms of economics, marginal fringe farmers are at a disadvantage compared to their southern counterparts. Environmental conditions generally dictate lower yields and higher input costs to overcome the restrictions imposed by these conditions. The marginal fringe farmer's problems are compounded when he attempts to simply duplicate southern cropping practices and to compete in the market with the same crops that are produced in the South. Not only do non-fringe producers have a comparative advantage resulting from better environmental conditions, but they are closer to markets and infrastructure. They have lower transport costs for required inputs as well as greater selection and availability of these inputs. Southern farmers produce much larger volumes of commodities, resulting in an even greater comparative advantage in relation to freight rates (Ironside, et al., 1974b).
The generally lower rates of return on labour and investment in the marginal fringe mean that the farmer has less of a chance to expand his landbase and purchase new equipment even though land is significantly cheaper (Beattie, Bond and Manning, 1981). Farm size is below the average size further South, and there is less renting, which means more scarce capital is tied up in the land (Wonders, 1975). New farmers in the marginal fringe tend to be young and relatively inexperienced which makes it difficult to get credit and to expand. Many of these factors contribute to and may even accelerate the economic marginality of these areas (Beattie, Bond and Manning, 1981).

Government has been criticised for fostering the development of marginal fringe regions with subsidies that could provide a better return elsewhere (World Bank, 1978). McCuaig and Manning (1982) suggest that government subsidies have "insulated the farmer from the consequences of failure" (p155). As farm area increases in many regions of the advancing marginal fringe, increases in farm population and number of farms does not keep pace. Farm enlargement is going on in an attempt to overcome some of the disadvantages of the fringe and it reflects a general national trend. This means that the cost of providing services to a few people spread over broader areas will be higher than if rural populations were increasing (McCuaig and Manning, 1982).

Another problem in the marginal fringe is that many farmers need to become part-time operators. Since it is difficult to make a living from farming alone, it is necessary to branch out
into forestry or get a job in the oilfields. Consequently, production systems more suitable to the marginal fringe, such as livestock operations, cannot be utilized, due to the periodic absence of the farmer. A broader aspect of this issue has been raised by Kellogg (1975). In fact, many of these farms in the marginal fringe would not exist were it not for the associated and adjacent oilfield and forestry development and the employment which it provides. Sectors such as petroleum, mining and forestry often develop or share in the development of much of the infrastructure needed for farming. Encouraging part-time and often uneconomic farming developments in the marginal fringe may seem more logical if viewed as part of a broader rural development strategy. If this is the case, the viability of the agricultural sector may be only one consideration in a host of social and political objectives. Increasingly, agriculture is viewed in this context of its relationship to broader rural development factors related to regional economic and social life (FAO, 1979).

In spite of the many environmental and economic obstacles, agricultural land development does occur in the marginal fringe. Technological advances result in the development of hardier crop varieties and new machinery suited for marginal fringe conditions. Market conditions can become more favourable and encourage greater development. The increase in activity in another sector, such as petroleum, can also lead to growth in agriculture. A strategic location, with a captive market for example, can often spur farmland expansion (Francis, 1970). Not to be overlooked is the pioneering spirit of many marginal
fringe residents and their perception of an acceptable standard of living, which varies from the Canadian norm. The challenge to the planning process is to identify these favourable influences and to match them to land with the highest potential for sustaining agriculture.

When there are periods of agricultural advance in the marginal fringe, further development activity may be stimulated by the initial expansion. Success appears to foster the pursuit of new opportunities. A perception of unrealized opportunities is generated by each succeeding wave of settlement (Beattie, Bond and Manning, 1981). Agriculture in the marginal fringe economy has a much more stabilizing influence than extractive industries such as forestry and mining. Agriculture has tended to be a permanent economic activity, spending much of its money locally (Ironside, et al., 1974b). It is then critical that agriculture in marginal fringe regions exploit whatever comparative advantages it has and that development and operation of new farm units be as efficient as possible. This will ensure a sustainable agricultural sector in local economies.

2.2.3 **Social Factors**

Elements of the social and economic systems are by their very nature interwoven. Lifestyle in the marginal fringe may be judged inferior by urban standards. Lower levels of services in health, education and cultural areas are invariably commonplace. To an urbanite, this may be unacceptable, but to a marginal fringe dweller, the lack of civilization may be what attracts him in the first place. This attitude often extends to an open
hostility towards perceived government interference in resource development through processes like planning.

Among the many social characteristics of the marginal fringe which may affect resource development are:

- the large native population with high birth rates;
- the greater number of males than females;
- decreasing or steady level of population;
- population movement to urban centres;
- education levels far below average;
- high levels of transience and;
- lower health levels (Francis, 1970; Ironside, et al., 1974b).

Government agencies with a small staff are charged with administering very large areas in the marginal fringe. Many of these agencies are preoccupied by the problems of existing concentrations of population (Nichols, 1967) and have the added problem of a high turn-over rate of professional staff. Many government programs have objectives which directly conflict with stated government policy in other areas. Federal-provincial economic development agreements such as DREE, FRED and ARDA encourage the extension of agriculture in marginal areas while attempting to overcome the social, economic and environmental problems caused by similar developments in comparable areas. Cost-shared agreements are based often more on social objectives
than on attempting to "encourage sound resource management" (Beattie, Bond and Manning, 1981, p.37). Agencies are further hampered by a lack of data and of statistics to evaluate social and economic marginality in fringe regions.

2.3 Summary

The farmer in the marginal fringe faces a formidable task. The harsh climate, generally low capability land and heavily forested landscapes limit his management flexibility. The lack of farm related infrastructure such as transportation, markets and agribusiness is often a restricting factor. Social services, when present, tend to be expensive and sub-standard. Development decisions are based frequently on inadequate soils and climatic data. Lack of coordination among government agencies results in conflicting advice and often contradictory incentives offered to the farmer.

However, where there are areas of higher capability lands in the marginal fringe and where these are located near existing infrastructure or where infrastructure can be developed jointly with other sectors, then successful development has been realized. This is especially true when government support is channelled into these specific areas. More prosperous regions of the marginal fringe may be incorporated into the agricultural heartland as development stabilizes and the community matures. Decisions to encourage agricultural development in the marginal fringe must be based on environmental capabilities, long-term economic potential and the social requirements of the public involved (McCuaig and Manning, 1982). The challenge to the
planning process is to design strategies and implementation mechanisms that adequately address these three requirements to the satisfaction of decision-makers and the public. In order to determine which issues are being addressed in current planning programs, how they are being addressed and where this is being done, I outline an analytical framework in Part II and apply it to the case studies in subsequent chapters.
REFERENCES


PART II

THE CASE STUDIES
The Analytical Framework

I develop an analytical framework in this section based on the material in Part I. The framework focuses on the critical elements of planning programs and the planning process for agricultural development of Crown land in the marginal fringe.

1 What are the general environmental, social and economic characteristics of the case study area?

2 How is the official agency planning program for the agricultural development of Crown land designed?

3 How does the actual planning exercise compare to the agency's documented program?

4 In practice, how are planning areas identified?

5 How are documented objectives established?

6 How are environmental resources evaluated, and does the kind and detail of data and the intensity of surveys match the purpose and scale of the planning exercise?

7 How extensive is the analysis of present and required infrastructure and services, and is this analysis linked to other sectors' activities?
8 How are socio-economic factors assessed?

9 How are alternative strategies and projects prepared and who chooses the preferred strategy?

10 Which agencies implement the plan?

11 What mechanisms are used to implement the plan?

12 Who selects successful applicants and what criteria are used?

13 What are the current requirements for the disposition of Crown land for agricultural development?

14 What is the role of the Ministry of Agriculture and how are activities coordinated with other agencies?

15 How is the monitoring and evaluation process designed?

16 Does feedback and revision occur?

17 How is public participation incorporated into the process?
Table II-1 lists elements of the planning process discussed in Chapter 1 and the corresponding questions of the analytical framework. In the case studies to follow, questions from the analytical framework will be addressed in the sections whose headings correspond most closely to the elements of the planning process on the left of Table 3.

Table II-1: Table of Concordance—Elements of the General Planning Process and the Analytical Framework

| Structuring and Scoping the Planning Program | 2, 3, 4 |
| Objectives | 5 |
| Assessment of Environmental and Socio-economic Factors | 1, 6, 7, 8 |
| Preparation and Evaluation of Alternative Strategies | 9 |
| Selection of the Preferred Strategy | 9 |
| Implementation | 10, 11, 12, 13, 14 |
| Monitoring and Evaluation | 15 |
| Feedback and Iteration | 16 |
| Public Participation | 17 |
| Coordination | 3, 14, 10 and others |
Methods

The information presented in the following case studies is derived from a variety of sources. In the St. John's case, I draw on personal experience as I was supervisor of the planning program which is analysed. I also conducted a telephone interview with one of the Department's present supervisors and received detailed correspondence.

I worked in the Peace River region in the summer of 1984 and have first hand experience of agricultural conditions there. While in the region, I interviewed planners and officials of the Ministry of Lands, Parks and Housing who were in charge of planning in the Fort Nelson area. Many of the reports and surveys for Fort Nelson which I reviewed were provided by these officials. I also interviewed staff at the Ministry's headquarters in Victoria and, as well, soil surveyors who conducted a number of the land classification inventories. I conducted numerous telephone interviews and received correspondence from officials of the Ministry of Lands, Parks and Housing and the Ministry of Agriculture and Food. Correspondence also supplied information and materials from Alberta. I wrote several letters to various government agencies. All replied, many with lengthy analyses of the situations and a large volume of reports and surveys.

Reports, surveys, personal and library documents, official correspondence, personal and telephone interviews, and first hand experience form the basis for analysis in the following case studies. The first case is the St. John's area of Newfoundland. This is followed by Fort Nelson, British Columbia
and, finally, Fort Vermilion, Alberta.

The cases begin with a review of the area being studied and a summary of the overall planning program and the planning exercises to be analysed in the study area. The start of detailed analysis begins with a review of the overall structuring and scoping of the provincial agricultural land development planning program. Individual representative planning exercises under that program conducted within the case study area are analysed then in more detail. In conclusion, each case presents a summary of the strengths and weaknesses of the exercises and how they reflect on the overall program. The individual planning programs for the agricultural development of Crown land in the marginal fringe are tied together in Chapter 6 through a comparative analysis of all three case studies.
CHAPTER 3

CASE STUDY NUMBER ONE

ST. JOHN'S, NEWFOUNDLAND
3.1 Introduction

The St. John's urban region is located at the northeast tip of the Avalon Peninsula in Newfoundland (see Map 3.1). The region has the largest concentration of population in the province with 150,000 of the province's 550,000 people. St. John's is the capital and is the administrative, commercial and educational centre of the province. Twenty suburban and rural municipalities make up the remainder of the region. Many of these communities have experienced significant growth in the form of urban sprawl which has destroyed large areas of the region's best farmland. This loss is one factor contributing to the province's low level of agricultural production. The St. John's urban region, like other areas of Newfoundland, suffers from chronic unemployment and a relatively low standard of living. Many of the agricultural initiatives are linked to this problem.

St. John's has a temperate, marine climate which results in short, cool summers and relatively mild winters. Fog and windy conditions are common and can affect local growing conditions. Generally, with an average freeze-free period of 105 days, 1903 degree-days and abundant rainfall during the growing season, St. John's has suitable climatic conditions for the production of forage and various vegetable crops; however, feedgrains or wheat cannot be grown to maturity due to insufficient heat units (Rizvi, et al., 1971; Guthrie, 1978).

Arable soils, as in most of the province, are not abundant in the St. John's urban region, and most of the better soils have been irreversibly converted to urban uses. The bulk of the
THE DEVELOPMENT AREA OF ST. JOHN'S

MAP 3.1: THE DEVELOPMENT AREA OF ST. JOHN'S*

*Source: Soil and Land Management Division (See References Ch3) (1981)
region's soils are non-arable or marginal, derived from glacial tills and are shallow, highly acidic, coarse, often cemented, stony and occur on upland barrens or under a non-commercial boreal forest. Exposed bedrock is common and predominates in many areas. Organic soils are found in almost all low lying areas and often at higher elevations as well. Due to a large captive market, farmers in the St. John's urban region have invested considerable labour and expense over the centuries to upgrade their land. Fences made from stones, picked from the fields, are a common sight. A large concentration of livestock has allowed farmers to supplement the inherently low organic matter content of soils by applying animal wastes. Heavy applications of limestone and synthetic fertilizers are annual requirements. Soil drainage systems, while uncommon, are often required, and their absence has resulted in cultivation practices which cause significant erosion (Sudom, 1984).

Agriculture in the St. John's urban region is dominated by intensive livestock operations. The number and size of farms is small, almost insignificant by national standards. For the provincial industry, however, they represent the largest concentration of investment and production. Farms are also a significant component of the region's land use mosaic. Over 100 commercial farms are located on 4000 hectares with a further 8000 hectares in community pastures. Small parcel size, land fragmentation and a high proportion of rented land under short-term lease are among other marginal land constraints faced by local farmers. Dairy products, hogs, eggs, and vegetables are the main commodities. The region has 75% of the province's
cattle and over 50% of the province's hog production. Due to a lack of land, forage is imported in large quantities. Insufficient land is also causing a problem for manure disposal. To overcome these limitations, farmers, reflecting the national trend, are attempting to enlarge their operations, reduce costs and become more efficient (Lidstone, 1980).

For the purposes of this study, I will review an area limited to that part of the St. John's urban region where significant agricultural expansion is occurring on Crown land. This is The Goulds-Kilbride in the southern part of the region (see Map 3.1). The area comes under the municipal jurisdiction of The Goulds and the St. John's Metropolitan Area Board.

The agricultural land of these areas falls predominantly within the boundaries of a provincially administered agricultural zone where non-agricultural uses are restricted. The zone or Agricultural Development Area also serves as a target area for government agricultural programs including property tax exemption and capital assistance (see Section 3.7.1).

The St. John's case study presents, primarily, an example of a project planning program. Some attempt is made at implementing an agricultural land management planning program, but overall Crown land management planning does not occur. In response to constraints faced by local livestock farmers, two major planning exercises under the project planning program were undertaken on Crown land in the area. The Goulds Forage Project is designed to increase local dairy farmers self-sufficiency in producing forage and thereby reduce dependence on costly, low
quality imports. The Cochrane Pond Farmland Development Project is proposed to rationalize community pasture boundaries, to provide large lots for confinement operations such as hogs and poultry, and to resolve conflicts with the Forestry Branch. These two planning initiatives encompass almost all the arable Crown land in the area (see Map 3.2).

The Goulds Forage Project was first formally proposed in 1975. The initial proposal went through a series of transformations until in 1979, when a project plan was accepted for funding under the federal-provincial, cost-shared Agricultural Subsidiary Agreement. The project has undergone three phases of development since then with a total of 26 lots covering over 900 hectares. A project manager was hired to coordinate development, and to the end of 1984, almost 200 hectares of land have been cleared.

The Cochrane Pond Farmland Development Project was first proposed in 1982 as the government was phasing out the Community Pasture Program. The area, adjacent to the Goulds Forage Project (see Map 3.2), contained two large pastures. The project plan was to reduce the size of the Cochrane Pond Pasture and create an area for confinement operations. Approximately 600 hectares over nine lots were proposed with provision for access roads and electrical servicing. The plan, as of early 1985, is still pending approval.
MAP 3.2: COCHRANE POND FARMLAND DEVELOPMENT PROJECT

*Source: Soil and Land Management Division (See References, Ch3) (1982*
3.2 Structuring and Scoping the Planning Program

Planning for the agricultural development of Crown land, falls primarily to the Land Use Section of the Agriculture Branch in the Department of Rural, Agricultural and Northern Development. In the St. John's Urban Region, the Regional Plan and the local municipal plans usually correspond to the Agriculture Branch's plans as well. The Department of Forest Resources and Lands recently has implemented a Crown land planning program, but this has been completed in only one region which is outside the St. John's urban region. This Crown land planning program is developed by the Land Management Division in consultation with other government agencies. Allocation of lands is by zoning to various resource uses based, primarily, on existing resource inventory information and agency objectives.

The Agriculture Branch has a documented planning program for the development of Crown land (Soil and Land Management Division, 1981). This program is published formally and put forward as official government policy. Figure 3.1 depicts this program which is to be applied in the province's seventeen Agricultural Development Areas (ADA). These areas include most of the province's 100,000 hectares (0.3% of the land area) of land suitable for farming (Department of Rural, Agricultural and Northern Development, 1983). The planning program depicted affects both private and Crown lands. It is intended to culminate in the production of Agricultural (or Area) Development Plans and the designation or zoning of these areas under the Development Areas (Lands) Act (RSN, 1970). So far only two areas, including the St. John's ADA, have been zoned for
FIGURE 3.1: PLANNING PROGRAM FOR AGRICULTURAL DEVELOPMENT AREAS*

*Source: Soil and Land Management Division, 1981
agricultural use. This program corresponds to the Agriculture Branch's Five Year Development Plan and is tied closely to the Department of Regional Economic Expansion's Agriculture Development Subsidiary Agreement (Department of Regional Economic Expansion, 1978).

The planning program depicted in Figure 3.1 includes elements of land use planning and land management planning developed at a regional level. It is not linked to an overall regional agricultural planning program nor to a general regional planning program, although elements external to the agricultural sector are included. Within the program, public participation and interagency coordination are significant elements. Individual planning exercise objectives are drawn from provincial sectoral and economic development strategies with a definite development or expansion orientation. The development of Crown land appears to be an integral part of this program, which includes a detailed consideration of economic, social and environmental factors. The Agricultural Development Plan, as an Area Development Plan, even has been formalized into the regulations governing the St. John's ADA (Nfld. Reg. 198/83).

Planning for other elements of agricultural growth such as marketing, training and finance has been developed at the provincial sectoral and intergovernmental levels. These plans then are implemented on a regional basis, sometimes with a connection to the land use planning program in a broad policy statement targeting programs to ADAs.

Agricultural Development Plans, as conceived in Figure 3.1, have not been completed. Instead, the development of
agricultural land has come as the result of an opportunity planning program for projects (see Section 1.3.1). These projects, such as the Goulds Forage Project and the Farmland Development Projects, involve the inventory of agricultural capability and a limited assessment of economically viable modes of production. On the basis of this information, lots are laid out, roads and electrical servicing planned and disposition methods and conditions are proposed.

3.2.1 Planning Area Identification

Areas for planning the agricultural development of Crown land under the project planning program are identified in two general ways. First, ADAs are delineated by planners or politicians, not by request as in Figure 3.1. The limited areas suitable for agricultural development are well known, and these were automatically designated. Boundaries are drawn by consulting available, generally small scale, CLI agricultural capability surveys and by assessing established agricultural land use patterns. Once areas are identified, more detailed land use, land ownership and soils studies are conducted. In what is essentially an overlay technique, unalienated areas of arable Crown land are identified and, if they occur in large enough tracts, they become the subject of a Farmland Development Project.

Another, more reactive approach to determining project areas is used in the Goulds-Kilbride area. This approach involves the planning of Crown land which has either long been recognized as an area for potential expansion or which, due to
changing circumstances, becomes available and is in demand. In these latter areas, land ownership studies are conducted to distinguish alienated land from Crown land.

3.3 The Identification of Planning Exercise Objectives

Documented objectives for the planning exercises initiated in the Goulds-Kilbride area come, essentially, from the Agriculture Development Subsidiary Agreement signed by the two governments in 1978 (Department of Regional Economic Expansion, 1978, p16). The Agreement consists of eight programs, one of which is land development. A main element of this program was the development of an area of Crown land in the St. John's area for forage production, the Goulds Forage Project.

The other planning exercise, the Cochrane Pond Farmland Development Project, is, by default, attempting to achieve one of the main objectives in another of the Agreement's programs, Land Use Planning. Under the Land Use Planning Program, land use planners are hired to prepare Agricultural Development Plans for the ADA's. These plans are to include land assembly and other elements to "maximize the utilization of the soil resource for food production" (Department of Regional, Economic Expansion, 1978, p.16). Instead of dealing with the complex issues of idle, underutilized and undeveloped private lands, of generally higher capability than Crown lands, planning staff directed their attention to the one area where results could be produced quickly to meet the objectives of the Land Use Planning Program. The planning program was then initiated to develop farmland development projects on Crown land, mainly within the proposed
3.4 Environmental Factors for Planning

Climatic data for the Goulds-Kilbride area is based on information provided by Agriculture Canada's agrometeorological station, four kilometres from the Crown land area planned for development. Climatic resources for the area are not mapped, nor is microclimatic data available. However, given the climatic requirements for forage production, more detailed data may not be required as the available information indicates no climatic limitations for traditional local forage crops.

The Avalon Soil Survey (Heringa, 1982) is the only soil survey which has been conducted in the area. It is an intensity level 4 survey, published at a scale of 1:100,000 and, as such, is suitable for broad agricultural planning, not detailed planning of specific areas for farm lot layout. The entire Goulds-Kilbride area is covered by just a few map units. As part of the Canada Land Inventory (CLI) process, an agricultural capability map of the area was published based on the same soil survey and using the same delineations. Most of the Crown land proposed for development is mapped as complexes of classes 5, 6, and 7 with class 6 predominating. Class 6 land is very marginal land capable of producing only perennial forage crops and improvement practices are not feasible (Environment Canada, 1972).

In 1975, a second agricultural capability map of the 5500 acre Goulds Forage Project area, produced at a scale of 1:25,000, upgraded much of the area significantly, with major
portions of class 4 land. Finally, in 1978, a survey was carried out at an intensity level 3 and a scale of 1:12,500. This is, essentially, a capability inventory which uses map units termed performance-management units (Guthrie, 1978).

Performance-management units are a modification of the national CLI system to local conditions. Particular limitations are defined more specifically. Instead of a Class 5p which defines land suited to only forage production because of stoniness, class 5p1, 5p2 and 5p3 are developed with class 5p3 being the stoniest requiring a high degree of stone removal and with stones less than one metre apart.

As a result of the survey all land in the study area is classified as class 5 or 7 except for 2.9% of the area, mainly private land, as class 4. Over 53% of the area is classified as unarable while 65% of the remaining arable land is classified as 5p3 or worse (Guthrie, 1978). The report also notes dissatisfaction with the quality and number of site inspections due to a variety of restricting factors. No soil management information beyond existing limitations of stoniness and wetness is provided. This survey is restricted to the Goulds Forage Project area only. There are no detailed surveys in the area of the Cochrane Pond Farmland Development Project beyond field investigations which indicate poorer soils, due to excessive stoniness, than those in the Goulds Forage Project.

The intensity level of the Avalon Soil Survey does not provide enough detail for farm unit layout, road construction or on-farm soil management. The performance-management unit survey is not a soil survey but an agricultural capability survey. It
is of sufficient detail to provide some information for initial clearing; however, there is no information for on-farm soil management. In practice, once lots were developed, significant inaccuracies were found in the survey. This is probably due to insufficient site inspections as noted in the report (Guthrie, 1978).

The main process for evaluating vegetation, wildlife, water and related resources is by referral to other government agencies. Forest capability maps are available at a scale of 1:50,000, but these indicated the entire area as non-commercial forests. Forestry Branch inventories and actual development revealed that the capability maps were not accurate.

Neither the Agriculture Branch or any other agency conducted an adequate review of forest, wildlife, water or recreation resources before development began. The significance and value of these resources was not determined prior to agricultural development. The Forestry Branch strongly objected to the project on the basis of preliminary inventories it had conducted in the area. The lack of resource inventory applies equally well to the Cochrane Pond Farmland Development Project area. Only after an agricultural development plan was proposed for the area did the St. John's Metropolitan Area Board conduct a watershed study in one small part of the project area.

By default, the areas in both projects that are not suitable for agriculture or are already committed to other uses, such as forestry or recreation, are designated for non-agricultural uses. Land is not allocated on the basis of suitability but on the basis of perceived demand by the
agricultural agency. The absence of a detailed inventory of non-agricultural resources may bias development in favour of agriculture in the last heavily forested, accessible, large tract of Crown land adjacent to the St. John's Urban community.

3.5 The Assessment and Relevance of Socio-economic Factors in the Planning Exercise

In the plans for the Goulds Forage Project and the Cochrane Pond Farmland Development Project, it is assumed that there are no marketing constraints. Being adjacent to St. John's, the commercial centre of the province, it is also assumed that all the agribusiness, extension and financial services available to the region's farmers will extend to the projects. Existing road networks are identified and required new access and electrical servicing are indicated. (Soil and Land Management Division, 1979; Soil and Land Management Division, 1982).

There are no formal economic impact assessments of the projects. Total estimates are given of the costs to government and to the farmers, and benefits are listed in more qualitative terms. In the case of the Goulds Forage Project production will serve to:

- to offset imports of low quality, costly forage;
- to increase local agricultural self-sufficiency and;
- to expand agricultural activity (Soil and Land Management Division, 1982).
The sole calculation of benefits is an estimate of $400,000 per annum saving in the displacement of hay imports (Soil and Land Management Division, 1982).

After the project was initiated several reviews were made of the costs. In the Cochrane Pond Farmland Development Project, only non-monetized estimates of costs and benefits are given. Economic assessments, in the St. John's case, are not a prerequisite to development decisions, but only an input into the management process. The decision to develop was made prior to an adequate assessment of either environmental, economic or social factors.

3.6 Alternative Strategies and their Selection

Planning the development of arable Crown land in the Goulds-Kilbride area has not involved the serious consideration of alternative land uses except when a technical mistake in the St. John's Urban Region Plan gave the Forestry Branch an opportunity to dispute the planned agricultural use of land in the Cochrane Pond Farmland Development Project. Watershed studies of part of the plan area are delaying final approval of the Cochrane Pond Farmland Development Project Plan but, given past history, these should not alter the plan significantly.

It had been a foregone conclusion long before actual development of Crown land in the Goulds-Kilbride area that arable land would be disposed for agricultural purposes, despite renewed Forestry Branch objections. With the seven year reserve under the Crown Lands Act (RSN, 1970) placed on the Goulds
Forage Project area by the Agriculture Branch preventing dispositions, along with its location within the ADA and adjacent to commercial farms on one side and community pastures on the other, most agencies assumed the area to be predetermined already for agricultural use.

Within the confines of the agricultural objectives of the planning process, locational alternatives have been considered for agricultural development within the St. John's ADA but none of these are suitable. The Goulds Forage Project is put forward under three alternative strategies. The first strategy, advanced in 1975, is simply to follow the traditional homesteading approach and block out the entire area in regularly shaped lots to allocate to area farmers. In this plan, government will have to provide access roads as well. Due to the highly dissected nature of the land, this alternative was rejected. In 1978, as a part of the initial Agricultural Development Subsidiary Agreement, a second and alternative proposal to form a forage production corporation with the majority of shares to be held by area dairymen was put forward. The corporation would develop the entire area in a highly mechanized operation with financial aid from government and sell forage to local farmers. This alternative was also eliminated due, again, to the highly dissected nature of the land, which was not suited to large-scale mechanization. The final strategy and the one accepted by the various Subsidiary Agreement committees, the Minister responsible for Agriculture Canada and the provincial cabinet, was to allow for individual farmer lease and co-operative development. This approach was to be conducted under strict
conditions and with major cost-shared funding.

The other project, the Cochrane Pond Farmland Development Project is designed with only one strategy throughout, linking reduced pasture area with new confinement operation units, access roads and electrical servicing. The Cochrane Pond Farmland Development Project was initiated when the province decided to privatize the community pastures in the area. The original pasture boundaries incorporate far more land than was actually developed. When the pastures were leased to private interests, planners decided to reduce the size of the lease to the developed area while providing reasonable room for expansion. The remaining Crown land outside the two pasture boundaries, along with the adjacent Goulds Forage Project are the main development components in the Cochrane Pond Farmland Development Project, although, the Goulds Forage Project is, in fact, operating independently of the Farmland Development Project.

3.7 Implementation of the Plan

The Agriculture Branch is the main implementation agency; however, ultimate approval for the disposition of Crown land must come from the Department of Forest Resources and Lands. The major implementation mechanism is the Agriculture Development Subsidiary Agreement. Under this federal-provincial agreement, funding is provided to construct access roads of which 11 kilometres have been built to date in the Goulds Forage Project. Another 7 to 10 kilometres of roads plus electrical servicing is proposed for the Cochrane Pond Farmland Development Project.
However, this plan is not approved yet and the cost-sharing agreement has expired, with negotiations currently underway for a new five-year agreement. Money is also allocated in the Goulds Forage Project to hire a Project Manager to oversee the cooperative timber removal, land clearing and seedbed preparation.

Since development started, two more phases have begun adding additional farmers and additional units to the initial nine lots. A total of twenty-six lots are proposed in the Goulds Forage Project, totalling over 917 hectares. The Cochrane Pond Farmland Development Project has nine lots proposed totalling 600 hectares.

At the end of 1984, government, through the Agricultural Development Subsidiary Agreement, had invested approximately $600,000, resulting in the clearing of 175 hectares of land. This figure does not include salaries for staff or subsidies on limestone and financing. Farmers have contributed approximately $200,000. Anticipated total cleared area is in excess of 430 hectares (Soil and Land Management Division, 1982). By 1983, it was projected that 200 hectares would be in forage production. In fact, only 75 hectares were producing forage by the end of 1983 (Soil and Land Management Division, 1984).

3.7.1 Support Programs for Agricultural Development in the Marginal Fringe

The Department of Rural, Agricultural and Northern Development has two loan programs which can be applied to the development of new farms or to the expansion of existing operations. The Farm Development Loan Board can lend up to
$30,000 per farmer at an interest rate of eight percent. If refused by the Farm Development Loan Board, a farmer may apply to the Rural Development Authority for a loan of up to $25,000 at the same rate.

The most extensive range of support programs come under the auspices of the federal-provincial Agricultural Development Subsidiary Agreement. Funds are allocated to establish a province-wide vegetable processing and marketing system. Grants are made available for farm development, and land clearing is funded at a rate of $575 per hectare, plus a further grant of $250 per hectare once the land is in production to a maximum total of $25,000. Grants are also made available for up to 25 percent of the total costs of acquiring capital assets. This is increased to 50 percent of the costs in the case of silage and haylage storage facilities and equipment, and vegetable storages. Total assistance under all of these programs combined can not exceed $25,000. However, this sum is increased to $75,000 maximum for new dairy entrants.

Funding is also available for 100 percent of the costs of farm access roads, electrical servicing, road maintenance and the introduction of new technology. Special criteria for funding approval must be met in all cases. In the Goulds Forage Project, specialized machinery was purchased for land development under the Technology Transfer Program, a project manager was hired and legal surveys for lots were funded (Department of Rural, Agricultural and Northern Development, 1981).
3.7.2 Crown Land Disposition

Crown land is allocated for agricultural use under the provisions of the Crown Lands Act (RSN, 1970) and subject to the Department of Forest Resources and Lands' policy (Lands Branch, 1982). Generally, the following conditions apply to leasing Crown land for commercial agricultural development in Farmland Development Projects and in the Goulds Forage Project:

- land must be suitable for agricultural production;
- applicants must show that they are capable of becoming full-time commercial farmers;
- applicants must show that they can finance the operation;
- applicants must provide the Agricultural Representative with a five year development plan;
- 15% of arable land must be cleared and cultivated within 2 years, 50% within 5 years and the remainder within 10 years;
- land clearing must be according to Branch guidelines;
- land must remain in continuous production;
- all suitable timber must be harvested and utilized, and the remainder must be managed in co-operation with the Forestry Branch;
- any sale or transfer must be to an operation which will maintain forage production or other crops, as permitted, unless otherwise allowed by the Ministers involved (Soil and Land Management Division, 1984).

Tenure is by lease only with a 15 year term for expanding farmers and 50 years for new entrants. Lease rents are set at $2.54 per hectare per annum. Final approval of applications of 20 hectares or less rests with the Minister of Forest Resources and Lands, while applications of greater than 20 hectares must be approved by Cabinet. Land is leased only after the applicant submits a detailed development plan detailing farm skills, financial resources and a five year development scenario.
In 1972, the area of the Goulds Forage Project was reserved under the Crown Lands Act, restricting any further applications for land disposition. When the project plan was completed in 1979, it was referred to all involved government agencies including the St. John's Metropolitan Area Board. Meetings were held with various agencies to negotiate some of the outstanding problems, particularly timber removal. Although official agreement had not been received from all of the involved agencies, the project was beginning to pick up a momentum of its own, and after applicants had been selected they were quickly approved by the Crown Lands Branch. It often takes up to two years before a lease is finalized and applicants can begin development; therefore, permits-to-occupy were sought under the Crown Lands Act and development began.

Applicants for Crown land agricultural leases normally apply through the Crown Lands Branch regional offices; however, in the case of farmland development projects, a separate procedure is established with the Crown Lands Branch. Prospective applicants are referred to the Agriculture Branch, or they are told that no applications are being accepted if the projects plans are not finalized. In the case of Farmland Development Projects, advertisements are placed in local newspapers soliciting applicants. The Goulds Forage Project, however, was limited to dairy farmers in the Goulds- Kilbride area who, in the initial phase, were individually mailed applications and information. A Regional Selection Committee is established under the chairmanship of the Agriculture Branch and with representatives of the Branch's various divisions as well
as representatives of the Department of Forest Resources and Lands. The Regional Section Committee chooses the successful applicants without competition for individual lots.

3.8 Monitoring and Evaluating the Planning Exercise

A formal mechanism for monitoring and evaluating the planning process or the implementation components has not been established. In the Goulds Forage Project, certain targets are set in the manager's contract, in the annual budgets of the Branch and in the justification for funding to the DREE committees. When these targets are not met, there are few consequences. Monitoring is by a day-to-day contact of officials with the project and from quarterly reports of the manager. Annual reports are submitted by staff which review the progress of all projects or lack thereof. Revisions of the planning process occur periodically as problems are encountered.

Certain elements of the Goulds Forage Project, such as the specialized machinery, are the subject of individual monitoring and evaluation. A high rate of staff turnover, however, limit these evaluations. Evaluations of actual costs and benefits have been attempted on several occasions, but no formal report has been prepared. The Agricultural Development Subsidiary Agreement has as one of its eight programs, an evaluation component. Frequent staff turnover hampers this program and, to date, no overall evaluation of cost-shared programs has been released publically, although one is being prepared.
3.9 The Significance of Public Participation in the Planning Exercise

Although public participation is identified explicitly as a component of the overall planning program at the stage of initiating the Agricultural Development Plan (see Figure 3.1), in practice there has been only one instance of it actually occurring. This occasion was such a complete public relations failure that public participation has been, unofficially, deleted from the process. Among the factors causing this turn of events were:

- the late involvement of the general public in the planning process after ADA boundaries had been established;
- the presentation to the public of a plan that was essentially regional in nature and established zones of urban and other non-agricultural uses;
- the lack of initiation of the rural, isolated population into a process that was essentially alien to them and;
- the emphasis on zoning and regulation in the proposal, seemingly imposed by non-Newfoundland bureaucrats from the capital city.

During the aftermath of political turmoil, death threats and general public outrage, the Agricultural Development Plan was put on the 'back burner' and no further public involvement
beyond selected farmer interest groups was ever solicited in any land planning program.

3.10 Case Summary

The St. John's case study is, primarily, an illustration of an agricultural project planning program. The actual program for planning the agricultural development of Crown land bears little resemblance to the documented process (see Figure 3.1). Land management plans do not exist in the sense proposed for ADAs through which individual projects can be implemented. There is scant public participation nor is there an Agricultural Development Committee. Non-agricultural resources are given only a cursory overview. Social and economic factors are treated in a similar fashion. Program components are not linked to an integrated planning framework for the region. Nevertheless, in the case of the Goulds Forage Project, results have been achieved. These results may be costly, under-target and their implications have not been considered entirely. Land, however, has been developed and most of the farmers involved generally are satisfied. Managers of the Agricultural Subsidiary Agreement perceive the Goulds Forage Project as one of the most successful programs of the $16.3 million Agriculture Subsidiary Agreement.

The project planning program is conducted by the Agricultural Branch rather than by the Lands Branch. This direct involvement, coupled with the wide range of funding targeted at the projects by the Agricultural Branch, allows for rapid resolution of agriculturally related problems. The restriction of land disposition to applicants with demonstrated skills and
resources along with the low rental rates for Crown land, is a significant factor in ensuring the successful development of a very marginal land base. The proximity of a large and guaranteed market for agricultural products and the rural development aspect of the program in an economically depressed region makes the rationale of an otherwise dubious undertaking more comprehensible.
REFERENCES


Soil and Land Management Division. 1982b. Goulds Forage Project: Phase II. Department of Rural, Agricultural and Northern Development, St. John's.


CHAPTER FOUR

CASE STUDY NUMBER TWO

FORT NELSON, BRITISH COLUMBIA
The Fort Nelson area is located in the Fort Nelson Lowlands physiographic region of northeastern British Columbia. The area has a population of 5075, located mostly in the village of Fort Nelson and the nearby settlements of Muskwa and Old Fort Nelson. Fort Nelson is 450 kilometres north of the main agricultural centres of the Peace River District at Fort St. John and Dawson Creek (see Map 4.1). Economic activity is centred on forestry, sawmilling, petroleum and service industries. Development in these sectors was stimulated by the construction of the Alaska Highway during World War II and the extension of the British Columbia Railway from Fort St. John in 1968. The population of Fort Nelson has increased dramatically over the last three decades. This population increase is creating a greater demand for Crown land for agricultural production. The agricultural development of Crown land in the region is supported largely by income earned in other sectors.

The Fort Nelson area has a boreal climate which results in short cool summers and severe winters. Precipitation is adequate for most crops with 60% of the annual 423mm of precipitation falling during the growing season. Depending on elevation and, possibly, aspect, the freeze-free period may be as high as 119 days, with most of the sites suited for agriculture having a freeze-free period of up to 89 days. Shorter growing seasons are offset by long hours of daylight in the summer time. Growing degree-days may range from 1200 to 1500 on the best sites. The Fort Nelson area has climatic attributes sufficient to produce a wide variety of vegetables, cereal grains, oil seeds and forage
MAP 4.1: FORT NELSON DEFERRED PLANNING AREA PROVINCIAL SETTING*

*Source: Peace Region and Land Planning Branch (MLPH)
(See References Ch. 4) (1983)
crops. However, many of the areas with good climatic capability are not suitable for agricultural production due to flooding hazard, access limitations, dissected terrain and other factors.

The Fort Nelson area's arable soils are not as extensive as was previously believed before soil surveys were conducted. The total area of arable land represents less than 200,000 hectares. Much of this land is inaccessible and dissected by muskeg. Soils are derived from till, lacustrine, eolian and fluvial deposits. The luvisols and gleysols developed on lacustrine material and the brunisols and luvisols developed on eolian material display the highest capability for agricultural production. The morainal or till derived soils are, generally, of lower capability due to climatic, topographical and textural limitations. Fluvial deposits are limited due to periodic flooding. Soils are developed on a flat to gently rolling plateau and on the deeply incised river channels under a largely white spruce and trembling aspen forest.

Present agricultural activity in the Fort Nelson area is limited. About 20,000 hectares of land have been leased in 60 separate parcels over the past 20 years. Some 30 individuals were undertaking development in 1984, but only 19 of these could be considered active in their attempts to develop land (Bomford, 1984). Approximately 3200 hectares had been cleared to seedbed stage by 1984, but no crop was seeded that year due to severe weather problems. In 1983, about 480 hectares were seeded to crops of barley, oats and forage (Bomford, 1984). Range resources in the Fort Nelson area are also very limited and suited only to horses due to insects and climate. Much of the
agricultural land in the Fort Nelson area falls within the boundaries of a provincially administered agricultural zone where non-agricultural uses are restricted. The zone or Agricultural Land Reserve (ALR) can also be extended to newly leased lands outside the existing ALR boundaries.

The Fort Nelson case presents aspects of an opportunity planning program for projects and a Crown land management planning program. The McConachie Creek Project was initiated in response to public demand for agricultural land in the Fort Nelson area. The Crown land management planning program which resulted in the Fort Nelson Area Sub-District Crown Land Planning Report was undertaken as a component of the Deferred Area Planning Program (see Map 4.2). The Fort Nelson Planning Report was initiated by the proposed inclusion of local Crown land into a Provincial Forest reserve by the Ministry of Forests. Many local residents believed that much of this land should be allocated for agricultural development (Kok, 1985).

The McConachie Creek Project was initiated in 1982. Farm lots were laid out and roads and electrical servicing were provided. Lots were allocated in 1982 and 1983 by competitive bidding. Many of the 55 lots are still undeveloped, with only 13 having any development at all (Bomford, 1984).

The Fort Nelson Area Sub-District Crown Land Planning Report began in 1982 under the Deferred Area Planning Program. The Planning Report follows the Ministry of Lands, Parks and Housing Crown land planning program outline. An interagency planning taskforce was formed to advise the Ministry on planning issues. Consultants were hired to complete resource inventories
MAP 4.2: FORT NELSON DERERRED PLANNING AREA
LOCATION OF THE PLAN AREA*

Scale: 1:600 000

*Source: MLPH, 1983
and, in 1983 on the basis of these inventories, the interagency task force formulated four alternative strategies for development. The regional office forwarded the draft Planning Report containing the alternative strategies to the Minister's office. No decision on the plan has been made public yet.

4.2 Structuring and Scoping the Planning Program

Planning for the agricultural development of Crown land is primarily the responsibility of the Ministry of Lands, Parks and Housing; specifically, the Regional Offices and the Land Planning Branch. The Crown land planning program has evolved over the past ten years into a complex maze of official variations. These programs, for the purposes of this thesis, start with the Environment and Land Use Committee of Cabinet statement of policy guidelines for agricultural development on Crown lands (Environment and Land Use Committee, 1977). The ELUC guidelines indicate that reserves of arable Crown land cannot be expected to support significant expansion of provincial agricultural production. Furthermore, Crown lands will be allocated only for agricultural purposes where:

...such development is in keeping with [the] goal of ensuring the best use of Crown lands according to economic, social and environmental criteria. The allocation of Crown lands to agricultural development will be made within the context of regional land use plans based on integrated policies for resource management (Environment and Land Use Committee, 1977, p.3).
The guidelines stress the need for greater study of the social and economic factors and the development of procedures to undertake this analysis. They emphasize that economic analysis will be undertaken in larger agricultural development areas, and benefit-cost analysis examples are illustrated. The guidelines also propose the identification of all remaining areas of Crown land and, depending on the size of the Crown land base, the type of conflicts as well as other factors, a variety of levels of planning at the regional scale are proposed with priorities for planning set by the Regional Resource Management Committees. An accelerated planning program is recommended to prevent delays for other resource sectors and to eliminate the cumbersome referral system. Applicants should prepare development plans to ensure that they are familiar with agriculture and agricultural practices suitable for the region. The guidelines propose that rental payments be deducted from the purchase price of leases and there is no provision for interest accumulation (Environment and Land Use Committee, 1977).

In 1981, the Ministry of Lands, Parks and Housing prepared an official Crown land planning program and introduced its Crown Land Planning Hierarchy, based primarily on the earlier ELUC guidelines (Ministry of Lands, Parks and Housing, 1981). The purpose of the planning hierarchy is to provide a framework for the Ministry's planning activities from a provincial to a site specific scale, resulting in the orderly and systematic allocation of Crown lands (see Figure 4.1). The only parts of this hierarchy which have been implemented are at the sub-regional and sub-district levels. At the sub-regional or
FIGURE 4.1

Schematic Outline of the
CROWN LAND PLANNING HIERARCHY

*Source: Land Use Planning Section (See References Ch4) (1981)
district level, the main component is the Sub-Regional Crown Land Plan. This plan is a broad comprehensive framework for specific resource use allocation priorities. The Clinton Crown Land Plan was a pilot project and the only Crown Land Plan developed at the sub-regional level. (Ministry of Lands, Parks and Housing, 1982).

The fourth level in the Ministry's planning hierarchy or program is the sub-district level. At this level, there are Sub-District Crown Land Plans, Interim Crown Land Use Agreements and Sub-District Planning Reports. Sub-District Crown Land Plans, such as the Prince George Area Sub-District Crown Land Plan (Ministry of Lands, Parks and Housing, 1981), provide detailed policies and designations for a variety of resource uses on Crown land in a portion of a Land Administration District. Interim Crown Land Use Agreements are a stop-gap measure providing inter-agency policy guidelines pending the preparation of Sub-District Plans. The Sub-District Planning Report is the stage of the program most relevant to this case study.

The Fort Nelson Sub-District Planning Report was undertaken to resolve a resource conflict specifically between forestry and agriculture. This situation reflects the nature of the Planning Report program, which is directed at a less complex level of conflict or competition than is the case for the Sub-District Crown Land Plan. It also does not involve comprehensive land use considerations. The Regional Director may act on the recommendations contained in the Planning Report to the extent that existing policy allows him, but the conclusions of the Planning Report are not binding as is the case with the Crown
land plan. The final stage in the Ministry's planning hierarchy is the Development Area level which is a site planning or project planning program. These areas are identified at broader planning levels and can be implemented by other agencies or by the Ministry of Lands, Parks and Housing. Agricultural Development Areas are implemented by the Ministry of Lands, Parks and Housing (see Figure 4.2). The McConachie Creek Project is an example of an Agricultural Development Area; however it was not preceded by a higher level planning exercise.

The Sub-District Planning Report is conducted in the same manner as the sub-district Crown land planning program (see Figure 4.2). Reporting scales range from 1:20,000 to 1:50,000. Bio-physical capability is not the main criterion but it is considered along with demand projections, public opinion, locational attributes and population trends to determine use suitability. A number of conceptual alternatives are identified and evaluated with the preferred alternative and the basis for its selection stated in the final submission of the Concept Plan. After the Concept Plan is approved, the Detailed Plan is prepared. In the Detailed Crown Land Plan, there are two main designations within specific use assignments. These are Land/Resource Management Areas, where development is either postponed or not permitted, and Land/Resource Development Areas where development is pursued. This, in the case of agriculture, is a form of an agricultural land management planning program which then leads to Agricultural Development Area project planning, such as McConachie Creek that is designed for the disposition of Crown land for agriculture. Throughout the
CROWN LAND PLANNING
SUB-DISTRICT PLAN
LAND DESIGNATIONS AND IMPLEMENTATION*

*Source: Land Use Planning Section (See References Ch4)
The maze of planning approaches to the development of Crown land becomes still more complex. The Fort Nelson Sub-District Crown Land Report area is also a Deferred Planning Area. In 1981, the Premier issued a directive that conflicts between the establishment of Provincial Forests and other uses of Crown land, including agriculture, will be resolved by deferring the establishment of Provincial Forests in certain areas for a period of two years. Provincial Forests are established by Cabinet under the Forest Act and are administered by the Ministry of Forests. Uses which are not compatible with forestry are restricted. Deferred Planning Areas are subject to the sub-district Crown land planning program which is used to resolve outstanding issues. A public involvement process is required along with the co-operation of all relevant government agencies (Ministry of Lands, Parks and Housing and Ministry of Forests, 1981).

The Crown land planning program was, however, put in limbo in 1983. Program Planning was then established as the operational planning program for the Ministry of Lands, Parks and Housing. Product delivery and service became the key words. Program Planning is designed to be "efficient, pragmatic and product oriented" (Land Planning Branch, 1983, p.7). No inter-agency taskforce or public participation is permitted. At about the same time, one of the lead coordinating mechanisms in the Crown land planning process, the Regional Resource Management
Committees, were also abolished. In Program Planning, subjective and qualitative judgement by staff is encouraged along with flexibility in designing regional planning programs. Comprehensive land use planning will not be done, instead specific land uses will be emphasised. The priorities for 1983/84 were agricultural uses, recreational cottage lots and rural residential lots (Land Planning Branch, 1983).

4.2.1 Planning Area Identification

Ideally, in the original Crown land planning program almost any interested party can initiate a planning exercise, but final approval to proceed is left to the Ministry executive. Priority is placed on areas with significant conflict or competition for Crown land resources. Deferred Planning Areas are identified jointly by the Ministry of Lands, Parks and Housing and the Ministry of Forests using a qualitative rather than a quantitative evaluation. Planning areas are based on Crown lands that are proposed for Provincial Forest status but have the capability for or demand from other resource sectors. The Fort Nelson Planning Report area was identified in this manner. The essential competition occurring in Fort Nelson is between forestry and agriculture.

The McConachie Creek Project does not fit within any of the prescribed planning program molds except as an isolated Agricultural Development Area. It was proposed in 1982 based on local demand for agricultural land and the land's perceived capabilities. In this sense, it may be a good example of the new Program Planning approach (see above) or an opportunity planning
program for projects.

4.3 The Identification of Planning Process Objectives

The McConachie Creek Project has no documented objectives other than the disposal of Crown land lots for agricultural development (Ministry of Lands, Parks and Housing, 1982). The Fort Nelson Area Sub-District Crown Land Planning Report generally follows the objectives set in the Ministry's Planning Handbook and in the inter-Ministry Deferred Area planning framework as directed by the Premier. Primarily, the goal of the Fort Nelson Planning Report is to resolve the issue of the proposed Provincial Forest boundaries. The goal of the overall Crown land planning program is to:

facilitate and develop plans for management, use and alienation of unreserved Crown lands in a manner that will optimize the long term economic, social and environmental benefits to the citizens of British Columbia (Land Planning Branch and Peace Region, 1983, p.i).

The specific Fort Nelson Planning Report objectives based on this overall goal and established by the inter-departmental taskforce are:

• to resolve conflicts and allocate land to their most suitable uses;
• to facilitate programs of resource agencies involving Crown land;
• to stabilize the forest base;
• to reduce application processing time with plan area designations;
• to establish schedules for the planning and development of projects by the Ministry of Lands Parks and Housing (Land Planning Branch and Peace Region, 1983).

A number of limitations to the Fort Nelson Planning Report are listed in the document that may detract from the achievement of stated objectives. These limitations will be discussed in subsequent sections.

4.4 Environmental Factors for Planning

Climatic capability for the Fort Nelson area has not been mapped. However, soil surveyors have developed a climatic capability assessment based on data from adjacent airport weather stations and the use of regression techniques. This capability is related to elevation levels with higher levels receiving a lower capability classification. The earlier survey by Valentine (1971) uses techniques based on prairie conditions.

For the Fort Nelson Planning Report, consultants were engaged to revise Valentine's survey and a more recent survey by Kowall (1982). The consultants found it necessary to downgrade climatic capability classification in the Valentine report based on more accurate data used in the Kowall survey. Furthermore, the consultants proposed reducing the climatic capability class
on north and east facing slopes due to perceived harsher climatic conditions. There is some disagreement over this change (Valentine interview, 1985), but nevertheless it has been used in the capability analysis of the Fort Nelson area.

Climatic capability is incorporated in the overall agricultural capability classification. In an area which, due to factors other than climate, has a CLI class three rating for agriculture but has a climatic class five, a capability rating of class 5c will be assigned. A map polygon can not receive an overall capability rating higher than its climatic capability. Climatic capability incorporates information on the freeze-free period, growing degree days and precipitation (Air Studies Branch, 1981).

Soil surveys for the area are conducted at survey intensity level four and are published at a scale of 1:100,000 for the area north of Fort Nelson (Kowall, 1982) and 1:126,000 for the area around and to the south of Fort Nelson (Valentine, 1971). The McConachie Creek Project is developed on the basis of the 1:126,000 soil survey and the accompanying CLI map. This intensity level four survey is only suited for broad agricultural planning and not detailed lot layout which is more appropriately done with an intensity level two survey. The entire McConachie Creek Project area of 7500 hectares is covered by only eight map units. According to the revised calculations for climatic capability, the McConachie Creek project area, mostly above 455 metres asl and on east and north facing slopes, is downgraded to at least a CLI class 5 soil. This includes about 70% of the lots. A number of the advertised units have
less than 50% arable soils, even according to the classification given in the project documents, which is contrary to established Ministry policy (Ministry of Lands, Parks and Housing, 1982).

The information provided by the soil survey covering the McConachie Creek Project is not appropriate for farm unit layout or on-farm soil management recommendations (Valentine and Lidstone, 1985). Prior to the public auction, information was available which called into question the capability classification of the project area. Furthermore, the original capability survey appears to have been ignored since certain lots with stated arable area higher than the capability survey indicates have been offered. The McConachie Creek Project documents also do not include an evaluation of any other resources besides agriculture.

Soil surveys for the Fort Nelson Planning Report area are, as mentioned earlier, conducted at intensity level four. The consultants hired to provide additional bio-physical information did a limited amount of field work to revise the agricultural capability classification of the older surveys. The most significant revisions are a downgrading of capability based on flooding in the floodplain areas and based on climate. Some polygons are subdivided in accessible areas where field work was conducted.

The original capability inventories are enlarged to a 1:50,000 scale which is the minimum required scale in the sub-district planning process. The revised capability of map polygons may make the capability maps more accurate, but the enlargement process does not make the maps more precise, except
in those areas which are subdivided on the basis of the new site inspections. In the end, the maps are better suited than before to planning at a scale of 1:100,000 and smaller. They are not suited for planning where a 1:50,000 scale is required because map polygons and map units remain much the same as those at the smaller scale. The consultant's report, in recognizing these limitations, suggests that a 1:20,000 soil and climatic survey be conducted of the areas indicating agricultural potential before allocating land (Talisman Resource Consultants, 1982).

The Planning Report area covers only a small portion of the larger region around Fort Nelson which may contain arable land. Decisions to allocate land without understanding the larger biophysical context in which it lies have been raised as a limitation in the report itself. The information provided in the consultant's report is not suitable for detailed planning such as lot layout. The soils information was collected only for capability interpretation. If the intensity level of the survey were higher, the capability inventory could be used for some on-farm management purposes.

Although not mentioned in the Planning Report, the Ministry of Agriculture and Food conducted yield demonstration trials in Fort Nelson for a variety of cereal grains and canola. These were discontinued after two years due to a lack of funds. According to the District Agriculturist, the results are very good and show that a wide range of crops can be produced in Fort Nelson; however, this does not imply that crop production there is currently economic (Bomford, 1984).

Forestry, recreational, wildlife and extractive resources
of the area covered by the Fort Nelson Planning Report are also reviewed by the consultant. These resources are evaluated individually according to, primarily, existing resource inventories. Capability and primary inventory maps at a 1:50,000 scale are prepared for each of the five resource uses. In the planning report document, more descriptive information is given of each of the resource uses linking specific capabilities or species to particular soils or landscapes. The information contained in the resource inventories and capability mapping provides the basic input into suitability ratings for various sectors (see Section 4.6).

4.5 The Assessment and Relevance of Socio-economic Factors in the Planning Exercise

Neither the McConachie Creek Project nor the Fort Nelson Planning Report study include a review or evaluation of socio-economic factors, nor are infrastructure and services considered. In fact, Fort Nelson has no farm support infrastructure and the nearest farm services are 400 kilometres to the south in Fort St. John (Bomford, 1984). The Planning Report states clearly that socio-economic criteria play a minor role in the analysis. Also, the level of current utilization of the area's resources and the level of management in the plan area and the region are not addressed. The Planning Report admits to operating in a vacuum caused by the absence of a broader regional plan. The only economic analysis in McConachie Creek is a limited evaluation of whether land sales will cover the cost of access roads and electrical services.
In attempting to assess the requirements for agricultural land, the Planning Report mentions the extra cost of clearing land due to heavy forest, the absence of markets and the distance involved to ship supplies and products. It also points out that no assessment has been done of the crops which can be grown economically in the Fort Nelson area. Further, very little of the lands already allocated for agriculture are being farmed. In light of all these considerations, the task force states "there is sufficient area available for agriculture in the Fort Nelson area in the short term" (Peace Region and Land Planning Branch, 1983, p.26). This implies that, based on their limited analysis, the task force prefers to see no further disposition of arable blocks of Crown land under current circumstances.

The assessment of requirements for other resources is also hampered, according to the Planning Report itself, by its limited focus and lack of analysis. This is particularly true for forestry where a number of species utilization scenarios or silvicultural initiatives could change land use requirements.

4.6 Alternative Strategies and their Selection

The Fort Nelson Planning Report includes a land suitability analysis as an aid to resolve land use issues and to develop plan alternatives. Individual suitability maps are generated for agriculture, forestry, recreation and wildlife. Variables used to determine suitability include resource, land use, and the social and economic factors which influence management and development of the land. The selection of these variables is
unusual in that most of them are omitted from the analysis in the Planning Report.

A four class rating of suitability is developed for each resource, ranging from high to nil. Agricultural suitability is determined mainly from environmental criteria such as climatic capability, soil limitations to selected crops, flooding hazard, topography and erosion. The only non-environmental limitation is access. Polygons are classified into lower suitability ratings based on groupings of progressively poorer conditions. Each individual suitability factor can bump the polygon to a lower rating. For example, if a site meets all the conditions for a high rating but physical constraints to access may exist, it would be classified as moderate suitability. For other resource sectors, different suitability factors exist. Forestry and wildlife only use environmental factors, while recreation includes access again and uses a weighting system to classify suitability.

Suitability maps, once developed, are combined through what the report calls rules of combination. These rules are not specified; however, depending on the emphasis of each of the alternatives (discussed below), lands with the highest suitability for the particular use being emphasised are allocated to that use. The amount allocated reflects the projected requirements for that use. The resulting allocation is compared to the status quo and to the resulting impact on each resource use. Further adjustments are made by the Planning Team until an acceptable fit is arranged among (and within) the various alternatives (Kok, 1985). The result of this exercise is
a portfolio of alternative conceptual plan maps which are based on different future management and development strategies. The four alternative strategies for Fort Nelson are:

• agricultural emphasis;
• mixed management (agricultural emphasis);
• mixed management (wildlife emphasis);
• forestry management emphasis.

These alternatives were presented to the public and other agencies for review and a preferred alternative was selected by the taskforce. The preferred alternative is not publically known since the Planning Report was submitted to the Minister of Lands, Parks and Housing in 1983 and a decision has not been made yet. This step of submission to the Minister is not in the documented program; nevertheless, it has effectively shelved the original Crown land planning program, which is now substituted by Program Planning. This means a return to the development of unilateral planning programs such as the imposition of Provincial Forests and projects such as McConachie Creek without due consideration of other resource values or socio-economic factors.
4.7 Implementation of the Plan

As mentioned above, the Fort Nelson Area Sub-District Crown Land Planning Report has not been implemented. Even if it is finally approved, it is doubtful that it will go to the Detailed Plan stage since the overall Crown land planning program has been suspended. Implementation of the McConachie Creek Project was undertaken by the Ministry of Lands, Parks and Housing. Procedures for lease-purchase agreements and public auctions generally follow the Ministry's extensive agriculture policy, discussed earlier. The Ministry has funded 38 kilometres of access roads and electrical servicing to some of the lots, but it attempts to recover these costs in the prices of the lots.

During 1982 and 1983 all 55 lots were allocated. The highest bid is the sole criterion for disposition. To date, 13 of the parcels are undergoing some development. No land in the project is yet in agricultural production, and the District Agriculturalist predicts that 50% of the land in the project will revert to the Crown due to lack of development (Bomford, 1984). There is no monitoring and evaluation process in place beyond the normal review of whether lease development conditions have been met by the leasee.

4.7.1 Role of the Agricultural Agency and Support Programs for Agricultural Development in the Marginal Fringe

The Ministry of Agriculture and Food's involvement in planning the agricultural development of Crown land in Fort Nelson is limited. Fort Nelson is in the Fort St. John
agricultural district which includes 25% of British Columbia's cultivated farmland but has only one professional agrologist on staff. Essentially, the Ministry of Agriculture and Food only reacts to the Ministry of Land, Parks and Housing proposals. Recommendations are given on land capability, parcel size and other related factors for individual referrals. However, a representative from the Ministry of Agriculture and Food did sit on the inter-departmental taskforce for the Fort Nelson Planning Report area and, with the agricultural development of Crown lands in the Fort Nelson area, Ministry staff extension and training activities have increased (Bomford, 1984).

The only program which the Ministry of Agriculture and Food has that may be more relevant to newly developing areas than already developed areas is the Agricultural Land Development Assistance program (A.L.D.A.). A.L.D.A. provides loans at one-half the prime rate up to $25,000 per single farm unit. Eligible projects include land clearing, seedbed preparation, on-farm roads, water supply and erosion control. However, since the farm must be classified as a farm for tax purposes a minimum sales level usually must be achieved. Consequently, many newly developing farm units have difficulty obtaining this status. Furthermore, the applicant for A.L.D.A. must have already the resources and equipment to operate the farm (Ministry of Agriculture and Food, 1983a). As mentioned previously, this is not a prerequisite for purchasing Crown land. In effect, Crown land may be purchased for agriculture from the government, and the applicant may find, paradoxically, that he is ineligible for agricultural development funding from that same government.
The Ministry of Agriculture and Food also has a Guaranteed Loan Program and a Partial Interest Reimbursement Program. The Partial Interest Reimbursement Program reduces interest costs to one percent below the prime rate (Ministry of Agriculture and Food, 1983b).

Another program which could have been applicable to the Fort Nelson area is the Canada-British Columbia Agriculture and Rural Development Agreement. Under this agreement, funds are available through the Support Services and Community Development Program to provide partial funding for electrical servicing, market access roads, marketing facilities and rural job creation projects (Department of Regional, Economic Expansion, 1977). There is no evidence that any funds were spent under this agreement, which expired in 1983, in the Fort Nelson area.

4.7.2 Crown Land Disposition

Crown land is allocated for agricultural use under the provisions of the Land Act (Ch 214, R.S.B.C., 1979) and is subject to the Ministry's Extensive Agriculture Policy (Ministry of Lands, Parks and Housing, 1981). The following conditions apply to the lease or sale of Crown land for commercial agricultural development:

- applicants must be Canadian citizens or landed immigrants, 19 years or older;
- applicants must have resided in B.C. for two consecutive years immediately prior to the date of application;
- development and cultivation requirements must be in accordance with a clearing plan prepared by the Ministry;
- removal of timber is restricted to arable portions
of the leasehold. A Ministry of Forests' License to Cut is required for timber removal;
• performance is secured through a buy-back option registered against title;
• less than 15 hectare parcels, when purchased, must be bound or consolidated in title with the existing fee land of applicant;
• land under application must be a minimum of 50% arable;
• total area of Crown land held at any one time cannot exceed 520 hectares, unless so ordered by Cabinet;
• minimum parcel size for disposition is 15 hectares, unless adjacent to a parcel owned by the applicant;
• resale to non-Canadians is not permitted.

Several different tenures are available on Crown land in Agricultural Development Area projects or in other areas covered by a Crown land plan. The most important forms of tenure in the Fort Nelson area are discussed below.

Crown land can be sold if it is being used in trespass or if an existing farm requires 15 hectares or less. The major kinds of sales, however, are those resulting from a lease-to-purchase agreement, discussed below. Lease-only tenures are given for those areas where special circumstances, such as a flooding reserve, warrant such an arrangement.

Lease-to-purchase is the main form of tenure for the disposition of Crown land for agriculture in British Columbia. Lease-develop-purchase agreements can be acquired by direct application. If no competition is likely for the land under application, it is approved by the Ministry and made available at the appraised market value. When competition is likely or when the Ministry is marketing new farm units which it has developed, the land affected is advertised for disposition and an auction is held (see Figure 4.3). The upset, or minimum,
PUBLIC AUCTION
OF AGRICULTURAL
CROWN LAND

The Ministry of Lands, Parks and Housing will be auctioning the following agricultural parcels on a lease-develop-purchase basis. These parcels are located in the McConachie Creek Area which is North of Fort Nelson.

<table>
<thead>
<tr>
<th>Parcel No.</th>
<th>District</th>
<th>Lot No.</th>
<th>Size in Hectares</th>
<th>Arable Area in Hectares</th>
<th>Upset Price</th>
<th>Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>3326</td>
<td></td>
<td>116.439</td>
<td>115</td>
<td>44,773</td>
<td>Yes</td>
</tr>
<tr>
<td>15</td>
<td>3329</td>
<td></td>
<td>120.453</td>
<td>116</td>
<td>46,374</td>
<td>Yes</td>
</tr>
<tr>
<td>17</td>
<td>3329</td>
<td></td>
<td>125.656</td>
<td>110</td>
<td>45,276</td>
<td>Yes</td>
</tr>
<tr>
<td>18</td>
<td>3330</td>
<td></td>
<td>96.514</td>
<td>93</td>
<td>36,742</td>
<td>Yes</td>
</tr>
<tr>
<td>19</td>
<td>3331</td>
<td></td>
<td>102.977</td>
<td>84</td>
<td>38,962</td>
<td>Yes</td>
</tr>
<tr>
<td>20</td>
<td>3332</td>
<td></td>
<td>192.543</td>
<td>171</td>
<td>52,861</td>
<td>No</td>
</tr>
<tr>
<td>21</td>
<td>3341</td>
<td></td>
<td>81.144</td>
<td>39</td>
<td>23,417</td>
<td>No</td>
</tr>
<tr>
<td>22</td>
<td>3345</td>
<td></td>
<td>240.54</td>
<td>213</td>
<td>64,025</td>
<td>No</td>
</tr>
<tr>
<td>23</td>
<td>3348</td>
<td></td>
<td>69.288</td>
<td>62</td>
<td>24,718</td>
<td>No</td>
</tr>
<tr>
<td>24</td>
<td>3354</td>
<td></td>
<td>160.14</td>
<td>170</td>
<td>46,098</td>
<td>No</td>
</tr>
<tr>
<td>25</td>
<td>3358</td>
<td></td>
<td>120.83</td>
<td>109</td>
<td>36,064</td>
<td>No</td>
</tr>
<tr>
<td>26</td>
<td>3360</td>
<td></td>
<td>143.38</td>
<td>79</td>
<td>32,803</td>
<td>No</td>
</tr>
<tr>
<td>27</td>
<td>3361</td>
<td></td>
<td>135.58</td>
<td>77</td>
<td>32,071</td>
<td>No</td>
</tr>
<tr>
<td>28</td>
<td>3364</td>
<td></td>
<td>140.57</td>
<td>106</td>
<td>35,624</td>
<td>No</td>
</tr>
<tr>
<td>29</td>
<td>3367</td>
<td></td>
<td>104.48</td>
<td>88</td>
<td>32,090</td>
<td>No</td>
</tr>
<tr>
<td>30</td>
<td>3368</td>
<td></td>
<td>104.44</td>
<td>89</td>
<td>31,483</td>
<td>No</td>
</tr>
<tr>
<td>31</td>
<td>3369</td>
<td></td>
<td>116.57</td>
<td>99</td>
<td>38,898</td>
<td>No</td>
</tr>
<tr>
<td>32</td>
<td>3370</td>
<td></td>
<td>129.69</td>
<td>93</td>
<td>30,042</td>
<td>No</td>
</tr>
</tbody>
</table>

**ALL OF PEACE RIVER DISTRICT**

All Legal Descriptions and Sizes subject to final survey plan approval.

The public auction will be held on Thursday, June 8th, 1983, at 9:00 A.M. in the Fort Nelson Recreation Centre, Fort Nelson. Bidders bids for the right to acquire these parcels on the terms and conditions specified in the agreement will only be accepted from Canadian citizens who have resided in British Columbia for two years immediately preceding signing an agreement and who are 18 years or older. Bids will not be accepted from corporations, except for farm corporations as defined under the Agricultural Credit Act of B.C.

Successful bidders will enter into a 10-year-lease and will be required to develop 25 per cent of the arable portion before purchasing the land.

Further information on these parcels and the terms and conditions of sale may be obtained from:

BC
Ministry of Lands, Parks and Housing
Honorable Anthony J. Brummett, Minister

*Source: The Sun, May 20, 1983*
price at the auction is the appraised market value.

The lease's term is ten years during which time interest, at the Ministry's prescribed rate (1982-18.75%), accumulates on the initial price of the land, and the rental rate will be 1 percent of the appraised value for the first five years. If the leasee brings 25 percent of the arable portion of the land into production within the first five years, the accumulated interest is forgiven and the land is sold at its initial selling price. If the leasee does not bring 25 percent of the arable portion into production within five years, the accumulated interest is added to the original selling price and this becomes the revised selling price. Annual rental then becomes 5 percent of the revised selling price. Interest accumulates on the revised selling price in years six to ten and the purchase price, once conditions have been met, is the revised selling price plus accumulated interest.

To purchase lands under a lease-develop-purchase agreement, 25 percent of the arable land must be developed within 10 years or else the land reverts to the Crown. After sale, the Crown retains the right to repurchase the land until it is classified a farm for tax purposes (Ministry of Lands, Parks and Housing brochure, 1981). The Ministry does not require that applicants for Crown land demonstrate any knowledge of farming nor does it require applicants to show that they have the resources to develop the land.

Timber harvesting on Crown lands leased for agricultural purposes is a contentious issue. The leassee has the right to remove timber from all arable portions of the lease under a
license to cut issued by the Ministry of Forests. Upon purchasing the land, the lessee will have to purchase the remaining timber at the going stumpage rate or else lose the rights to the timber. The accusation has been made that many applicants acquire Crown land under the guise of agricultural development simply for the timber rights (The Sun, December 13, 1984).

Referrals on Crown land applications for agricultural development may be to the Ministry of Agriculture and Food, Ministry of Environment, Ministry of Forests and to the appropriate Regional District. If the land is not within the ALR then a referral is made to the Agricultural Land Commission to consider having it included. Appeals are possible on the Ministry's position regarding the land's appraised value and arability. Appeals can be made on the Regional Director's decision concerning applications to the Ministry's Land Application Appeal Committee.

4.8 The Significance of Public Participation in the Planning Exercise

There has been no official public involvement in the McConachie Creek Project planning or development. Public involvement in the Fort Nelson Planning Report planning exercise generally follows the guidelines in the Ministry's Planning Handbook. The Handbook states that:

local citizen participation in planning can lead to more acceptable proposals for the administration and management of Crown land
The public participation program results must be documented in the plan documents as they are in the Fort Nelson Planning Report. In Fort Nelson, public input was solicited through a questionnaire format after alternative strategies had been prepared. The questionnaire requested that the participants select a preferred alternative and suggest revisions. The Planning Report was also advertised in the local media, and copies were made available locally. Consultants were obliged to contact local community groups, such as the Farmers Institute, for their input. An information session was held in Fort Nelson which resulted in only two or three briefs being prepared by local residents (Kok, 1985) and a very strong negative reaction to the Planning Report. There was no public involvement prior to this in the development of the Planning Report.

The public's late involvement in the Crown land planning exercises has been criticized in the past year by members of the provincial Legislative Assembly. They felt that the public had no influence in the decisions being made. This criticism was extended, as a result, to the entire planning program and its policy statements (The Sun, March 17, 1984). It should be noted again that the new Program Planning approach does not permit public involvement and limits inter-agency coordination.
4.9 Case Summary

Planning for the agricultural development of Crown land in Fort Nelson is occurring in a disjointed manner and in a context of changing planning policy and programs. The prescribed planning program of the Ministry of Lands, Parks and Housing, is comprehensive and complex in its hierarchical orderliness, but it is not being implemented.

The Fort Nelson Planning Report exercise does present a range of possible alternatives, giving the decision-makers flexibility in selecting the preferred alternative or modifying it. The analysis of environmental factors covers the range of possible resource uses, and a comparison is made of possible alternative resource use suitability.

However, The Fort Nelson Area Sub-District Crown Land Planning Report was prepared essentially in reaction to the proposed designation of a Provincial Forest in the area. Deadlines were given and the scope and type of the analysis was limited. The agricultural resources of the larger region were not adequately evaluated and socio-economic factors were almost completely omitted. Agriculture's viability as an industry in Fort Nelson is unknown. The motivational factors behind vocal and insistent community demands for increased Crown land disposition for agricultural development are an important aspect of planning future development. These factors have not been studied. However, an historical review of past Crown land dispositions, development and subsequent disposal of deeded land is one option in understanding the significance of motivational factors.
The Ministry of Agriculture and Food's involvement is minimal in the development of new areas and it has few programs oriented towards frontier development. Public participation is inadequate and limited to a review of the completed alternative proposals.

The financial aspects of the Crown land allocation process emphasises strongly the generation of additional provincial revenues. This emphasis on maximum revenue from land sales, combined with the absence of conditions requiring applicants to have any knowledge of agriculture and the limited amount of financial support for development may be factors in the poor showing of agriculture, to date, in Fort Nelson. This is unfortunate because the land clearly displays suitable conditions for agriculture, maintaining local belief in the desirability of development.

It might be an appropriate time now for the relevant officials to go back and read carefully the original ELUC guidelines (see Section 4.2) for the agricultural development of Crown land. They represent a much sounder and more intelligent approach to resource management than the current inconsistent methods, particularly in the marginal fringe region.

This inconsistent approach to planning in Fort Nelson, based on inadequate resource data, will only serve to continue the heated debate over the desirability of developing Fort Nelson as an agricultural centre. Many residents compare Fort Nelson to the Fort Vermilion-High Level area of Alberta, the subject of the next case study, claiming that the success of agricultural development in that area justifies government
support for development in Fort Nelson.
REFERENCES


CHAPTER 5

CASE STUDY NUMBER THREE
FORT VERMILION, ALBERTA
5.1 INTRODUCTION

Fort Vermilion is located in Improvement District No. 23 in the Lower Peace River region of northwestern Alberta. It is 590 kilometres north of Edmonton and 65 kilometres east of High Level. Improvement District (I.D.) No. 23 has a population of 13,000 centred in High Level, while Fort Vermilion has a population of 764. Economic activity consists of agriculture, oil and gas exploration and development, and forestry (Peter C. Nichols & Associates Ltd., 1981a). Most of this activity focusses on High Level, while Fort Vermilion is a service centre for the surrounding agricultural areas (see Map 5.1) and has an Agriculture Canada Experimental Farm. The latest surge in the area's development was stimulated by the construction of the Mackenzie Highway in 1947 and the Great Slave Railway in 1965. Agricultural development is significantly supported by work in other economic sectors with 40 to 50 percent of the local farm operators reporting off-farm work (Thompson, 1981).

Fort Vermilion has a boreal climate with severe winters and short, warm summers. Weather fluctuations can be extreme both from year to year and on a daily basis. Precipitation is considered to be one of the main limiting factors for agriculture. Total mean precipitation is 360 milimetres, but summer precipitation equals only 55 to 65 percent of the precipitation at Grande Prairie and Edmonton. The freeze-free period varies widely within the area, ranging from an average figure of 75 days at one location to 91 at Fort Vermilion. The range of average freeze-free period over time is also extreme with a low of four freeze-free days to a high of 124 recorded at
MAP 5.1: REGIONAL LOCATION MAP OF FORT VERMILION

*Source: Resource Planning Branch (REAP),
(See References, Ch. 5) (1983a)
Fort Vermilion. The average number of growing degree-days is 1250, but this figure also varies significantly within the area. Although, on average, the area is suited to a wide range of cereal grains, oil seeds and forage crops (Strong, 1981), areal and temporal climatic fluctuations may make the production of less hardy crops such as wheat more risky.

Arable soils of the Lower Peace River Region are extensive. In I.D. 23, alone, there are 1.6 million hectares of potentially arable undeveloped soils. Much of the remaining arable soils, however, are found in small, complex units in association with lower capability land (Resource Planning Branch, 1983b). Soils are derived from predominantly lacustrine deposits with areas of lacustro-till, fluvial, eolian and organic deposits. The luvisols developed on lacustrine and fluvial materials are the most extensive arable soils. These are followed by the solonetzics on lacustro-till and some chernozems on the fluvial deposits. Soils are developed on a level to gently rolling plateau or lacustrine basin and, to a lesser extent, on flat floodplain areas (Scheelar and Macyk, 1972).

Agriculture in I.D. 23 is expanding at a tremendous rate. Over 140,000 hectares are cultivated with 4000 to 8000 hectares added every year. Most of this is in the Fort Vermilion-High Level area. There are over 600 farms producing mainly canola, wheat and barley (anon, 1982; Canadian Wheat Board, 1984). Range resources of the area are limited due to climate and predation. Livestock production is of minimal importance due to off-farm employment and the area's suitability for other crops (Resource Planning Branch, 1983a; anon, 1982).
The Fort Vermilion case study presents an illustration of a Crown land management planning program and a project planning program. The Jean D'Or Prairie Sub-Regional Integrated Resource Plan is currently pending approval and is an example of a planning exercise carried out under a Crown land management planning program. The Accelerated Land Sales project program is a follow-up mechanism to the Integrated Resource Plan. It has also been implemented throughout the Fort Vermilion area on Crown land that is not in an Integrated Resource Plan but has few restrictions for agriculture.

Planning for the agricultural development of Crown land in Alberta is a part of a program initiated in 1977 with the publication of a resource management policy for the Eastern Slopes (Government of Alberta, 1984). The program is termed the Integrated Resource Planning System (IRPS). The main objective of many of the plans produced under IRPS is to facilitate the allocation of Crown lands for agricultural development. The overall agricultural development goal of Alberta Energy and Natural Resources is to dispose of 121,404 hectares of land for agricultural uses per year until 1988 (Resource Planning Branch, 1983).

I have selected the Jean D'Or Prairie Integrated Resource Plan as the emphasis of this case study. The plan area is located in an area of rapid expansion. The Jean D'Or Plan also incorporates a number of innovations, unique to the IRPS program and which are now officially included in the program. The plan area is adjacent and to the east of Fort Vermilion (see Map 5.2) and contains 150,000 hectares. The Jean D'Or Plan's main
MAP 5.2: JEAN D'OR PRAIRIE STUDY AREA

*Source: REAP, 1983
objective is to help meet Alberta Energy and Natural Resources' goal for agricultural development and to satisfy local demand for agricultural dispositions.

The program used for the actual disposition of Crown lands, as mentioned above, is Accelerated Land Sales. Several Accelerated Land Sales projects have taken place in the Fort Vermilion area over the past few years. Demand for land far outstrips supply, and development of new land is rapidly expanding.

The Jean D'Or Plan was initiated in 1981. A Planning Team was formed to develop the plan and to oversee the preparation of resource inventories and economic assessments. The draft plan was submitted to the Associate Minister of Public Lands and Wildlife in 1983 who then ordered further economic analysis. The requested information is now completed, and the final plan is expected to be approved this spring.

5.2 Structuring and Scoping The Planning Program

The basic elements of the planning program for agricultural development on Crown land are the land management planning concepts of white, yellow and green areas and the Integrated Resource Planning System as well as the Accelerated Land Sales project program. White areas areas are the long settled areas of the province. Green areas are mainly forested, non-agricultural areas, and yellow areas are those areas, mainly in the Peace River region, which are open for agricultural disposition (see Map 5.3). Accelerated Land Sales is a program to develop projects for the allocation of Crown lands in existing yellow
MAP 5.3: PUBLIC LANDS CLASSIFICATION

LEGEND

YELLOW AREA
WHITE AREA
GREEN AREA

*Source: Resource Planning Branch, 1983b
areas or those areas are switched recently from green areas to yellow, usually following the IRPS process. All these programs come under the mandate of ENR, specifically, the Public Lands Division.

The IRPS evolved from the development of the Eastern Slopes resource management policy (Government of Alberta, 1984). A comprehensive interagency approach to integrated management planning is the underlying philosophy for all Crown land development in Alberta. The integrated aspect of IRPS is reflected in the review and approval system for decision-making. Interagency committees are established as an hierarchical system of decision-making, review and recommendations (see Figure 5.1).

The Planning Team represents the field level committee responsible for plan development. The Regional Resource Management Committee of ENR Regional Directors is involved in an advisory role to the Planning Teams and to the Resource Integration Committee (RIC). The RIC is composed of the directors of ten government agencies, including Alberta Agriculture. The RIC is the key supervisory and decision-making committee and is directly responsible for the Planning Team. The RIC approves many of the components of Integrated Resource Plans developed by the Planning Team. It also sets planning priorities, monitors progress and is the initial agency for review and approval of the final plan.

The Natural Resources Advisory Committee consists of the Assistant Deputy Ministers of the same ten agencies as are on the RIC. The Natural Resources Advisory Committee ratifies planning priorities established by the RIC. It also is the level
responsible for reformulating government's broad policy statements into actual programs. From the ADM level the IRPS process moves to the next committee at the Deputy Minister level— the Natural Resources Coordination Council. The Council advises the other levels of the IRPS on government policy. Once Integrated Resource Plans (IRP) are approved by the Council, they are referred to the Associate Minister of Public Lands and Wildlife by the Deputy Minister of Renewable Resources. The final decision on IRPs is made by the Economic Planning and Resource Development Committee of Cabinet. The main administrative and co-ordinating agency for the IRPS is ENR's Resource Evaluation and Planning Division (Resource Evaluation and Planning Division, 1983).

The IRPS program was conceived as a comprehensive approach to resource management based on four levels of planning activity. The four levels are provincial, regional, sub-regional and local. To date, the sub-regional level has been the operational program. At the provincial level, the politicians or senior bureaucracy initiate broad policy statements on the utilization of natural resources. The regional level consists of broad areas such as the Eastern Slopes. Regional level plans "define the region's role in meeting provincial objectives" (Resource Evaluation and Planning Branch, 1983, p.15) and set the direction of the overall objectives for planning and resource allocation in the area. Few regional plans have been prepared. The Jean D'Or Plan is a sub-regional plan that was developed in the absence of a regional plan. During the course of its development, a Regional Overview of the Lower Peace
Figure 5.1: Integrated Resource Planning Approval Process*

PROCESS

Plan Approved

Final Plan
Draft Plan
Design Alternatives
Policy Alternatives
Data Collection
Terms of Reference
Plan Initiation

MECHANISMS

Economic Planning and Resource Development Cabinet Committee

Associate Minister of Public Lands and Wildlife

Deputy Minister of Renewable Resources

Natural Resources Coordination Council (Deputy Ministers)

Natural Resources Advisory Committee (Assistant Deputy Ministers)

Resource Integration Committee (Directors)

Regional Resource Management Committee

Public Involvement Program

Interdepartmental Planning Teams (Field Staff)

*Source: Resource Evaluation and Planning Division, 1983
was completed. However, this document dealt more with regional data and siting of planning areas than with policy direction and is not considered a regional plan (Petch, 1984)

Local plans occur at a very detailed scale, and few have been prepared to date. They deal mainly with specific resource use conflicts in a localized area. None have been conducted in the Fort Vermilion area. The main emphasis in this case study will be on the sub-regional level of the IRPS program and the subsequent project planning program of Accelerated Land Sales. These planning programs will be outlined in the following sections.

5.2.1 Sub-Regional Integrated Resource Planning

Sub-regional plans, such as the Jean D'Or Plan, are concerned with determining appropriate land use patterns and the desired mix of activities within a relatively small area. Plans determine resource management objectives and resolve contentious issues by allocating lands to particular uses and assigning priorities. The main objective is to screen provincial and regional goals through a sieve of sub-regional resource capabilities or suitabilities.

Sub-regional plans are prepared in an exercise which includes several stages and a number of preliminary documents (see Table 5.1). The Planning Team, with the cooperation of the Regional Resource Management Committee, prepares the terms of reference. These terms set out the planning framework, purpose, area and issues involved. Data gathering and analysis are then
conducted and are, essentially, the responsibility of the individual agencies, although substantial information is usually provided in an ecological land classification prepared by ENR at a scale of 1:100,000.

The next step in the preparation of the Sub-regional Plan is a review of existing policies, conflicts and objectives. The Planning Team prepares a document on the issues and possible means of attaining objectives and resolving conflicts. The Planning Team uses several techniques including a resource activity/land use matrix, which establishes resource activity compatibility within defined areas, and a second, more important technique, Resource Management Areas (RMA). RMAs are sub-units in an IRP area which are assigned specific resource management objectives. The RIC, upon receipt of the management options document, decides on unresolved conflicts and approves the management direction for the area.

Plan design then follows where the Planning Team develops management strategies to achieve the approved resource management policy developed in the previous step. If conflicts arise, they are resolved again by the RIC. After the optimal design is approved, the draft plan that synthesizes all the earlier steps is prepared and forwarded up the pyramid for approval.

5.2.2 Accelerated Land Sales

Implementation is the responsibility of the various agencies involved. In the case of agricultural development, the main approach is
The project planning program, Accelerated Land Sales (ALS). Previously, ALS projects took place in yellow areas, without an Integrated Resource Plan. As most of the remaining arable land is in green areas, the IRPS mechanism is used to resolve conflicts and redefine boundaries before ALS can take place. ALS occur in areas identified in broad agricultural capability surveys as being suitable for agricultural development and where allocation conflicts have been resolved. The Public Lands Division hires consultants to do intensity level two soil surveys of these areas at a 1:15,000 scale. Road access to designated farm units is planned and developed in co-operation with Alberta Transportation and The Local Improvement District.
5.2.3 Planning Area Identification

In theory, sub-regional planning areas are identified by broader regional plans. The Jean D'Or Plan, however, was initiated in 1980 by ENR after requests from the Peace River Regional Resource Management Committee, Alberta Environment and Alberta Agriculture. These requests reflected the demand for new crop land in the area and conflicts with other resource agencies over the disposition of Crown land for agriculture (Petch, 1984).

Agricultural Development Committees, public advisory bodies to Alberta Agriculture, often initiate requests along with Alberta Agriculture for ALS projects in areas where there is little conflict or where conflict has been resolved by the IRPS.

5.3 The Identification of Planning Exercise Objectives

The entire IRPS program and other programs related to agriculture in the Fort Vermilion area are permeated by the overriding provincial objective of expanding the agricultural land base. ENR's main agricultural objective is to dispose of 121,404 hectares of land per year between 1983 and 1988 for agricultural purposes. This objective does not take into account changing economic circumstances or what might happen in the event that the demand for new farmland declines. This lack of contingency planning has been raised as a possible weakness in the Jean D'Or Plan (Petch, 1984). The Jean D'Or Plan contributes approximately 40,488 hectares of arable land towards the
departmental goal (Resource Planning Branch, 1983a).

The stated overall objective of the IRPS program is to optimize the use of Alberta's resource base to achieve maximum benefits for Albertans (Resource Evaluation and Planning Division, 1983). The integrated aspect of the program reflects the understanding that the use of one resource will affect the ability to use other resources. All levels of government and affected parties are encouraged to participate. This is important in the Jean D'Or Plan because provincial policy recognizes agricultural expansion as a priority, yet the IRPS program requires the consideration of all other potential resources and how they might be affected and developed as a consequence. In the case of the Jean D'Or Plan, the forestry sector is affected the most negatively; however, the Alberta Forestry Service of ENR is eager to stabilize the green/yellow boundary to permit its long-term planning to progress (Petch, 1984).

The Jean D'Or Plan, in keeping with the integrated emphasis, includes a range of objectives for each resource including domestic grazing, ecological resources, infrastructure, fisheries, historical resources, mineral resources, recreation, till cropping, timber, water resources and wildlife. The objective for till cropping, for example, is to supply suitable Crown lands to meet a portion of the demand for agricultural land expansion.

The Jean D'Or Plan sub-divides the plan area into six Resource Management Areas (RMA) (see Map 5.4). The RMAs, with their specific resource objectives and guidelines, are the
Map 5.41: Jean d'Or Prairie Planning Area
Resource Management Areas

*Source: REAP, 1983
primary resource management mechanism for the Jean D'Or Plan. Each RMA has a common resource management intent or objective for its area. The RMA's do not overlap the green/yellow boundary and are split on the basis of the green/yellow boundary and the physiographic features (see Map 5.5). Of the six RMA's, four have the specific objective of allocating land to either new or expanding farmers. A special use zone is designated throughout the RMAs to protect sensitive landscapes.

Accelerated Land Sales projects will follow the IRPS program at Jean D'Or and will aim to identify and develop the most suitable areas within individual RMAs designated for agricultural development. Once designated, these tracts will be subdivided, accessed and allocated for agricultural purposes.

5.4 Environmental Factors for Planning

The Planning Team relied on the individual members to produce required resource inventory information, based on a checklist which it developed, and did not prepare a Background Information Document (see Table 5.1). Data was collected on use, demand, capability, potential use and economic characteristics. The Jean D'Or planning area is covered by a variety of environmental, economic and even social studies, surveys, analysis and data.

Climatic data has been collected since 1936 at the Fort Vermilion Experimental Farm operated by Agriculture Canada. The climate is mapped under the Canada Land Inventory program with essentially two map units, class three and class five. The boundary between these two areas runs roughly parallel and to
the north of the Peace River. Resource inventories prior to 1981 have used this climatic capability as their guide. In 1979, the Resource Evaluation and Planning Division established four climatic stations in the Jean D'Or Plan area. These stations supply data which results in a less optimistic view of the area's climatic capability. Results reveal wide fluctuations in climatic characteristics throughout the area with a definite trend towards lower capability than at the Fort Vermilion station (Strong, 1981).

Much of the environmental analysis relies heavily on an ecological land classification at a survey intensity level four and a scale of 1:100,000. The use of ecological land classification is standard for the IRPS program and is carried out by the Public Lands Division. The basic map unit in the classification is the ecosection developed primarily on the basis of landform and vegetation through air photograph interpretation. Only two weeks of field work were completed on the 1455 square kilometre area. Capability for the various resource uses is evaluated in conjunction with the various relevant agencies and is published in the report. Within each map polygon, the suitability of these uses can be compared for the same area (Strong, 1981).

The Jean D'Or Plan area is also included in the Soil Survey of the Mount Watt and Fort Vermilion Area (Scheelar and Macyk, 1972). The survey is an intensity level four, published at a scale of 1:190,000. This is the only soil survey of the area and is limited in its usefulness for on-farm soil management. The Canada Land Inventory map produced in conjunction with the
survey classed much of the area as CLI class 5 or organic with significant areas of class 4. The major limitations were excess soil water and poor soil structure.

In 1977, a resource inventory based on biophysical classification, the forerunner of ecological land classification, that covered a major portion of the Jean D'Or Plan area was completed (Cameron, 1977). The La Crete survey is not referred to in the 1981 ecological land classification and map polygons differ significantly between the two surveys in the same area. The agricultural capability assigned to the various map units in the La Crete survey are discernably lower than in the 1971 capability inventory, and the CLI ratings for forestry are very low.

The ecological land classification produced for the Jean D'Or Plan in 1981 downgrades the agricultural capability somewhat further than the La Crete survey. The 1981 survey utilizes a soil rating procedure developed for Alberta conditions. The system rates soil zones according to freeze-free days in the area which the zone occurs. Thus Black Chernozems which occur in areas of greater than 90 frost-free days rate 100, the highest possible rating. This rating is then multiplied by a weight, developed on the basis of several parameters: profile variation, texture, stones and topography. Unlike the CLI system, no improvements are assumed to have been made. The resulting range of points is then arbitrarily broken down into a four class system of high, moderate, low and not capable. The low category is further sub-divided into high, moderate and low. Almost all the land in the Jean D'Or Plan area is classed as
low. Within the low category capability is further subdivided
and ranges from moderate to high.

Ratings were also assigned to unimproved grazing, improved
grazing, wildlife habitat and potential environmental hazards.
All ratings were generally low to moderate for these uses.
Forestry resources were also evaluated with the same classes of
high to not capable on the basis of comparing tree height and
age to site index curves. The result was a capability of high-
moderate to high for most of the area, a substantial upgrading
from the La Crete survey.

The variations in resource evaluation by different
surveyors were complicated further when Alberta Agriculture
decided to initiate its own capability inventory during the
planning process. Alberta Agriculture felt that the agriculture
capability ratings were understated in the Ecological Land
Classification. The CLI system assumes that feasible improvement
practices have been implemented in assigning ratings. The
ecological land classification rating does not make this
assumption, and since the overall intent of the plan is to
increase agricultural land development, Alberta Agriculture held
that this assumption was valid. The new survey was permitted and
ratings are considerably improved in many areas, especially
where drainage is a problem (Petch, 1984).

Agriculture Canada has also conducted a number of yield and
variety trials throughout the broader region around Fort
Vermilion. Results show the Fort Vermilion area to be at or near
the mean yields for most varieties of crops normally produced in
the Peace region (Agriculture Canada, 1983).
Soil surveys for Accelerated Land Sales are conducted at an intensity level two and at a scale of 1:15,000. This survey is used to sub-divide the land into farm units, lay out roads and provide on-farm soil management guidelines. The analysis includes both a survey and capability analysis (Graw, 1984; Resource Planning Branch, 1983a).

5.5 The Assessment and Relevance of Socio-economic Factors in the Planning Exercise

The Jean D'Or Plan includes, for the first time in the IRPS program, an analysis of the financial implications of the plan. This section lays out some of the benefits of the plan, but it also details many of the direct costs totalling some $14 million plus $2 million for road grids per township. As a result of this section, the Associate Minister of Public Lands and Wildlife ordered a detailed economic impact analysis (Petch, 1984). A financial, income and employment analysis has been completed but is not available for public distribution (Cooke, 1985).

The Jean D'Or Plan also does not place the impact of its recommendations in a regional context. The broader social and economic impacts of the proposal may be discussed in the new studies, but they have been also well discussed in previously published documents. A report on economic growth for the region emphasises agricultural activity with specific references to Fort Vermilion (Peter C. Nichols & Associates, Ltd., 1981a). A social impact assessment for the region is also available and discusses many of the social implications of agricultural development (Peter C. Nichols & Associates Ltd., 1981b). These
reports are not referred to in the plan; although, the data and analysis contained in them are very relevant.

The main conclusions of these impact studies are that agricultural expansion will occur at a slower rate and that costs to government for services will rise as more marginal lands are developed. Demand can not be met by the supply of suitable land and this will have implications for local communities and their economies in providing alternative employment, because the number of non-agricultural jobs will also decrease. Further, potential changes to regional infrastructure will have a significant impact on the viability of the Fort Vermilion area.

The infrastructural elements dealt with in the Jean D'Or Plan include roads, drainage, surveys and soil surveys. Costs relating to community services are not included in the draft plan.

Alberta Agriculture also has a series of publications on the costs and returns of producing locally suited crops. Figures indicate that, depending on interest rates, farming can be profitable, in the area, at current commodity prices (Glaser, 1982a; 1982b).

5.6 Alternative Strategies and their Selection

The IRPS program, as illustrated by the Jean D'Or Planning exercise, is based on a consensus approach to resource management. Alternatives are not presented in the final documents of each planning exercise. Alternatives are discussed and conflicts are resolved at earlier stages in the exercise.
The documents outlining these activities are available to the final decision-makers, the Economic Planning and Resource Development Committee of Cabinet through the Associate Minister of Public Lands and Wildlife.

Initially, the lack of provincial policy, regional level integrated plans and input from higher level decision-makers in the planning program slowed down the preparation of the Jean D'Or Plan when compared to other planning areas (Petch, 1984). Although the management intent of the plan is to expand the agricultural base, the Alberta Forest Service has significant interests in reducing the total area alienated from its jurisdiction. This is reflected in the various alternatives initially developed.

In the first stages of the development of the Resource Management Policy (see Table 5.1), a matrix of resource use and resource zones was developed. Three zones are identified as agriculture, mixed use and a special protection zone. Various resource uses are permitted or restricted in each zone. Land is allocated to each based on the Ecological Land Classification rating and the various resource use objectives of each agency.

Several conflict areas arose which the Planning Team could not resolve. These conflicts were referred then to the Resource Integration Committee as three policy alternatives reflecting the positions of the Alberta Forest Service, the Public Lands Division and Alberta Agriculture. It took the RIC several months to work out a compromise based on a certain degree of subjectivity in interpreting resource inventory information (Petch, 1984). The result was the Resource Management Policy
which included the three zones plus a limited development area where conflict between agriculture and forestry still exists and where agricultural development is conditional upon the development of other areas first (see Map 5.6).

During the next step of the exercise, the plan design leading to a draft plan, the Planning Team decided to eliminate the resource zone approach and to go with a Resource Management Area concept. The RMAs are identified for a predominant use with objectives and guidelines permitting certain other resource uses. The Planning Team also decided to determine the boundary between yellow and green areas. The result is that the yellow/green designation determines the boundaries of the RMAs.

When the initial draft plan went to the Natural Resource Coordination Council for review, the Council directed the elimination of limited use areas. The result is basically a series of RMAs with either an agricultural development intent or a forest management intent. Considerable flexibility is lost, according to Petch (1984), in eliminating the zoning concept. Ultimately, there is not much difference between RMAs and simply designating the whole area as yellow or green and allowing resource management guidelines to be applied to each area.

The RMA concept will have more value at an operational or project level than at this sub-regional level. If RMAs had been based on ecological units rather than on administrative areas, resource managers might have had more flexibility in adapting to changing economic conditions and technological change. As well, there remain several unarable areas within the yellow RMAs that are, nevertheless, subject to liquidation harvesting.
SCALE 1:300 000
WEST OF THE FIFTH MERIDIAN

LEGEND

AGRICULTURE AREA
MULTIPLE USE AREA
LIMITED DEVELOPMENT
SPECIAL USE AREA

MAP 5.6:
RESOURCE MANAGEMENT POLICY OF JEAN D'OR PRAIRIE*

*Source: REAP, 1983
Ultimately, the agricultural community received much of what it wanted. This occurred throughout the planning exercise and is in evidence in the final plan. The emphasis on agricultural development lends significant weight to that sector's influence. It could be said that this simply conforms to policy as dictated at the political level. This does not bode well for the forest industry, as there is still considerable arable undeveloped land in the green area which is adjacent to areas slated for development, and the plan is subject to regular review and amendment.

5.7 Implementation of the Plan

The Jean D'Or Plan is expected to be approved later in the spring of 1985. The innovation of developing an economic impact assessment delayed the approval process and may lead to revisions of the draft plan. The final plan "provides direction for single-sector resource management along with criteria and guidelines for the review of development applications and the disposition of public lands" (Resource Evaluation and Planning Division, 1983, p.20). Theoretically, a plan implementation document is supposed to be prepared by the Planning Team and the Regional Resource Management Committee (see Table 5.1), but this has not been done in the case of the Jean D'Or Plan. Instead, the plan calls for implementation through the Interdepartmental Referral System.

Conflicts in interpretation or implementation of the plan will be resolved by the Regional Resource Management Committee or the RIC. The Jean D'Or Plan calls for the expansion of the
Regional Resource Management Committee beyond ENR to include other government agencies already represented on the RIC. This will result in a structure similar to British Columbia's now defunct RRMC's.

Eventually, the Jean D'Or Plan will dispose of over 40,000 hectares of agricultural land. This will be accomplished through the ALS program in accordance with the guidelines and objectives laid out for each RMA in the Jean D'Or Plan. RMAs intending to allocate land for agriculture emphasize either the beginning farmer or expanding farmer. Guidelines exist for the removal of timber (by liquidation harvesting), buffer strips to prevent erosion, and wildlife control and management. Broad resource objectives and guidelines are also laid out for most of the Jean D'Or Plan area's resources.

Till cropping demands will be met through the ALS program. The program will include detailed soil surveys, farm unit layout and disposition according to the public draw process discussed below in Section 5.7.2. The best land use will be determined by the referral system to Alberta Agriculture, the ADCs and other relevant agencies. The Public Lands Division in consultation with other agencies plans roads. Regional drainage costs are shared by Alberta Environment (75 percent) and Improvement District No. 23. Other infrastructural components such as schools, health care and other services are the planning responsibility of I.D. 23.

Agricultural Land Sales projects have not occurred yet in the Jean D'Or area; however, throughout the rest of I.D. 23, several projects have taken place over the past four or five
years. These projects were instigated at the request of the ADC after public meetings were held on the subject of farmland expansion (Klippenstein, 1985). The demand for new farmland is about three times the supply at any one time (Resource Planning Branch, 1983a).

Public draws were held for suitable applicants five times over four years. The parcels allocated contained from 128 to 384 hectares, averaging approximately 256 hectares. Total land allocated under this program has been over 24,000 hectares in 95 parcels. Roads were developed prior to the draws to provide access for immediate development. Generally, development is financed by Beginning Farmer Loans (see Section 5.7.1), and land is brought into production within three to four years. Only a few parcels have been transferred to other beginning farmers (Klippenstein, 1985).

Although government officials view agricultural expansion as being generally successful (Graw, 1984; Jarvie, 1984), they also express concern about the impact of current economic fluctuations affecting agriculture. Graw (1984) also states that the price of raw land is not sufficient to cover, in the short-run, the costs incurred by government in opening new lands. The subsequent economic viability of many farms, however, is seen as a reason to continue of the development program.
5.7.1 Role of the Agricultural Agency and Support Programs for Agricultural Development in the Marginal Fringe

Alberta Agriculture is involved in the planning exercise from its outset. It is one of the original initiators of the exercise for Jean D'Or Prairie, and the District Agriculturist is on the Planning Team. Much of the resource inventory on agricultural potential and suitability is developed by Alberta Agriculture for the Planning Team. Due to the Alberta government's strong support for and direction of agricultural expansion, Alberta Agriculture's role in the exercise is crucial to the argument for more land to meet demand and fulfill this objective (Petch, 1984).

Alberta Agriculture and other government agencies have a well developed array of programs to foster agricultural land development. Most of these programs are available through the Alberta Agricultural Development Corporation which provides loans and loan guarantees for farms and agribusinesses. The Alberta Agricultural Development Corporation (ADC) has a Beginning Farmer Program where loans of up to $200,000 per farm family or $600,000 per farm partnership are provided for periods of up to 30 years. Interest rates are fixed at ADC's preferred rate for the first five years and renewed at this rate for a subsequent five years provided that a farmer is meeting all the terms and conditions of the loan. After this period, interest is calculated at ADC's base rate. For the first five years, an incentive is available for discounting six percent of the outstanding principal balance, again provided that conditions are met. The program is available to individuals establishing
farms and can be used for a wide variety of purposes including land purchases and improvements.

Part A and B loans are also available to farmers wishing to expand their operations through such methods as land purchase and improvement, among others. The type of loan is related to the size of the applicant's assets. Terms are much the same as Beginning Farmer Loans except that there are no incentives. Part A loans, however, have an interest rate of three percent less than ADC's preferred rates.

Another program provided by ADC through Alberta Farm Development Loans, a loan guarantee program, is the Range and Soil Improvement program. The Range and Soil Improvement Program has incentives built in on the basis of a discount of $70 per $1000 of loan for each of the first five years to a maximum loan of $10,000 per farm or ranch.

The ADC also lends money and guarantees loans through its Agribusiness Loan Program. The Direct Agribusiness Loans are intended to develop agribusiness needed by primary producers and to expand rural economies.

5.7.2 Crown Land Disposition

ENR classifies Crown lands into three general zones, white, green and yellow (see Map 5.3). The white areas are the lands first settled in the province and cover one-third of Alberta. Crown lands in the white area, available and suitable for specific uses, can be applied for in the normal manner pursuant to the Public Lands Act (C.297. R.S.A. 1970). The green area is the non-settled forested land and includes 51 percent of the
province. Lands in the green area are administered by the Alberta Forest Service of Alberta Energy and Natural Resources, primarily for forest production and other compatible uses. Agricultural development, except grazing, is restricted in the green areas. The yellow area covers much of the Peace River region including Fort Vermilion. Crown lands in the yellow area differ from the white area in that homestead sale dispositions are available on suitable lands in the yellow area (Public Lands Division, 1981). A major issue in the Fort Vermilion region, as in much of the Peace, is the establishment of the boundary between green and yellow areas.

Crown land is allocated for agricultural uses under the provisions of the Public Lands Act. Conditions for the several types of tenure available vary with each approach. Common to all are the requirements that the applicant be a Canadian citizen over 18 years old. Priority for disposition is given to farmers requiring additional land and to local residents establishing new farms. Next come non-local people trying to establish new farms. New farmers must intend to become engaged primarily in farming and must have the skills and resources necessary for establishing a successful enterprise.

Under the Accelerated Land Sales program, tracts of Crown land are designated for settlement. Applicants for Crown land lots are first interviewed and assessed by field personnel. Then suitable applicants are declared eligible to participate in a draw procedure for the lots. Eligibility is subject to appeal to the Agricultural Development Committee. The Agricultural Development Committee (ADC) is a local agricultural advisory
group appointed under the auspices of Alberta Agriculture. The ADC fulfills an advisory role only and final decisions are made by Alberta Energy and Natural Resources (ENR).

The disposition of Crown lands for cultivation in ALS areas follow three main forms of tenure: homestead sale, farm development sale and farm development lease. Homestead sales are available in the province's yellow areas. Homestead sale agreements are contracts issued to successful applicants, who can obtain a maximum of four quarter sections (256 hectares). This limit must take their own land into account. Applicants must be less than 70 years old and have lived in Alberta for a total of at least one year out of the previous three. The land must be at least 50 percent arable. The purchase price is established at fair market value, but payment is phased in. All payments and municipal taxes are deferred until the fourth year after disposition. The maximum term of the agreement is 20 years and interest is calculated at a rate of 6% per annum. Interest must be paid on an annual basis after the first three years of the agreement. Lands can be assigned provided conditions have been met for the first two years and all payments are current. Final title may be obtained with payment of the purchase price and provided that the applicant has lived on the land for one year and cultivated at least 16 hectares per quarter section.

Farm development sales are intended to assist local farmers to expand and create more economically viable operations. The purchase price is established at fair market value with a minimum downpayment of 6 percent of the selling price. The maximum term is 25 years but principal payments can be deferred
for up to five years, however, interest must be paid annually at a rate of 6 percent. Lands can be assigned when conditions warrant.

Farm development leases can be issued for a term of up to ten years where ENR wishes to retain title to the land. The agreement may contain an option to purchase which automatically shortens the period to five years. Options to purchase are used when ENR feels that an applicant should fulfill certain minimum conditions because of his inexperience or the lack of development of his own land. The land can be purchased once conditions have been met. Yearly rental is a percentage of the land's fair market value.

The IRPS program primarily defines green areas, where most agricultural activity is restricted, and yellow areas, where agricultural development is encouraged. Once lands are designated for agricultural use in an existing yellow area or when a green area is converted to a yellow area, timber management is conducted on a liquidation harvesting basis. Priority is often given to sawlog harvesting for local residents. Before tracts of land are made available for agricultural development, referrals are made to other relevant agencies for their comments and conditions. In the IRPS program, many of these agencies are involved in the planning exercises.
5.8 Monitoring and Evaluating of the Planning Exercise

Annual reviews and reports are the main mechanisms involved in monitoring and evaluation. Annual reviews of the Jean D'Or Plan will be undertaken by the Regional Resource Management Committee. Annual reviews can result in the modification of specific objectives and guidelines. The review will be outlined in an annual report prepared by the Regional Resource Coordinator for the RIC.

Every five years, or sooner if officials decide conditions warrant, a major plan review will be conducted under the coordination of the RIC. All aspects of the plan will be evaluated, and the public will be involved as if a new plan were being developed. Significant amendments must pass the original approving authority and must include public announcements and a public hearing.

5.9 The Significance of Public Participation in the Planning Exercise

Among the most interesting aspects of the IRPS program, generally, and as it is applied to the Fort Vermilion area, is its emphasis on public participation. The high level of public involvement is also apparent in Alberta Agriculture's programs.

The Jean D'Or Plan started when public participation was not a significant component of the IRPS program. Public participation was limited mainly to the interest groups' involvement as consultative rather than participative Planning Team members. Consultative members are not involved in the day-
to-day development of the plan but are consulted at key stages. However, as the Jean D'Or Plan developed, full public participation became policy.

The new policy requires the identification of specific publics as opposed to the general public. The specific public is involved in the plan's direct preparation and review and has direct contact with officials preparing the plan. The general public is involved after documents are approved up until the plan is completed. Extensive use is made of the media in announcing various steps in the planning process and encouraging public participation.

In Fort Vermilion, as public participation became accepted policy, the Jean D'Or Plan was presented for public review and comment at the draft plan stage. An information newsletter (Alberta Energy and Natural Resources, 1984) was circulated throughout the area followed by displays in local shopping centres and, finally, an open house in Fort Vermilion. The public's comments together with the draft plan were provided to the higher level committees in ENR (Petch, 1984).

A main reason for increased public involvement in the IRPS program is the activity of Alberta Agriculture through its own participation program, Agricultural Development Committees (ADC) (Petch, 1984). ADCs are appointed by the Alberta Minister of Agriculture to advise the government on issues concerning public land dispositions, rural development, agricultural credit and other matters. The ADC is appointed for local areas and membership comprises three farmer representatives, one non-farm resident, one local representative of Alberta Agriculture, one
local municipal representative and one local representative of ENR. The vice-chairman is the District Agriculturist who, in the case of the Jean D'Or Plan, is also on the Planning Team. Thus the Fort Vermilion ADC has direct input into the development of the plan throughout the process.

The influence of the ADC is significant and has lead to several concessions in favour of agriculture. The ADC plays another major role in the Accelerated Land Sales program and other aspects of Crown land disposition. They not only initiate requests for lands to go to ALS, but they recommend parcel sizes, shapes and tenurial arrangements (Graw, 1984).

5.10 Case Summary

The IRPS program, as illustrated by the Jean D'Or planning exercise, is a complex and evolving system. It is widely supported by the participants involved in spite of the length of individual planning exercises (Petch, 1984). The Jean D'Or Plan took three years to prepare to the draft stage and is expected to be approved this year, five years after initiation. The program attempts to include all relevant government agencies through a committee system at various levels in the decision-making hierarchy. The sheer size, however, of the bureaucracy for the IRPS program is a factor in delaying the completion of individual planning exercises.

The Jean D'Or planning exercise illustrates the Alberta planning program's evolutionary nature. The adaptations and improvements indicate a very flexible approach, a learning approach and a commitment to achievement on the participants'
behalf. Political support for the program appears to be strong, due to the Associate Minister's direction to increase public participation and to develop innovative techniques for analysis.

Extensive information relating to resource analysis is encouraged and should not restrict the making of well-informed decisions. The use of ecological land classification is particularly noteworthy and reflects the integrated nature of this program. Some concern has been expressed recently over a decline in the quality and quantity of surveys being produced. This decline is attributed largely to internal agency politics and less experienced staff (Strong, 1985).

The method of land allocation includes a requirement for the applicant to demonstrate competence to farm. There are incentives to develop land quickly and a number of programs to aid the farmer in the establishment of his operation. There is a strong local pro-development agricultural lobby which has significant input into the decision-making process. Government extension and support agencies are located in the region and are very active in supporting agricultural development through research and advocacy.

The very strong emphasis on economic development and efficiency dominates the Jean D'Or planning exercise. Environmental considerations are evaluated entirely in this context, for example, wildlife management is dealt with in terms of control or as a residual concern in areas unaffected by development. Further bias may be introduced in the overriding influence of agriculture and agricultural expansion. Capability analyses are upgraded to support agriculture's position. Many of
the significant conflicts have been decided in agriculture's favour.

It is difficult to distinguish whether this is top-down or bottom-up planning. While the overall policy direction to develop more land for agriculture come from the political level, there is very strong 'grassroots' support for such a policy. Given the extensive opportunities for public input, even at senior levels, public sentiment may dictate the political decision.

The strong influence of agricultural development interests makes resource management increasingly rigid because of the way RMAs are developed to follow administrative rather than ecological boundaries. The elimination of limited development areas is an example where joint administration would have provided more management flexibility. The Alberta Forestry Service also promotes this more rigid approach, trading flexibility for stability.

Contingency plans or alternative guidelines, given changing economic and technical conditions, are not provided. Timber removal is by liquidation harvesting in all yellow area RMA's. If, however, the economic climate changes and agriculture is no longer viable, then forest management may become a higher priority. This problem may be partially ameliorated, if any trees remain, through the plan review mechanism.

The Jean D'Or Plan does not explain adequately discrepancies among the interpretations of a number of resource inventories. These contradictions may reflect simply the nature of the evaluation process and the range of interpretations
possible. In that case, these contradictions may be beneficial if brought to the attention of decision-makers by informing them of the limits of capability/suitability evaluation. Neither does the plan deal with adequately its relationship to the surrounding region. There is very little analysis of regional growth patterns and problems and how the Jean D'Or Plan will affect these or be affected by them.

The Jean D'Or Plan has been a costly and time-consuming document to produce. The prescribed time limit for a sub-regional plan is one and one-half years. The Jean D'Or Plan took three years to reach the draft plan stage and is still not approved. Environmental factors are too subservient to very strong development priorities. Nevertheless, as a land management planning program, Integrated Resource Planning enjoys widespread support. It is a flexible, evolving program and appears to be well established. The increasingly strong element of public participation encourages for optimism for the continued improvement of the IRPS program.
REFERENCES


Graw, Gerald, W., Regional Director, Peace Region, Public Lands Division, Alberta Energy and Natural Resources, Peace River. Personal Correspondence.

Jarvie, John, Planning Manager South Peace Regional Planning Commission, Grande Prairie. Personal Correspondence.

Klippenstein, Rick, District Agriculturist, Alberta Agriculture, Fort Vermilion. Personal Correspondence.


Vermilion.
PART III

CONCLUSION
CHAPTER SIX

A COMPARATIVE ANALYSIS

OF CANADIAN PLANNING PROGRAMS

FOR THE AGRICULTURAL DEVELOPMENT

OF CROWN LAND IN THE MARGINAL FRINGE
6.1 Introduction

Programs for planning the agricultural development of Crown land in Canada's marginal fringe region are in their infancy. Fledgling planning programs are developing slowly, hesitantly, often stumbling, frequently halting altogether. Sometimes, as in British Columbia, they take one step forward and two steps back. Since these programs began, over ten years ago, there has been much innovation and testing.

As if in response to the criticisms of academics such as Lassey and Ironside over the absence of planning in the marginal fringe (Lassey, 1977; Ironside et al., 1974), governments began creating planning programs to foster the development of these regions. The traditional barriers to effective coordination among government agencies were swept away in a bewildering array of procedures, teams, committees and taskforces. Provincial governments in Alberta and Newfoundland aggressively promoted agricultural expansion onto their arable, virgin Crown lands, supported by federal transportation subsidies and, in the prairies, the Canadian Wheat Board quota system.

Refuting Bentley's (1982) pessimism over the wisdom of developing the marginal fringe, demand for new land is still stronger than supply. Land is being developed, crops are being grown and sold. Farmers have been able to earn a living in the marginal fringe. Economic survival may not be due to agriculture alone but to significant government support and part-time work in other resource sectors. Assuming that this situation will continue more land will be developed, but the costs for government will be high. Infrastructure, incentive programs, and
social services necessary to the farm are more expensive on the frontier than in the agricultural heartland. Often investment in new agricultural areas is due to the broader social and political issues surrounding rural development and not just to agriculture. These broader issues often go unrecognized, and this points to a major flaw in all of the cases reviewed in the previous chapter— a lack of socio-economic information and assessment. The challenge to the planning process then is to match skilled farmers, limited public funds for development and the land with the highest suitability for agriculture while casting one eye over the shoulder at commodity prices and interest rate trends.

The diversity of programs for planning the agricultural development of Crown land in the marginal fringe is illustrated well by the representative examples of planning exercises conducted in each of the case study areas. In this analysis, we have found that specific exercises for planning the development of marginal land omit or are deficient with respect to one or more of the elements of the idealized process (as per Chapter 1). This omission or deficiency could be due to the original structuring and scoping of the overall planning program or it could be due to a decision to modify elements of the overall program to adapt to the individual circumstances of each planning exercise.

In this concluding chapter, I will address the most crucial questions for effective planning programs in the marginal fringe. I arrive at these questions after a review of the analysis in the case studies where representative planning
exercises using the planning process illustrated the strengths and weaknesses of each program:

• Has provision been made for a clearly articulated, stable yet flexible program for planning the agricultural development of Crown land in the marginal fringe, and what is the role, central or peripheral, played by the lead agricultural agency in this program?

• Given the fact that marginal lands are often at some environmentally defined boundary of marginality, how well are environmental factors (especially climate and soils) inventoried, evaluated and communicated to decision-makers?

• Do programs permit socio-economic assessments that shed light on the feasibility, broadly speaking, of preferred development strategies?

• Does the program allow for the consideration of alternative resource development options to agriculture?

• Are government programs such as Crown land disposition and agricultural incentives, effectively integrated with the planning program in promoting the agricultural development of Crown lands in the marginal fringe?

• What sort of effort has been made to build public understanding of and support for the planning program?
6.2 Is There a Clearly Articulated Program for Planning?

In all three cases analysed, no attempt has been made to develop a specific planning program for marginal fringe conditions. Individual planning exercises struggle, some more successfully than others, to adapt a province-wide program for Crown land management planning or agricultural development to marginal fringe conditions. Developing planning programs to address marginal fringe conditions and problems will allow individual planning exercises, such as those in the case studies, to have a greater impact by being less alien to local residents, more efficient and more effective in realizing regional aspirations.

Much of the literature calls for a comprehensive, hierarchical approach to planning for agricultural development. Policies and plans should be developed at all levels in the hierarchy as proposed in Figure 1.1. The regional or sub-regional unit is the most important as it is the operational level. This is confirmed in the planning programs reviewed in the cases and also corroborates the views of Lassey (1977) and the OECD (1978).

British Columbia and Alberta attempt to follow this comprehensive, hierarchical approach in their provincial Crown land management planning program. The program is documented officially as policy in each jurisdiction flowing from the provincial to the local level. However, many stages are left out of the program when it is actually implemented. British Columbia has concentrated at the sub-district level as has Alberta, to a
lesser extent. Alberta is also starting to renew emphasis on the
development of regional plans to guide more site specific
planning exercises. The development of regional plans will aid
in the adaptation of province-wide planning programs to marginal
fringe conditions. British Columbia has, however, abandoned
comprehensive planning programs in an atmosphere of resource
management instability and confusing political direction (Land
Planning Branch, 1983). The absence of higher level plans and
policy direction results in a more inefficient application of
programs at the field level of planning in hierarchical
bureaucratic structures which are used to receiving direction
from above. The problem also extends to fitting the more
localized planning exercises into the broader regional picture.

Integrated efforts in planning programs are illustrated
most successfully in Alberta. There, all affected agencies are
encouraged to participate at all levels in a committee system
with the field level using a planning team approach. In British
Columbia, integration is less of a feature in that agencies
provide an advisory role to the Ministry of Lands, Parks and
Housing through the interagency task force. Integration is not a
feature of the Newfoundland planning program beyond a referral
system after plans are developed. Consultation is conducted
mainly to facilitate agricultural development and to soothe
unhappy interests after plans are implemented. The Agricultural
agency plays a very important role in both the Newfoundland and
Alberta planning programs, while it is involved only
peripherally in the British Columbia programs.

Newfoundland and British Columbia are at opposite extremes
on a continuum representing agricultural agency involvement in the planning program for the agricultural development of Crown land in the marginal fringe. Alberta is near the middle of that continuum. The British Columbia Ministry of Agriculture and Food has very little input into planning exercises for the agricultural development of Crown land in the marginal fringe. This is due primarily to a lack of staff and low priority for land planning in the Ministry. While consultation does take place, it is far from satisfactory.

The Agricultural Branch in Newfoundland, on the other hand, controls the entire planning process for the development of agricultural land. However, the Branch's aggressive planning program coupled with significant funding provided by the federal government, to be spent by a contracted deadline, places other agencies in a reactive and defensive position. Crown land management planning is starting only now in the province; however, as most of the agriculturally suitable areas have already been subject to planning exercises under the Agricultural Branch's planning program, a precedent has been set and resource use designation in a Crown land plan will be only a formality.

Alberta, again, strikes a balance between Newfoundland and British Columbia. Alberta Agriculture is extensively involved in planning exercises as an equal participant on the Planning Teams and committees in the IRPS program. It is also involved in the design of Accelerated Land Sales projects through referral and through its role in the Agricultural Development Committees.

Approaches to land planning programs for agricultural
development in the marginal fringe vary from jurisdiction to jurisdiction in a number of aspects. First, British Columbia and Alberta programs follow a Crown land management planning approach. They look at a planning area's Crown land within an integrated framework. Then, based on resource sector objectives and a, predominantly, bio-physical analysis, they allocate lands to various uses. The British Columbia program did allow for a limited form of agricultural land management planning in designating agricultural development areas and resource management areas after agricultural areas had been identified in the Crown land management plan. This has not been the case in Alberta, where the planning program jumps directly from Crown land management planning to agricultural production project planning. In Newfoundland, there is only an experimental Crown land management planning program. A program for agricultural land management planning in designating agricultural development areas has been attempted. However, the main form of planning program has been at the production project level. The absence of other levels of planning programs has led to a neglect of opportunity costs and other potential resource uses.

In summary, planning programs are not articulated very well. There is no development of programs aimed specifically at marginal fringe regions. Agricultural land management planning programs are absent as are, for the most part, broader regional planning exercises. Project planning programs are often isolated from more comprehensive levels of a planning program. However, the agricultural agency does play a lead role in most of the more effective programs.
6.3 How Well are Environmental Factors Inventoried, Evaluated and Communicated to Decision-makers?

Climate and soils remain the ultimate constraints to agriculture in the marginal fringe. An increase in the price of grain could be very beneficial for farmers, but there are a few things that foreseeable price increases cannot do. They cannot increase the freeze-free period nor can price increases turn muskeg, affected by permafrost, into wheatfields. Climate becomes a barrier to cultivation before soils do, as one moves further north. Broad climatic data is required to define ecological limits. Once these limits are established, increasingly detailed climatic and soils information is required within the marginal fringe to determine environmental suitability for specific crops.

Over ten years ago, Laut (1973) and Williams (1974) called for a more systematic analysis of soil and climatic conditions in the marginal fringe. Only in the Alberta case does this analysis appear to be taking place, to a limited extent, with climate. Soil surveys are usually conducted at a very small scale and as an extension of an overall provincial program.

Evaluations or secondary inventories are conducted using a system, the CLI which is more suitable for southern conditions. The assessment of environmental conditions for agricultural development is conducted on a planning exercise by exercise basis. There is no national or provincial program for assessing environmental factors keyed specifically to the marginal fringe.

Even in Newfoundland, where it can be said, almost all
agricultural land is marginal, the national capability system is still used. It is difficult to educate the non-expert about a 'one through seven', capability class system which starts, for the most part, at class four in Newfoundland. It is also confusing to explain that the capability system is based mostly on crops that cannot be grown in Newfoundland.

The expansion of the planning program into Crown land management planning in marginal fringe regions results in increased assessment of alternative resource uses. To allow for the assessment of these alternative uses, different jurisdictions, particularly British Columbia and Alberta, are using innovative techniques to develop a common inventory base for comparison. The Alberta system for ecological land classification displays a number of advantages over other primary inventories in the marginal fringe. It provides a common base of information and a common system of map polygons for the evaluation of most alternative resource uses, including wildlife. This makes the comparisons among various resource use capabilities or suitabilities easier since all involved are using a common primary inventory base.

The use of both improved and unimproved CLI ratings provides the decision-maker with a base for more accurate estimation of some of the costs and benefits involved in alternative development scenarios. At the sub-regional planning level in Alberta and some parts of British Columbia, capability analysis uses only unimproved CLI ratings. In Alberta, as the planning exercise was being conducted, Alberta Agriculture conducted a survey on improved agricultural ratings. Although
controversial, it was accepted as a basis for decision-making. Petch (1984) states that other resource users may have been at a disadvantage as they did not use improved ratings in their evaluation of resources under their jurisdiction.

The diversity of land classifications conducted in the Jean D'Or Plan area displays an important feature of resource evaluations. This is also apparent in the debate over the impact of climate on capability classification in Fort Nelson and the capability surveys in the St. John's case. Different surveyors yield different interpretations of the same resource base for the same uses. Improved information and data can be one factor in these differences but often variations in interpretation reflect the latitude of possible derivations, given limited knowledge. Such a range of results can be beneficial to the planner in providing a way to judge the probable accuracy of any one survey.

Yield and variety trials were conducted in all three case study areas. However, only Fort Vermilion has an extensive long-term program where results could be used with any degree of confidence. British Columbia's variety and yield trials were cut, due to government restraint, after only two years of experimentation. Unstable funding is a major problem with resource inventory in the marginal fringe, as it is with other areas of resource management. Programs aimed at creating an inventory of developing resources are usually long-term investments with a pay-off several years in the future. If programs are cut in these areas, often few results can be realized for the already invested funds. This lack of short-term
results is often used as justification for even further cuts.

In summary, the inventory, evaluation and communication to decision-makers of environmental factors for marginal fringe development are weak but are making some progress. Usually, inventories and evaluations are not adapted to marginal fringe conditions but are often the extension of a national or provincial program. Climatic data is particularly inadequate. Funding is often short-term and insecure. However, the use of ecological land surveys and more extensive yield and variety trials as well as the use of both improved and unimproved capability ratings allows for some optimism.

6.4 Do Planning Programs Permit Adequate Socio-economic Assessments?

The lack of economic and social impact assessments is another major flaw in the planning programs for the agricultural development of Crown land in the marginal fringe. In an area where development costs for the government and the producer are higher than in more densely settled areas and where returns are generally lower, socio-economic factors must be assessed throughly. As ecological limits for agriculture have to be established, so do socio-economic limits where production cannot sufficiently yield income to justify public and private investment. This is true especially in more isolated areas where agriculture is the only possible major resource use and broader rural development issues are not involved.

Land in the marginal fringe may have arable soils and a favourable climate, but until the prices of commodities are
high enough to pay for the increased costs of production in the marginal fringe, agriculture, as an industry, is not economically viable. Government can decide to subsidize agricultural development, as it has done in many areas of the marginal fringe in Canada. However, these subsidies must be linked to a pay-off somewhere down the road that makes the spending of that money on agricultural development more efficient, equitable and effective for society than if spent, for example, on soil conservation in the Lower Fraser Valley of British Columbia.

Costs and benefits must be evaluated in both social and economic terms. If broader rural development objectives are a significant influence on development, they must be made explicit in the evaluation. These assessments have not been conducted in the past in the marginal fringe and only now, in Alberta, are they being attempted. The IRPS program being used in the Fort Vermilion area, is evolving and is just now starting to include economic analysis as a major feature. The draft plan presents a broad analysis of the costs involved. Based on this preliminary analysis, broader studies are being completed now on the financial, income and employment aspects of the plan.

Again, adequate socio-economic assessments are not being conducted in marginal fringe development planning exercises. A start is being made in Alberta on a form of economic analysis and results should be studied carefully to see if the methods used are applicable elsewhere.
6.5 Are Alternative Resource Development Options to Agriculture Considered?

A significant amount of interagency politics shapes the outcome of many resource planning exercises. Agencies feel that the others have more staff, time or support. Positions are often taken on the basis of these perceptions and attitudes become rigid. Effective coordination, strong direction and skilled negotiation are essential to overcome these obstacles. More importantly, the planning program must allow explicitly for the consideration of alternative resource development options to agriculture on all land in the planning area.

Alternative resource development options should be developed in the Crown land management planning exercises. These alternative options have not been considered in Newfoundland due to the absence of such a program. In Alberta, also, alternative options are not considered effectively. The overriding objective, in Alberta, is the development of more agricultural land, which means that other resource development options have to fight to retain what they can after agriculture is satisfied with its take. It is difficult to consider adequately other resource options in areas of relatively high capability for agriculture with such a predisposition to agricultural development.

Only in British Columbia were the preparation and evaluation of alternative strategies a significant part of the planning program. There, the alternative development options, with different resource uses being emphasised in each, give the decision-makers an indirect illustration of opportunity costs.
In the Crown land management planning program, it is appropriate that alternative scenarios or strategies, reflecting different resource uses, be developed in each planning exercise. If the role of the Crown land planning program is to effectively, efficiently and equitably allocate land to its best use, then a consideration of, at least, the major resource development options is appropriate.

6.6 Are Related Government Programs Effective?

Unlike urban planning, where participation and the exercise can often be viewed as major ends in themselves, the people of the marginal fringe are often attentive only to very tangible results. There are trees to be felled, land to be cleared, wildlife to be managed and non-renewable resources to be extracted. A planning program, therefore, must facilitate the realization of that development opportunity.

It is an exhilarating experience for the politician, just like the frontiersman, to cause wilderness to be turned into farmland and communities. The attitude is often one of turning vacant unused land into productive parts of the province. However, in all three cases, conflicts are apparent; nevertheless, agriculture is advancing inexorably, pushed by major funding programs, provincial policy and public pressure. Land is allocated to agriculture in large tracts for administrative convenience, as in Alberta and Newfoundland, or in a more environmentally sensitive, suitability based zoning technique, as in British Columbia.
Lassey (1977) views many of government's policies and programs for rural development as contradictory or inadequate. To these observations can be added the term inconsistent especially in the case of British Columbia. Land in British Columbia is sold to the highest bidder, regardless of the bidder's farming skills or resources to develop the land. Development funding programs require these skills and resources before lending money. The prospective farmer is caught in a 'catch-22' situation. In Newfoundland, the government and farmers race to the end of one five year, federal-provincial agreement after another, trying to spend all the money before the time is up and Ottawa takes what is left back home. This race occurs, to a lesser extent, in British Columbia with the Agricultural Land Development Assistance program funding and cost-shared agreements. In all areas studied, little attention is paid to other rural development requirements which arise as a result of agricultural development, such as schools, recreation, health care and so on.

The British Columbia Ministry of Agriculture and Food's inattention to the planning program which results in an expansion of the agricultural land base (discussed in Section 6.2) is also evident in the Ministry's relatively low level of financial incentives. Only one program, Agricultural Land Development Assistance, is aimed directly at developing new land. There are other loan and loan guarantee programs available, but they are not specifically aimed at land development. Interest rates in these other loan programs are also high (prime plus one percent).
In Newfoundland, government funding programs are provided mainly through the cost-shared agreements. Direct grants to farmers and prospective farmers, under these agreements, constitute a unique feature in the funding of development in the three case study areas. Again, wider rural development and regional disparity issues are a significant element in the application of these short-term funding agreements. This may have the desired result of pumping a lot of money over a short period into the local economy, but such programs are very inefficient in developing the agricultural industry. Money is often wasted on exotic projects, staff turn-over is high and evaluation is poor.

Alberta has an extensive array of programs to fund the expansion of the agricultural land base in the marginal fringe. These are predominantly low interest loan programs with a variety of built-in incentives. The funding for these programs is provided as a part of a securely established financing process. The province faces no deadline for the spending of money from an outside source. Loans are large enough and at rates which allow the skilled, new entrant or expanding operator to adequately develop the size of farm needed to be economically viable.

Alberta has the best program, of the three province's studied, for Crown land dispositions. Revenue is generated for the Crown at appraised value, but there are no onerous interest charges as in British Columbia, and, as in Newfoundland, applicants are required to have the resources and skills to become farmers.
The three main elements for effectiveness in government programs related to the planning program for agricultural development are the provision of adequate levels of secure long-term funding, the consistency among programs, such as Crown land planning and Crown land dispositions and, finally, the integration of agricultural development and broader rural development initiatives.

6.7 Does The Public Understand and Support the Planning Program?

Public participation is one of the most crucial elements in planning programs for the agricultural development of the marginal fringe. Using Erickson's (1980) terminology (from an organizational-expert to a democratic-participatory system), the St. John's case illustrates the organizational-expert approach while Alberta is democratic-participatory. British Columbia falls somewhere in between the two. The absence of public participation in Newfoundland and the late public involvement in British Columbia cause, at times, a confrontational atmosphere and a time-consuming reformulation of the plan to incorporate public comments, not to mention the lost opportunity of public support.

The results of public participation can be determined by the nature and history of the proposed development. This means that the public participation program must be adapted to individual planning exercise circumstances. This also means that the study of broader social factors is essential.

An informed and supportive public is critical to the continued improvement of planning programs. Petch (1985) feels
that this is one of the Alberta system's assets. Since the public is involved and begins to develop an understanding for the planning program, it will recognize mistakes and clamour for their rectification. However, problems of short-term program funding are, again, an issue. It takes time to build up the confidence of participants and the public in a planning program or exercise. Confidence, like farmland, can be eroded quickly and, like farmland, it may never be restored except at great cost.

The Alberta case, at least at this early stage, warrants close attention by officials from the other two case study areas. If the public participation program succeeds in Alberta, it will be worthwhile for other jurisdictions to adapt it to their own constituencies.

6.8 Implications for Future Research

As stated in the introduction to this thesis, the method which I have used has been to scan broadly the performance of major Canadian programs in the field of marginal fringe Crown land agricultural development planning. This has been accomplished by applying a comprehensive analytical framework, based on the idealized planning process of Chapter 1, to representative examples of planning exercises conducted in Canada's marginal fringe region. One of the major results of this analysis is to raise a host of questions which merit further research.

I will outline in this section a number of fundamental issues for continued research. One of the priority areas for
research will have to be the neglected field of socio-economic assessment. Here, issues are related to matters such as the actual history of specific land dispositions. This research can lead to a determination of motivational factors behind the demand for more Crown land. Is it being developed, or just logged, and has it been sold at a profit? A second issue related to the possibility of speculative gain raised above, is the economic viability of those areas actually being farmed in the marginal fringe. The profit and losses of a number of representative farms reflecting various commodity emphasis and locations should be studied. As well, the total costs of public infrastructure per yield of produce and how this compares to the agricultural heartland are important research items. Government transportation subsidy programs and quota systems may be affecting the development of marginal land. If this is so, how is this being done and should it be continued?

The impact of agricultural development on surrounding communities and the impact of those communities on agriculture has not received much attention by planners or researchers. Opportunity costs are seldom developed when considering development on Crown land. This is an area where economic modelling would be very useful. The impact on agricultural development of funding stability for planning and other resource development programs must also be studied.

Research related to environmental factors should be developing production systems to fit marginal fringe conditions. Also, resource inventories should be developed to address these conditions. The lack of research on climate and soil limitations
is a major handicap to efficient development. Long-term production trends and yields on various typical sites should also be monitored and evaluated. 

Existing planning programs should be monitored to allow for the more successful aspects of each program to be adapted and used elsewhere. This is particularly true of Alberta's public participation program and its new economic assessment initiatives. Experiments with the design of planning programs could be conducted in various regions of the country and funded by the federal government. Impacts of existing programs can be compared. For example, the project planning programs of Alberta, British Columbia and Newfoundland offer many common features which can form the basis of future research. Some research is being conducted on aspects of resource development in the marginal fringe; however, very little research has been done in a rigorous manner at a site specific level which is, after all, the level for a true test of most planning programs.

6.7 Conclusion

Planning the agricultural development of Crown land in the marginal fringe is in its infancy. Growing pains are readily evident in the inconsistencies and innovations in the planning process. Sudden changes in programs, as in British Columbia, and funding deadlines, as in Newfoundland, are harmful to the successful development of frontier resources and erode government's credibility. 

Some jurisdictions, such as Alberta, are making rapid strides in applying many of the traditional planning techniques
to the development of their marginal fringe areas. Still, much more can be done in terms of applying accepted analytical methods, especially in the area of socio-economic impact assessment. Planning decisions are, for the most part, based on an analysis of the environmental resources of the area. The methods used in environmental assessment, particularly land classification, must be applied using more rigorous standards of inventory and evaluation. Survey intensities must be matched more accurately to the end use of the information. The cost of more intensive surveys has to be balanced against benefits derived from the use of information provided in each individual exercise. Climatic data is conspicuously absent or insufficient. Public participation is just starting to be recognized as an important feature of the planning process while interagency coordination is accepted as essential, although more eagerly in some jurisdictions than in others. Increased public participation is a key to improvement in existing programs. No programs have been adapted to operate specifically in each province's marginal fringe region. The two main levels of planning used in the case study areas are Crown land management planning at the sub-regional level and project planning. The intermediate step of agricultural land management planning is absent.

Planning for the agricultural development of Crown land in the marginal fringe requires more consistency and stability in the application of process. Public participation and more rigorous application of more relevant analytical techniques are essential. Government, at the political level, and the public
must be in full support of the planning process before it commences and must maintain that support throughout.

Allowing for the comprehensive nature of this study, it follows that advice will have to be tailored considerably for each case or for other cases. Still it is possible to identify some normative principles of wide applicability, in part to summarize the results of this study. I propose the following series of principles or guidelines, based on the literature, the case studies, the conclusions reached in this final chapter and my personal experience. These principles will comprise a comprehensive prescription to improve planning programs for the agricultural development of Crown land in the marginal fringe.

Planning Program Articulation

- The first step in developing a marginal fringe region's agricultural resources should be a well designed Crown land management planning program. Following the identification of suitable agricultural areas in this program, agricultural land management planning should commence.

- Agricultural land management plans will set priorities among projects, design infrastructure and present agricultural development policies in agricultural areas of the Crown land management plan. Individual project planning should be the final stage in the planning program.

- Comprehensive planning, supported at the political level, is necessary to provide a broader context for increasingly specific levels of planning, and in a hierarchical bureaucratic structure, to provide guidance. A partial alternative is to allow for more responsibility for setting objectives and deciding on alternatives to rest with regional residents and officials.

- The agency responsible for Crown land administration should also develop the Crown land management plan in consultation with the agricultural agency and other Ministries. The agricultural agency in partnership with the Crown lands agency, should develop the agricultural land management plan. Project planning should be the responsibility of the agricultural agency in consultation with the Crown lands and other relevant agencies. The agricultural agency has the broad range of expertise to
ensure successful development of projects, and the selection of suitable applicants. It will also have to live and work with agricultural communities created through projects.

**Inventory, Evaluation and Communication of Environmental Factors**

- Funding for the assessment of environmental factors must be provided with a long-term time horizon.

- A national program to develop and apply techniques for the assessment of environmental factors in the development of the marginal fringe is long overdue and should be begun immediately.

- Environmental factors in the Crown land management planning process should use already available relevant sources of information. However, an ecological land classification should be conducted at the most appropriate scale for each individual planning exercise. An ecological land classification survey will provide a common base and source of information for the evaluation of all resource uses.

- Climatic analysis requires more detailed study than has been conducted in the past. Detailed analysis should be conducted at the agricultural land management planning level.

- Agricultural land management planning is conducted most appropriately at a 1:50,000 scale or larger for soil survey and agricultural capability mapping. Individual production projects are surveyed in the 1:10,000 to 1:15,000 range, again using agricultural capability and soil surveys.

- Yield and variety trials for a range of commodities are an essential precondition on typical sites in the agricultural land management plan area before production projects are initiated.

- Environmental resource capability evaluations should be surveyed on the basis of both unimproved and improved ratings. This will give decision-makers a grasp of the true potential of all resource uses.

**Assessment of Socio-economic Factors**

- Before marginal land is brought into production, socio-economic studies should be conducted to determine why existing, better quality land is lying idle or is not brought into production in the first place.

- Economic impact assessments should be conducted for all Crown land management plans. A more restricted benefit-cost analysis is suitable for agricultural land management plans and project plans.

- Cost of production information for locally grown crops is necessary to allow proper crop selection and as an input into economic assessments.
Social impact assessments should be conducted as a part of broad regional planning exercises. These assessments can be used then in more detailed planning exercises as a source of background information and direction.

Effective, Related Government Programs

Funding for the development of agricultural land in the marginal fringe should be provided through long-term, low interest lending with no program termination deadlines. This will prevent the rapid development of unsuitable land and will encourage farmers to husband financial resources in a more cautious manner than if grants are provided.

Implementation of Crown land management plans is done by the respective resource agency. Map units used in the plan should represent a full range of possible resource uses evaluated in the plan. The Fort Nelson Crown land management plan provides the best model of this approach.

Project implementation can be administered by government agencies or, as in the St. John's case study, by an independent project manager from the farming community.

It is preferable that the Ministry responsible for Crown lands not include any of the major resource agencies competing for Crown land allocations. Given interagency politics, suspicions of bias may erode the credibility of the Crown lands agency and lead to increasing rigidity of positions.

Farmers on the fringe should be given the option to lease Crown land to avoid tying up scarce capital in land. The option to purchase, however, should also be available to those farmers needing more security before making investments.

Applicants must have prior experience in farming and the resources to undertake the proposed development. This should be determined prior to applicant selection. Crown land should be advertised when ready for application, and applicant selection should be by public draw as in Alberta.

Land sale prices, rental and interest rates must strike a balance between providing a fair return to the Crown for the resource and removing an excessive financial burden from the applicant. Competitive bidding should not be a policy. The Alberta program is most effective concerning this issue.

Requirements for land development should be staged at five year and to the end of term intervals in order to ensure some initial development and to allow the land to revert to the Crown if the land resource remains undeveloped.
Alternative Resource Development Options to Agriculture

- Coordination in Crown land management plans should be by way of the planning team and committee systems. Teams should operate on a consensus basis so that all interests represented are considered equitably. Coordination can be modeled on a scaled down version of the Alberta system.

- Decision-makers should be presented with a number of alternatives in the Crown land management planning exercise which lend emphasis to various major resource use alternatives.

Public Participation

- All major interest groups should be represented on the planning teams and related committees. The general public should be fully consulted from the beginning to the end of the exercise.
REFERENCES


