

NEGOTIATION IN ENVIRONMENTAL POLICY-MAKING:
A CASE STUDY OF NITRATE REGULATION IN B.C.'S
CODE OF AGRICULTURAL PRACTICE FOR WASTE MANAGEMENT

by

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ABSTRACT

NEGOTIATION IN ENVIRONMENTAL POLICY-MAKING: A CASE STUDY OF NITRATE REGULATION IN B.C.'S CODE OF AGRICULTURAL PRACTICE FOR WASTE MANAGEMENT

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Non-point sources of water pollution from agricultural production are a growing problem in British Columbia. In response, the government has adopted the Code of Agricultural Practice for Waste Management. This thesis outlines the environmental impacts of agricultural non-point source pollutants in general, and the difficulties of regulating manure nitrate contamination in particular. This is followed by a brief discussion of the political, social, and economic factors that affect agro-environmental policy-making. These factors help to set the context for the Code's development.

The Code was developed using an industry-government multi-stakeholder negotiation. The goal of the thesis was to describe and evaluate the negotiation process used in the Code's creation, and to evaluate how the process affected the Code's implementation. Qualitative data were gathered through tape-recorded personal interviews with 12 selectively sampled respondents who were involved in the Code's negotiation, and ten selectively sampled respondents who were involved in the Code's implementation. In addition to the interview transcripts, other sources of data were documents produced during the Code's negotiation, and the proceedings of a non-point source pollution workshop.

The major findings were that the Code's negotiation was a productive process (it met eleven of the sixteen criteria for negotiated rulemaking), and it did increase farmers' awareness of environmental issues. However, it was not sufficient - by itself - to motivate farmer compliance. It was concluded that the Code was part of a larger "package" of programs (e.g. cost-sharing programs, Environmental Guidelines booklets, producer conservation groups), that in total are helping to motivate compliance.

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CHAPTER ONE

INTRODUCTION

1. STATEMENT OF THE PROBLEM

Non-point sources of water pollution from agricultural production are a growing problem across Canada. In British Columbia the problem has manifest itself in the form of nitrate and pesticide contamination of groundwater (Liebscher *et al.*, 1992), and phosphorus loading in surface water (Nagpal, 1992). In response, the government of British Columbia has adopted the Code of Agricultural Practice for Waste Management, a unique piece of legislation in Canada (Science Council of Canada, 1992), designed to reduce non-point source pollution. The regulation will hereafter be referred to as the Code.

Historically, many environmental statutes exempted farm operations, leaving the responsibility for environmental protection to agricultural agencies. This tradition has been influenced by the agrarian myth, special features of the agricultural sector, the nature of agricultural pollution, and the fact that farmers are a powerful interest group. Regulating agricultural pollution requires a recognition that the farm sector is different from the industrial sector. Negotiation is one way of dealing with these differences, and the general purpose of this thesis is to determine how well negotiation works in regulating agricultural non-point source pollution.

2. GOAL AND OBJECTIVES

The goal of the thesis is to describe and evaluate the negotiation process used in the Code's creation, and to evaluate how the process has affected the Code's implementation. The description and evaluation are based on the perspectives of various stakeholders.

The research has the following five objectives:

1) To review the literature on negotiation and regulation of agricultural pollution to place the Code in context, and to create a framework for the assessment.

2) To assess, from the stakeholders' viewpoints,

a) the productivity (efficiency and effectiveness) of the Code's negotiation process;

b) how the Code's negotiation process affected the form of regulation selected;

c) how the Code's negotiation affected the farmers' incentive to comply.

d) how well the Code's implementation is working, why, and what changes they would suggest.

3. OVERVIEW OF THE THESIS

The thesis consists of four parts. Part One (Chapters Two, Three, Four and Five) places BC's Code into context, in order to understand how and why it was developed. The general context includes the biophysical, socio-economic, and political factors that come into play when regulating agricultural pollution. Historically, many environmental statutes excluded farm operations,

and the reasons for this are examined in Chapter Three. A more specific context is provided by examining the evolution of governance of nitrate regulation in Europe. Over time there, governance has evolved in terms of the power of the stakeholders involved, the reliance on voluntary measures, and the degree to which economic or ecological factors are seen as being the most important in regulating the agricultural sector. The more specific context of the European experience helps to explain the evolution of BC's nitrate policy. It also assists in explaining how the process affected the form of regulation selected in BC (Objective 2b), as one of the participants in the Code's negotiation travelled to Europe on a fact-finding mission. This participant concluded that "we ignore the European experience at our peril" (BC Ministry of Agriculture, Fisheries and Food (BCMAFF¹) Report, July 1988, 5).

Part Two (Chapters Six and Seven) begins with a case study of the factors that affect nitrate regulation in BC, and a chronology of the key events that led up to the Code's negotiation. This is followed by an outline of the methods used to collect and analyze the data on the experience with negotiation.

Part Three contains three chapters. Chapter Eight evaluates the productivity of the negotiation process used to create the Code (Objective 2a), through the use of criteria that improve the likelihood of successful negotiated rulemaking. The sixteen criteria, which relate to negotiation conditions and participants,

¹A list of the acronyms used in the thesis is located in Appendix V.

are derived from the literature on experience with negotiated rulemaking in the United States.

Chapter Nine discusses the negotiation's effect on the form of regulation selected (Objective 2b). The policy options that the negotiating committee considered evolved over time, from more stringent approaches (e.g. livestock density limits), to the "softer" approach of a code of practice.

Chapter Ten contains a qualitative assessment of the Code's implementation (Objectives 2c and 2d). The results of this chapter lead to recommendations on how the Code's negotiation process could have been improved, how the regulation itself could be changed, and how its enforcement could be enhanced.

In the final chapter, (Chapter Eleven), the thesis addresses the question of whether this type of negotiation process or the format of a "code of practice" could be used for other types of non-point source pollutants.

4. OVERALL RESEARCH DESIGN

The overall research design was that of a qualitative case study approach to policy analysis (Patton and Sawicki, 1993). This approach focuses on the way the policy operates, and how the participants view it. The aim is to understand what is valued by the participants, and to present the diverse views of the involved parties. This thesis describes the regulatory system before the Code, the exact nature of the new regulation, and the new regulatory system that resulted. The understandings of the Code's participants were determined through personal interviews, document

analysis, and attendance at a BCMELP-sponsored (BC Ministry of Environment, Lands and Parks) workshop on non-point source pollution.

According to Yin (1994, 6), a case study is the appropriate research method when the following conditions are met:

- 1) the research questions are "how" and/or "why" questions;
- 2) control over behavioural events is not required; and
- 3) the focus is on contemporary events.

A case study is a relevant method for this research, as the three conditions stated above match the situations listed below.

1) This thesis has focused on addressing a) how and why the Code came to be negotiated, b) how well the Code's negotiation process worked, and c) how the Code's stakeholders view its implementation.

2) The study of the Code's development and implementation requires an examination of events that have already occurred or are presently occurring. No control over behavioural events is required.

3) The thesis focuses on a negotiation that occurred from 1987 to 1992, and an implementation process that is ongoing. Thus the emphasis of the research is on contemporary events.

A major strength of the case study approach is the opportunity to use multiple sources of evidence (Yin, 1994). This case study involved the following sources of information:

- 1) a literature review of documents related to the regulation of agricultural pollution.

2)analysis of the documents related to the AWWC (Agricultural Waste Management Committee - the Code's negotiating committee).

3)personal interviews of stakeholders who participated in the AWWC, and those involved in the Code's implementation.

4)the results of a Non-Point Source (NPS) Pollution Workshop, held in B.C. while the research for this thesis was being conducted.

The data collection methods are discussed in more detail in Chapter Seven.

4.1 The Researcher's Values

Qualitative research requires that researchers come to grips with the tremendous influence they have on collecting and interpreting the data. Researchers are not simply neutral and unbiased recording instruments. One way of dealing with this is to admit the subjective experiences of researchers into the research frame, by exposing their biases (Fontana and Frey, 1994).

Accordingly, I acknowledge that I was raised on a farm, and have two university degrees in agriculture. I have strong beliefs about the importance of maintaining sustainable, regional, agricultural economies as part of preserving global food security. At the same time, I have lived in urban areas for most of my adult life, and all of my university degrees have also focused on environmental issues. I also have strong personal beliefs that businesses (including farms) should ensure that they minimize the negative impacts on the environment from their practices. The

values that I hold also help to shape my research conclusions and recommendations.

5. SIGNIFICANCE OF THE STUDY

The results of the study can be of benefit to policy makers and stakeholders by determining how productive the Code's negotiation process was, and how this process can be applied to other situations. If the Code's development succeeded because it followed established negotiation criteria, then the secondary benefit of the study is to determine whether the process helped to develop a sense of "ownership" and "buy-in" amongst farmers. "Ownership" would improve the likelihood that farmers would comply with the Code. This finding is of interest because, as mentioned above, the Code regulates non-point source pollution which is more difficult to control than point source pollution, because of its dependence on the voluntary behaviour of the waste producer. If participating in a negotiation process helps to develop a sense of ownership, which is an important step in behaviour modification, then stakeholders in other non-point source pollution problems might usefully be involved in similar approaches.

6. LIMITATIONS OF THE STUDY

The major limitations on this research were the time constraints of both myself and the respondents. The interviews were conducted in Victoria, the Lower Fraser Valley, Kamloops, and the Okanagan over a period of two months. I was the sole interviewer, and many of the respondents had busy schedules. The farmer respondents were selected for their knowledge of (and

experience with) the Code, and are not meant to be a random sample of farmers in the province.

I also transcribed most of the tape-recorded interviews (see Chapter Seven). There is a concern that "investigators who transcribe their own interviews invite not only frustration but also a familiarity with the data that does not serve the later process of analysis" (McCracken, 1988, 42). While I definitely felt frustrated with the tedium of the transcription process, I made a conscious effort to ensure that the transcripts were verbatim records. The only parts of the interview that were not transcribed were when the respondents had definitely gone off topic (e.g. one respondent mentioned his work with the artificial insemination of cattle), or when they discussed something "off the record."

PART ONE
LITERATURE REVIEW

CHAPTER TWO

MANURE AS A NON-POINT SOURCE POLLUTANT

1. INTRODUCTION

This chapter begins with a discussion of agricultural non-point source pollutants, their sources and their impacts. From this broad overview, the focus narrows to the impacts of nitrates from excessive manure use. This focus has been adopted because, with respect to the agricultural industry, manure nitrate is the "...most significant contaminant, and the one that is appearing on the widest scale" in BC (Freeze et al., 1993). The information gaps related to the nature of non-point source pollution, the health risks associated with nitrates, and the uncertainties of nitrate movement in the soil are highlighted.

2. AGRICULTURAL NON-POINT SOURCE POLLUTANTS

There are a number of agricultural non-point source pollutants that are of concern (see Table One). The sources include manure, chemical fertilizer, soil erosion, silage effluent, milk parlour effluent, wood waste leachate, and pesticides. The contaminants most often identified with these sources are nutrients, sediments, organic materials, pesticide residues, and pathogens. Depressed oxygen levels in surface water, toxicity to aquatic organisms, and human health impacts are the main impacts of concern (Hagen, 1990)¹.

¹ For readers wishing information on the other agricultural non-point source pollutants, please refer to Hagen (1990), Government

Table One
Environmental Impacts of
Agricultural Non-Point Source Pollutants

SOURCE	POTENTIAL POLLUTANT	IMPACTS
Manure	Pathogens, Phosphorus, Nitrate, Ammonia, Organic Nitrogen, Organic Carbon	Human Health, Algal Growth, Oxygen Depletion, Lethal to Aquatic Organisms
Chemical Fertilizer	Phosphorus, Nitrate, Ammonia	Same as Manure
Silage Effluent	Same as Manure	Same as Manure
Milk Parlour Effluent	Same as Manure, plus Acidity	Same as Manure
Soil Erosion	Phosphorus, Nitrogen, Pesticide Residue, Sediment	Same as Manure, plus Diminished Agricultural Productivity
Wood Waste Leachate	Organic Nitrogen, Organic Carbon, Acidity, Resin Acids	Oxygen Depletion, Lethal to Aquatic Organisms
Pesticides	Active Ingredients, Inert Ingredients	Human Health, Lethal to Aquatic Organisms

Source: Adapted from Hagen (1990).

2.1 Manure Nitrate: Information Gaps

There are information gaps that make nitrate regulation very difficult. These gaps are due to the nature of non-point source pollution, the uncertainties of nitrate leaching, and the health risks of nitrate consumption.

2.1.1 The Nature of Non-Point Source Pollution

A major difficulty involved in making policy decisions to

of Canada (1991), Environment Canada and BCMELP (1992), and BCMELP and Environment Canada (1993).

control agricultural non-point source pollution is uncertainty. The causes of the contamination and their effects are often separated, both temporally and spatially. Thus it is difficult to connect causes and effects, and to assign responsibility for environmental damages. Furthermore, should farmers be held responsible for past practices, undertaken in good faith, with the advice of agricultural professionals, and often with government support? The lack of information about the extent of water contamination, as well as the costs of water quality improvement, introduces tremendous uncertainty about the potential gains from policy actions (Baldock, 1992).

Agricultural pollution is not confined to a few, easily identified polluters. There are few pollution control devices that can be installed on farms. Abatement would require changes in farming practices and systems, including nitrogen fertilizer inputs, manure storage and application practices, and cropping systems (Braden and Lovejoy, 1990).

2.1.2 Uncertainties of Nitrate Leaching

In order to understand why nitrate leaching is a problem, and the uncertainties involved with its regulation, one needs to understand what happens to nitrogen in manure when it is applied to soil. The problem is complex, not only because of the various forms that nitrogen assumes, but because of the difficulty in predicting what these forms will be at any one time. Consequently it is difficult to predict how much will be taken up by the plants, and how much will be lost to leaching and other processes.

The nitrogen in manure is mainly in the organic and ammonium form (Figure One). Soil organic matter is transformed into plant available forms of nitrogen (ammonium and nitrate) through the processes of mineralisation and nitrification. Nitrates not taken up by the plant can be lost to the air in gaseous forms (by the process of denitrification), or lost by leaching. Leaching poses the greatest threat to groundwater supplies. Nitrates may also be immobilised in soil organic matter, and may later be mineralised to continue the cycle. The factors that affect the process include the types of soil microorganisms present, the temperature, the carbon to nitrogen ratio of the organic matter, and the presence of oxygen in the soil (D'Itri and Wolfson, 1987).

In addition to the uncertainties of nitrate leaching from the nitrogen cycle, there are uncertainties as to how much of the leached nitrate on agricultural land comes from fertilizer. In the UK, scientists at the Institute of Arable Crops Research at Rothamsted discovered that the majority of nitrate leached from cultivated fields over the winter came from soil organic matter, not from excess nitrogen fertilizer. They also discovered that nitrate leaching from organic matter continued for a very long time. Plots of undisturbed soil, established in 1877, had nitrate leachate measured annually. It took 41 years for the nitrate leachate to decline to half of its original rate because of the "large pool of decomposable nitrogen in the soil, which is broken down very slowly" (Addiscott, 1988, 52). Similar research results have been found in the U.S. (Francis, 1992).

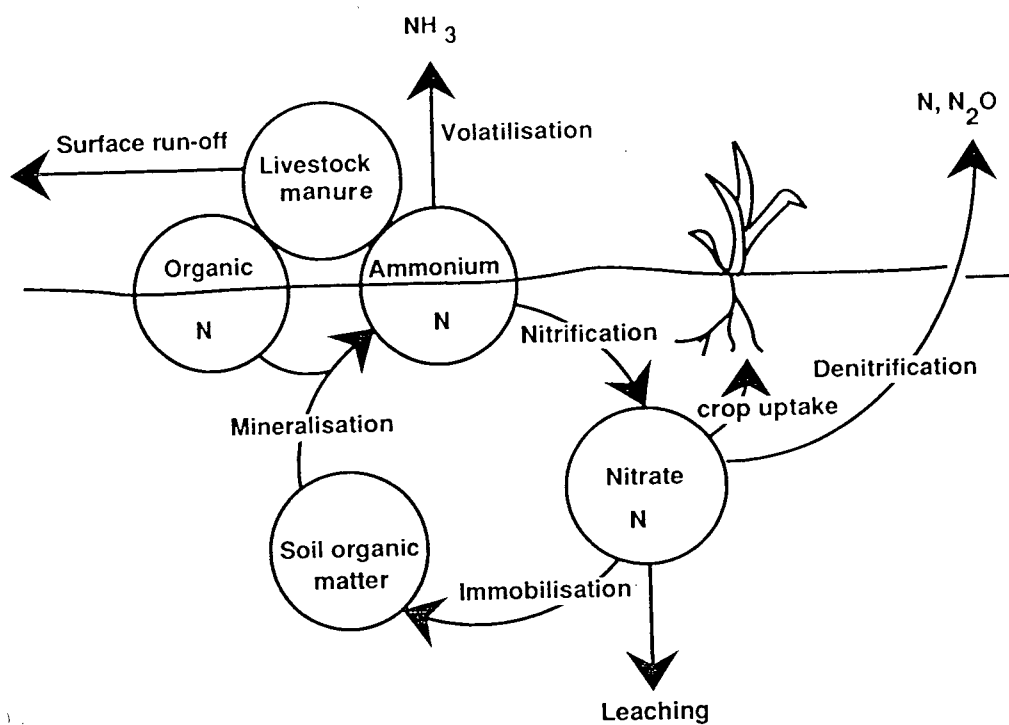


Figure One: The fate of manure nitrogen in the soil.

Source: Pain et al., 1991, 156.

Another source of uncertainty is the rate at which nitrate moves through the soil and reaches groundwater. This is highly site dependent, and varies with the amount of precipitation, the depth of the water table, the type of soil, and the type of bedrock. Depending on all of these factors, the nitrate in the water drawn from an aquifer may reflect what was happening on the surface up to half a century ago (Addiscott, 1988).

The Rothamsted researchers further calculated that if UK farmers halved the amount of fertilizer they applied over a decade, this would only reduce the soil's organic nitrogen content by four percent. Furthermore, yields would be reduced by about ten percent, "...but farmers make all their profit on that last ten percent" (Addiscott, 1988, 54).

2.1.3 Health Risks

The main health risk associated with nitrates in drinking water is methaemoglobinaemia ("blue baby syndrome"). Methaemoglobinaemia is a blood disorder that occurs predominantly in children under one year of age who consume excess nitrate. It occurs only in infants whose diet is dried milk and water (i.e. those who are not breastfed) (Addiscott et.al., 1992). Babies have gastric juices with a relatively high pH, which favour the presence of nitrate-reducing bacteria. The nitrate ions consumed are reduced to nitrite ions, which pass into the blood and affect the haemoglobin molecule. The oxygen carrying capacity of the blood is impaired, and the baby's skin turns a blue colour (Muia and Thomas, 1990).

Although the majority of cases have occurred when water contained more than 100 mg/l of nitrate, the maximum allowable level of nitrates in drinking water in Canada has been set at 45 mg/l, giving a safety factor of approximately two (Addiscott et al., 1992).²

Although the research results have been inconclusive, other health concerns have arisen regarding the consumption of nitrate. These concerns include hypertension, increased infant mortality, central nervous system birth defects, and certain cancers including gastric cancer (Spalding and Exner, 1993). Drinking water contributes only about 20 percent of the dietary intake of nitrates, with the remainder coming from various food products (Muia and Thomas, 1990, 93). Thus, it is unclear how much of the health risks associated with nitrate consumption are related to contaminated water.

3. CONCLUSION

Any policies to control agricultural nitrate pollution need to consider three points related to information gaps. First, policy makers need to have a good understanding of the nitrogen cycle. This is needed in order to determine what can be achieved by restricting fertilizer application, and to assess the costs and benefits of various policy options. Second, each location is unique in terms of its potential for nitrate leaching. Thus,

² Nitrate limits are expressed in two ways. The 45 mg/l limit is the total amount of nitrate. If only the nitrogen in the nitrate is measured, the equivalent limit is 10 mg/l.

regulations designed to address the problem on an area-wide basis may not be effective in local situations. (However, tailored standards are not necessarily better, unless policy-makers have the information needed on the characteristics of specific sites.) Finally, the degree to which the problem would be solved by banning nitrogen fertilizers depends on the pool of soil organic nitrogen that can be converted to nitrate (Francis, 1992).

CHAPTER THREE

REGULATION OF AGRICULTURAL POLLUTION

1. FACTORS THAT AFFECT AGRO-ENVIRONMENTAL REGULATION

There are a number of historical, socio-economic, and political factors that come into play when regulating agricultural pollution. These factors are important because they tend to overshadow the biophysical factors involved (e.g. the source and quantity of the pollutant). These factors have also moulded farmers' values, attitudes and behaviour with regard to environmental issues.

Agriculture in North America has a policy tradition that emphasizes voluntary compliance, and provides incentives as added inducements. For example, in the US, Environmental Protection Agency regulations mandated adoption of agricultural Best Management Practices (BMPs).¹ The states sought voluntary implementation of BMPs, by offering cost-sharing programs to provide financial assistance (Kerns and Kramer, 1985). This tradition is based on the premise that farmers are stewards of the land, and

that it is in a farmer's best interest to address any identified resource problems and that resolving those problems will lead to better crop production and ... better farm family health and quality of commodities (Zinn and Blodgett, 1989, 185).

Historically, many environmental statutes excluded farm

¹BMPs are those practices considered to be the most effective and practicable techniques for controlling NPS pollution.

operations, leaving the responsibility for environmental protection to agricultural agencies. Where does this historical tradition come from?

1.1 The Agrarian Myth

Browne et al. (1992) trace the tradition of agriculture's special status back to the origins of the agrarian myth. (Myth here is not used in a pejorative way, but rather in the sense of a story or belief that attempts to explain a basic truth.) In the nineteenth century the myth professed that farmers embodied moral and political ideals that should be adopted by all citizens. Farmers were perceived to be at the economic mercy of those who bought their commodities. There was a belief that farmers as a group worked harder and invested more resources in their enterprise for a smaller return than did any other major sector of the economy. Consequently, farmers were "owed a social debt because they suffered so that a democratic society might prosper" (Bonnen and Browne, 1989, 11-12).

The myth became supported by public policy that tried to preserve family farms and farming as a way of life. This led to increased support for agricultural price and commodity support programs. By the twentieth century, the myth had changed. Today, the myth has been interpreted to mean that farmers should be exempted from criteria routinely applied to others because family farms are "repositories for family values and hence for traditional ways of defining personal loyalties within a framework of community" (Browne et al., 1992, 11).

1.2 Special Features of the Agricultural Sector

The agricultural sector is made up of a large number of small units, many of them family farms. It is difficult to treat these units in the same way as large commercial enterprises. The costs of compliance will vary across agricultural commodity groups. Commodity groups in different provinces/countries that are competing for the same markets will be put at a competitive disadvantage, as they face different environmental regulations. For example, farmers cannot pass on the costs of compliance with environmental regulations, since they are price takers (i.e. they cannot control the prices they receive)². This puts them at a disadvantage in complying with environmental standards, compared to other industries such as manufacturing (Baldock, 1992).

Land is agriculture's central resource, and it may limit pollution control options or farmers' capacity to adjust production methods. Since land is immobile, farmers cannot easily shift to alternative locations where pollution is less damaging (Baldock, 1992). Farmers in BC are even more constrained in their land use. In 1973, land designated as agricultural land was placed in the Agricultural Land Reserve (ALR), and can not be used for other purposes unless the owner is given permission by the Land

²Some agricultural commodity groups with marketing boards are able to set prices. In BC, this includes poultry, eggs, milk, mushrooms, and grapes. The Vegetable Marketing Commission attempts to set prices, but the imported price of vegetables usually determines the market price. Commodities in BC that are not able to set prices include cattle, hogs, sheep, tree fruits, and berries (Bohman, 1995).

Commission (Wilson and Pierce, 1982).

Farmers produce for and compete within markets for agricultural commodities. It is believed that the best prospect for survival is to adopt new technologies that will lower per-unit costs and expand (short-term) production. In the long term, farmers must adopt ever-improving technologies simply to maintain their existing situation. This treadmill effect means that farmers are reluctant to reduce their agro-chemical use, fearing that it would place them at a competitive disadvantage. Farmers have come to view agro-chemicals as a form of "insurance" that reduces the financial risks of unstable prices or crop failures (Roberts and Lighthall, 1991).

Commodity price support and farm income programs tend to base benefits on yield/ha. The increase in farm incomes brought by farm programs in the 1960's helped to finance the transition to capital-intensive, high input farming. Consequently, chronic overproduction and agricultural pollution are two aspects of the same problem (Roberts and Lighthall, 1991).

1.3 A Powerful Interest Group

Farmers are a powerful interest group in Canadian politics. Although only 3.2 percent of Canadians live on farms (Statistics Canada, 1994, 455), the food industry - from farm to supermarket - is one of Canada's largest sectors, with annual sales exceeding \$50 billion in 1986 (Wilson, 1990, 3). In terms of primary industries' contribution to Canadian GDP, agriculture is second, after mining and oil well industries, outpacing logging and forestry, and

fishing and trapping (Statistics Canada, 1994, 452).

There are a number of reasons why the farm sector has major political clout. First, the way that electoral riding boundaries are drawn gives rural votes more weight than urban votes. Second, the preservation of the rural way of life is very appealing to urban Canadians, even though most of them are at least one or two generations removed from the farm (Wilson, 1990).

A third reason is the monopolistic farm organizations that played a key role in agricultural policy. For example, the Canadian Federation of Agriculture (CFA) and their provincial affiliates, are widely integrated across both commodity groups and territory. This system of hierarchical affiliation has exercised maximum leverage on politicians.

(They) can speak with leaders on very specialized issues one day and have thousands in the streets the next day focusing on general issues affecting all farmers....(T)heir organizations are sufficiently co-ordinated one with the other that all relevant politicians will realize the electoral consequences of their actions early in the decision-making process...Here it is not the individual farmer's group that is important but the system of groups (Coleman, 1988, 121).

It is not only the farm groups, but the type of relationship they have with the state. Cox et al. (1985) characterize the relationship as a corporatist style of interest representation. In corporatism, "interests are represented through a limited number of hierarchical associations, expressly or tacitly acknowledged by government as the principal legitimate source of policy demand" (Roberts and Edwards, 1991, 32). In the case of agriculture, both the government and the farmers are committed to complementary

objectives (i.e. stable food production and stable farm incomes). Corporatist representation has a formal link with regulation. The interest group members must involve themselves in the self-regulation and discipline of their own constituency in return for the privilege of their favoured relationship with the government.

2. CONCLUSION

There are several factors that make it difficult to regulate agricultural pollution. These factors include the agrarian myth, special features of the agricultural sector, and the political power of farm interest groups. These factors create several challenges for designing effective policies for controlling agricultural NPS pollution, as is evident from the consideration of experience with different types of policy options discussed in the next chapter.

CHAPTER FOUR

A REVIEW OF REGULATORY MEASURES AND EXPERIENCE

1. INTRODUCTION

This chapter gives an overview of types of regulatory measures to control agricultural non-point source pollution, and then reviews nitrate regulation in the United Kingdom (UK) and the Netherlands. These two countries have been chosen because Europe, with its smaller agricultural land base and intensive livestock production, has been at the forefront of agro-environmental policy-making. The chapter concludes with a description of a three stage process that countries tend to move through when trying to regulate nitrate pollution. These stages help to explain the evolution of the regulatory process in B.C., as discussed later in the thesis.

2. POLICY OPTIONS

The nitrate-related information problems discussed in Chapter Two, and the historical, political, and economic factors discussed in Chapter Three suggest several challenges for the design of policies to control agricultural non-point source pollution. The challenges include designing policies that are politically viable, not excessively difficult or expensive to enforce, yet at the same time still protect the environment. Braden and Segerson (1993), Francis (1992), and Shortle et al. (1989) offer a number of criteria for evaluating the efficiency of alternative policies. These criteria are important in light of the information and political problems involved in nitrate regulation, and include

ability to enforce, ability to target sensitive areas or times, correlation with water quality, political viability, and effect on producer income.

Ease of enforcement is related to a variety of factors, including the characteristics of the policy option, characteristics of the legal and judicial system, and the receptiveness of the target population. Since it is very difficult to monitor non-point source pollution emissions, enforcement will be more costly and needs attention at the outset. Effective enforcement requires an overseeing body to detect and sanction non-compliance. The costs of detection and sanctioning must not be too high, or else government may monitor at a less than optimal level and polluters may be able to escape compliance (Braden and Segerson, 1993).

As described in Chapter Two, the impacts of pollution related decisions vary over both time and space, due to natural variability. Thus, policies that can be targeted to sensitive times or areas are preferable to ones that ignore natural variability and induce uniform responses (Braden and Segerson, 1993).

Policies must be politically viable, both in terms of support from the powerful agricultural sector, and in terms of acceptance by politicians, interest groups and the general public.

Changes in manure management practices to reduce nitrate leaching will generally increase production costs, and reduce producer income. However, variation in the physical determinants

of the potential for environmental contamination between farms, mean that some farmers may be able to take action to protect water quality at a lower cost than others.

Obviously, alternative policies differ considerably in terms of these criteria. Table Two summarizes how four selected alternative approaches¹ might be judged. The rankings are relative rather than absolute, and the column headings have been worded so that all the "High" rankings are the most desirable.

Moral suasion and education are based on the premise that farmers will voluntarily adopt pollution control practices if they are informed of their own risk and social responsibility. Voluntary programs have short-run political appeal, as politicians can appeal to the virtues of a clean environment without having to do anything.² They are also very appealing to farmers. Education programs can be targeted to farmers who appear to be most at risk, but are non-enforceable because they have no regulatory basis. Their correlation with water quality is low because farmers will also be subject to pressures from competitive agricultural markets, and it is unrealistic to believe the average farmer will voluntarily adopt costly pollution control measures under these

¹Although taxes are a commonly suggested policy option for reducing the impacts of inorganic nitrogen fertilizer, they are not a very viable option for reducing manure nitrate impacts. Taxes would have to be tied to the number of animals or the amount of purchased fodder. As described in Section 3.2, the Netherlands' attempt to reduce the water quality impact of manure by taxing animal fodder was not very effective.

²This political appeal will only succeed if the public believes that polluters will respond, or if the public doesn't care.

Table Two
Evaluation of Selected Policy Instruments for
Agricultural Non-Point Source Pollution

Policy Options	Ability to Enforce	Ability to Target	Correlation With Water Quality	Political Viability	Producer Income
Moral Suasion and Education	N/A	High	Low	High	Maintain or Reduce
Application Restrictions/Zoning	Moderate	High	Moderate	Variable	Maintain or Reduce
Financial Incentives	High	High	Moderate	High	Maintain or Increase
Government Spending - Water Treatment	High	High (but reactive)	High (but reactive)	Variable	Maintain or Increase

Sources: Adapted from Braden and Segerson (1993), Francis (1992) and Shortle et al. (1989).

Note: The column headings have been worded so that all the "High" rankings are the most desirable.

pressures (Shortle et al., 1989).

Another policy option is regulations that restrict the timing or amount of manure applied, or zoning of land according to allowable manure input rates. These regulations may be a better alternative if localized intensity of use - rather than total overall use - is the major cause of nitrate leaching. Per hectare restrictions on the amount of manure applied would effectively deal with a local intensity of use problem. Different regions could achieve a given water quality objective with quite different degrees of manure use restrictions. Therefore, uniform limitations would not have uniform impacts (Francis, 1992). If the restrictions were only applied on a local basis, and if they led to decreased farm output, care would have to be taken to avoid economic harm to the area. Farm income in the restricted area might become depressed, while farm income outside the area would increase. Political viability would be higher if farmers were accustomed to working with rate restrictions on other farm inputs (e.g. fertilizer, pesticides), and if the restrictions were set at a rate required for optimum economic return (Francis, 1992).

Land could be zoned according to allowable manure application rates, or sensitivity of aquifer recharge areas. The effects of zoning would be similar to those of application restrictions, except zoning would result in a higher degree of control of farming activities. It would also have a more negative effect on incomes of producers in the zoned areas.

Financial incentives such as cost-sharing programs or

subsidies may facilitate the adoption of pollution control technologies (e.g. manure storage tanks). While financial incentives could be costly to the government, it may be able to justify this option by pointing out that supporting provincial farmers helps to maintain food security and regional food self-sufficiency.

Government spending on water denitrification is another option. While this type of policy would not involve enforcement, it would be a reactive rather than proactive way to deal with targeting and water quality. This could be very costly, as once an aquifer is contaminated it is often prohibitively expensive or technically impossible to clean it (Sharefkin et al., 1984). Politically, it would be difficult for the government to justify why it was risking the health of infants by allowing the pollution to continue.

The type of policy instrument chosen to deal with nitrate pollution involves political as well as technical considerations. Not surprisingly, farmers prefer a voluntary approach supplemented by input or output support arrangements such as tax credits, low-interest loans, and cost sharing (Kerns and Kramer, 1985).

The next section outlines how the twin constraints of information gaps and interest group politics have played themselves out in the regulation of nitrate in the United Kingdom and the Netherlands.

3. REVIEW OF REGULATION IN OTHER JURISDICTIONS

Europe appears to be at the forefront of regulating pollution

from agricultural nitrates. I have selected two countries, the United Kingdom (UK) and the Netherlands, and present short case studies of the factors that have shaped each of their regulations. Both countries have a corporatist relationship between their dominant farm interest group and their agricultural ministries (Watson, 1992) (Huppes and Kagan, 1989). The UK was selected because Canada has inherited its system of parliamentary government, and thus the two countries have some similarities in terms of their political culture. BC's Code of Agricultural Practice for Waste Management appears to have been based on the UK's Code of Good Agricultural Practices, and we can thus learn from their experience. The Netherlands was selected because it is recognized as the most advanced country in Europe in terms of its agro-environmental regulations (Baldock, 1992).

The following sections outline each country's experience in terms of the biophysical problems, a chronology of regulation, the actors involved, the tactics used to deal with information gaps, a description of the policy process by which regulations were developed, and any indications of effectiveness of the regulations. Unfortunately, there does not appear to be as much information in the literature surveyed on the policy development processes used, so it is difficult to determine to what degree negotiation was employed.

3.1 The United Kingdom

3.1.1 Biophysical Factors

The nitrate problem in the UK is concentrated in the southern

and eastern parts of England, where intensive cultivation, high rates of inorganic nitrogen fertilizer application, and permeable rock and soil are found. In this area, aquifers supply up to 70 percent of the drinking water (Conrad, 1991).

3.1.2 Chronology of Regulation

The UK approach to dealing with nitrate contamination has evolved through three distinct phases (Watson, 1992). Prior to 1985, there was little official action, although it was known that nitrate levels were increasing in a number of aquifers. In 1985 the Ministry of Agriculture, Fisheries, and Food (MAFF) published the "Code of Good Agricultural Practices," to help farmers meet the requirements of the Pollution Control Act. The Code was voluntary, and contained general guidelines for inorganic and organic fertilizer application and storage, but did not actually restrict their use (Hill et al., 1989). The Code was supplemented by advisory leaflets and booklets on all aspects of agricultural pollution control, as well as a telephone information service. Considerable resources were devoted to building farmers' capacity and enabling them to operate in a responsible manner.

The National Farmers' Union (NFU), a powerful farmers' lobby group, put a good deal of effort into promoting the Code with their members. They warned farmers that if they did not comply that "...there can be no question that a future government of any party would consider more punitive controls" (Cox et al., 1985, 145).

The second phase began in 1986, with the introduction of a European Community (EC) 50 mg/litre nitrate standard in drinking

water (Watson, 1992), and the privatisation of Britain's municipal water supply and sewage treatment system (Hill et al., 1989). Prior to the EC standard, the UK had used the 100 mg/litre standard set by the World Health Organization. Suddenly, the privatized water industry found itself with drastically increased costs for water treatment. It was estimated that the cumulative capital expenditure to keep water supplies below the 50 mg/litre level would cost the equivalent of \$400 million (CDN) by 2006 (Watson, 1992, 11.8). A third development during this time was the idea that nitrate contamination might be reduced as part of the move to reduce farm surpluses in the EC, through a reduction in the numbers of livestock raised (Hill et al., 1989).

The third phase began in 1989, with the introduction of the Water Act. The act revoked farmer's exemption from prosecution for water pollution offenses, and it was admitted that the 1985 Code had failed to contain the growing volume of farm pollution. A new "Code of Good Agricultural Practice for the Protection of Water" was issued (Seymour et al., 1992).

The Act also contained provisions for designating Nitrate Sensitive Areas (NSAs), which are administered by the MAFF. The NSAs were introduced in 1990 for a five year trial period. They involve ten areas, and only cover about 15,000 hectares. Critics are concerned since some high nitrate aquifers have been left out of the scheme. Nine additional areas have been designated as Nitrate Advisory Areas (NAAs). The NAAs cover another 23,000 hectares, and the farmers in them were subject to a twelve month

intensive advisory campaign (Seymour et al., 1992).

In 1989, the National Rivers Authority (NRA) took over the responsibility for policing water pollution. The NRA is also responsible for administering new, legally defined, mandatory standards for liquid manure facilities. The standards are complemented by a 50 percent grant for new farm waste facilities offered by MAFF (Glasbergen, 1992).

3.1.3 The Actors Involved

The key players in nitrate control policy have been MAFF and the NFU, which for decades after World War Two had a corporatist relationship. The NFU enjoyed considerable self-regulation and access to government decision-making, in exchange for "selling" the government's programs and policies to the farming community. Environmental regulations, which would have made farmers answerable to non-agricultural authorities, were "tenaciously resisted" (Cox et al., 1985, 141).

Environmental groups, led by Friends of the Earth (FOE), have challenged the formerly closed policy network. In 1986, FOE formally complained to the EC Commission that the UK was not meeting the water quality directive (Hill et al., 1989). Their "ferocious lobbying," along with the privatization of the water supply "...transformed nitrates in water into a public issue with a high political profile" (Seymour et al., 1992, 87). The water authorities (the privatized water industry) and the Department of Environment have also been involved, but up to the late 1980s were largely excluded from the key bargaining and decision-making

processes (Conrad, 1991).

3.1.4 Tactics Used to Deal With Information Gaps

In the U.K., there were two debates related to nitrate information gaps. The first dealt with the validity of the EC nitrate standard, and the second revolved around contrasting explanations of nitrate pollution.

A powerful group of allies downplayed the EC directive of 50 mg/litre nitrate in drinking water. A pamphlet published by one of the major fertilizer manufacturing firms in 1986 stated, "No scientific basis was given and no reference made to new medical evidence in deciding these levels" (Hill et al., 1989, 230). In 1987, the House of Commons Select Committee on the Environment suggested that the EC be asked for a re-examination of the nitrate pollution level. The government's Chief Medical Officer and the NFU saw the directive as an "arbitrary" level, and perceived "no risk to the population. . .at levels of nitrate up to 100 mg per litre in drinking water" (Seymour et al., 1992, 87). The water authorities also saw no need to favour a "scientifically unsound" standard. These groups questioned the scientific status of the arguments used to support the 50 mg/litre limit, and characterized supporters of the limit as "irrational" (Seymour et al., 1992).

Environmental groups were alone in consistently supporting the 50 mg limit. They stressed erring on the side of caution in the light of "inconclusive and scant evidence relating both to stomach cancer and. . .(the) 'blue-baby syndrome'" (Seymour et al., 1992, 89). They also emphasized the detrimental ecological impact of

rising nitrate levels, and were supported in this by the government's Nature Conservancy Council.

The interested parties also demonstrated a striking lack of consensus in identifying the causes of nitrate levels in water. Environmental groups saw the rising use of inorganic nitrogen fertilizers as causally significant, and as proof of rising concentrations of nitrate in water sources. They often used terms such as 'artificial nitrogenous fertilizers,' "implying that inorganic nitrogen is 'unnatural' and alien, with their arguments drawing credence from these pejorative associations" (Seymour et al., 1992, 90).

However, this explanation of nitrogen pollution was questioned by government scientists, fertilizer manufacturers, and the NFU. They asserted that inorganic nitrogen only made a negligible contribution to leaching, and stressed the "natural" properties of nitrate. This group claimed that most of the nitrate leaching came from manure and the ploughing of permanent pastures. However, there was a general consensus amongst all the groups over the point that nitrate leaching is exacerbated by intensive agricultural practices.

3.1.5 Description of the Process

The British policy style relies on voluntary agreements, in combination with growing social pressure on farmers to enter these agreements, despite the not very attractive compensation payments. This policy style is based on the history of conservation and "country-side" (e.g. landscape and wildlife) issues being the most

prominent environmental issues associated with agriculture. The conservation policy style has been to rely on the voluntary approach rather than on mandatory controls for farmers (Conrad, 1991).

The Codes of Practice were drawn up in consultation with agricultural groups. The central principle was that farmers should be persuaded or given incentives to adopt a particular kind of conduct, rather than coerced. However, since the National Rivers Authority took over responsibility for policing water pollution, prosecution is no longer regarded as a method of last resort. In 1990, 123 farmers were prosecuted in England and Wales, and the maximum fine was raised from £2,000 to £20,000 (Glasbergen, 1992, 38).

The British political process surrounding nitrate has functioned mainly as private interaction and bargaining between administrative and associated actors. The policy style can be characterized as relatively adversarial (in terms of conflicts between environmental and farm interest groups), although there was also a corporatist relationship between government and the farmers. "The problem-solving approach has been slow, incremental, reactive and more short term than long term. Participation is narrow, and the openness of the political process to the public is low" (Conrad, 1991, 64).

3.1.6 Effectiveness of the Regulations

Traditionally, UK agro-environmental policy has had a number of characteristic features: it has been reactive instead of

proactive; it has involved compensation for farmers; and there has been a preference for voluntary compliance and self-regulation. In general, the UK is judged to lag behind the Netherlands and other European countries in terms of controlling its agricultural pollution (Baldock, 1992).

3.2 The Netherlands

3.2.1 Biophysical Factors

The Netherlands, one of Europe's smallest countries, has about 5 million cows, 13 million pigs, and 85 million chickens. The pigs and chickens are raised intensively, and fed mainly imported fodder (Moen and Cramer, 1987).

From an economic point of view, the Netherlands' agriculture has been very successful. With only 2.3 percent of the total cultivated area in the EC, the country produces 12.1 percent of the EC's milk, and 15.1 percent of the EC's pork (Glasbergen, 1992, 33). However, from an ecological point of view, there are major problems. On a per hectare basis, Dutch farmers use far more fertilizer (inorganic and organic) than any other country. For example, in terms of inorganic nitrogen fertilizer, farmers in the Netherlands average 250 kg per hectare. This compares with only 24 kg per hectare in the US. In addition, the Netherlands adds another 120 kg of nitrogen per hectare in the form of manure (Huppes and Kagan, 1989, 227).

The excess nutrients, especially nitrate and phosphorus, have contaminated groundwater and caused surface water eutrophication. In the near future, an estimated 25 percent of the groundwater

sources in the most intensively farmed areas (the northeastern and southern parts) will exceed the 50 mg/litre nitrate limit (Glasbergen, 1992).

In the areas with the most intensive animal husbandry, "trees have died, drinking water has been spoiled, and formerly abundant species in nature preserves have become sparse" (Huppes and Kagan, 1989, 227). In addition, the ammonia from manure, which often bonds with airborne sulphur, is considered to contribute to about 30 percent of the country's acid rain, and the subsequent soil acidification problem (Moen and Cramer, 1989, 144).

3.2.2 Chronology of Regulation

The Netherlands has responded to the problem by regulating manure, but not inorganic fertilizers. In 1985, the Ministry of Agriculture adopted the Interim Act on Intensive Animal Husbandry. The Act prohibited the growth of existing farms and the introduction of new farms in areas of intensive pig and poultry production. Despite the regulation, pig and poultry farming continued to increase. This occurred because municipalities in areas with intensive agriculture were strongly influenced by farmers' concerns, and "contrary to the rules, permits were allowed in nearly all cases" (Huppes and Kagan, 1989, 238).

The Interim Act was replaced in 1986 by the Act on Soil Conservation and the Act on Nutritional Substances. The Acts, which were developed jointly by the ministries of agriculture and environment, limit the amount of manure that can be applied, based on the phosphate content of the manure. The allowable amount of

manure varies by the type of crop, and declines every five years until the year 2000 (when the final standard will be reached). The acts also prohibit spreading manure in the winter (Moen and Cramer, 1987).

In 1987, the Ground Protection Act created special groundwater protection areas and farmers in those areas had manure application levels that were stricter than the national standard (a form of zoning). Water authorities who extract water in these zones pay a fee to the provincial government. The provincial government then compensates the farmers for the additional restrictions (Glasbergen, 1992) (Conrad, 1991).

Farmers are required to keep detailed records concerning manure production, use, sales, and transportation. To facilitate transporting manure to other areas where a surplus does not exist, provincial "manure banks" have been established. The government also subsidizes farmers' investment in manure storage tanks (Huppes and Kagan, 1989).

In addition, two taxes have been levied on manure producers to help finance the manure banks and processing facilities. The first is a progressive tax that is assessed on purchased fodder. The second tax is based on the number of animals per hectare, over a certain base number. The tax-free base number of animals roughly corresponds to the amount of manure the farmer is permitted to spread (Huppes and Kagan, 1989).

3.2.3 The Actors Involved

The main actors in Dutch nitrate policy were the

"Landbouwschap" (the Agriculture Board - a powerful organization of national farmers' unions and agricultural trade unions), the association of water company proprietors, environmental groups, and the ministries of agriculture and environment. Although they shared similar interests, there was little joint action and lobbying between the environmentalists and the water utilities (Conrad, 1991).

In 1989, the Ministry of Agriculture and Fisheries became the Ministry of Agriculture, Nature Management, and Fisheries. The change has gone beyond that of a mere name change. The ministry has gradually broadened its narrow production-oriented perspective. It has loosened its ties with the "Landbouwschap," and developed closer relations with the Ministry of Environment, and non-agricultural interest groups (Frouws and Van Tatenhove, 1993).

3.2.4 Tactics Used to Deal With Information Gaps

In the Netherlands, "information gap" tactics have focused on how best to deal with the problem of the environmental impacts of nitrate. Initial warnings about the polluting effects of agriculture were sounded in the late 1960s by agricultural researchers and environmental groups. These warnings were denied or minimized by both the farmers' organizations and the Ministry of Agriculture. A range of delaying tactics were employed by the agricultural policy community to escape environmental regulations. The tactics included "... contesting the Ministry of Environment's competency in agro-environmental matters, endless demands for further research, and constant arguments against .. environmental

legislation affecting agriculture" (Frouws and Van Tatenhove, 1993, 224).

This defensive strategy was gradually supplemented by an offensive one. "Sustainability" was introduced as an objective of agricultural policy, along with competitiveness. Thus, the offensive strategy focused on "... pursuing technical alternatives and solutions for environmental problems to safeguard the future of the agricultural industry" (Frouws and Van Tatenhove, 1993, 224). It was argued that the technical solutions should be developed by the agricultural sector itself, in consultation with the Ministry of Agriculture, and with governmental support.

3.2.5 Description of the Process

Traditionally Dutch politics were characterized by consultation, negotiation, and the striving for consensus (Glasbergen, 1992). The search for compromise that defines Dutch politics makes it a lengthy process. For example, the Ground Protection Act of 1987 took 15 years to develop, between the first submission of a draft version to parliament and the final introduction of the act (Conrad, 1991).

The closed, corporatist agricultural policy community initially tried to sidestep the nitrate issues in the 1970s and 1980s. In the 1980s, growing public concern about the environment and the growth of the environmental movement acted as a driving force in the opening up of the agricultural policy community to environmental interests (Glasbergen, 1992).

3.2.6 Effectiveness of the Regulations

Given that the Netherlands has the most elaborate system of regulations, how well are they working? Not surprisingly, Dutch farmers have been able to weaken the regulations' impact.

The Department of Agriculture, which has traditionally had a corporatist relationship with the Dutch farming community, enforces the controls on manure use and sales. Farmers objected to the time-consuming bookkeeping requirements of the detailed manure records and "...engaged in collective destruction of the prescribed forms and lobbied successfully for changes in recording requirements" (Huppes and Kagan, 1989, 229). Consequently, it is estimated that the bookkeeping entries only cover about half of the actual manure produced. Dairy farmers are also suspected of using corn fields to dump excess amounts of manure, because unlike pasture, excessive amounts of manure are not as noticeable there (Huppes and Kagan, 1989).

The taxes on farm animals and fodder place the largest financial burden on the pork and poultry producers, even though the total amount of manure produced by Dutch cows is a larger source of nitrogen compound emissions. The tax-free base number for the farm animal tax is high enough to exempt most dairy farms, and dairy farms usually produce at least some of their own fodder (Huppes and Kagan, 1989).

Huppes and Kagan (1989) trace this inequity to the corporatist structure of the Dutch farming community. Traditionally, producer collectives, (e.g. dairy collectives), performed a variety of

functions, including representation in the major political parties. The intensive livestock producers are relative newcomers, and are regarded with suspicion by the rest of the agricultural community. Because of their farms' offensive odours and more visible environmental impacts, they have received more public attention. Environmental groups have also criticised them on ethical grounds, and lobbied for improved animal welfare³. The Dutch Department of Agriculture has not rushed to the livestock producers' aid because it is concerned about the increasing levels of meat production in a saturated European market. If environmental regulations lead to a reduction in livestock, it would help to deal with the existing meat surpluses.

The Department of Agriculture helped to develop the manure regulations. Although this meant they had to publicly acknowledge the problem and begin resolving it (Huppes and Kagan, 1989), the manure surpluses are still mounting. In the future, the manure application standard will probably have to be revised to include the nitrogen content, and not just phosphate levels as at present. This will inevitably lead to reductions in livestock numbers (Glasbergen, 1992).

³ Interestingly, environmental groups have chosen not to use litigation as a means of forcing farmers to comply with the regulations. The lack of action was not due to lack of funds, as these groups are subsidized by the Dutch government. Rather, they felt that "...litigation would have impaired social relations with the farmers for a long time, while producing only limited environmental gains. In the long run (they) felt a cooperative attitude might be more constructive" (Huppes and Kagan, 1989, Fn. 13, 238).

The Dutch have chosen both proactive and reactive policies, as well as both comprehensive and piecemeal problem-solving approaches. The policy time-frame is long-term, and the problem perception and policy response have been rather slow. Given the basic antagonism between agricultural and environmental concerns, the degree of interaction and partial cooperation on both sides is notable (Conrad, 1991).

3.3 Lessons From the European Experience

The European experience with nitrate regulation provides a backdrop for the experiences in BC. The information gaps in the UK were more contentious than they were in the Netherlands. Perhaps there was less conflict in the Netherlands because the intensity of livestock production, and the limited size of the country meant that it was more obvious where the nitrate leaching was coming from. In both countries, political pressure from farmer and other agricultural groups was a significant force in the forms of regulation that were selected.

Glasbergen (1992), a Dutch writer, suggested there has been an evolution of governance in nitrate regulation. Over time, this evolution changes in terms of the relative power of the actors involved, the reliance on voluntary measures, and the degree to which economic or ecological factors are seen as being the most important in regulating the agricultural sector.

His descriptive model characterizes this evolution as having three phases. In the first phase, awareness develops about agricultural pollution, although the severity of the problem (or

the perception of it) is usually limited. The central feature is a reliance on voluntary responses on the part of agriculture, and the perspective is that of public health protection of drinking water. The measures employed "...are chiefly aimed at reducing the harmful effects of farming practices, without questioning the practices themselves" (Glasbergen, 1992, 41).

The second phase begins when it becomes obvious that first-phase controls are not sufficient to contain the problem, especially in the face of agricultural intensification. This forces a reassessment of the voluntary measures, and new measures are geared to changing the methods of agricultural production. Farmers are offered financial compensation to cushion the resulting costs. During this phase ecological concepts become more prominent, but "...regulations remain strictly within the context of what is considered technically and financially feasible" (Glasbergen, 1992, 42).

In the third phase farming practices are fundamentally reassessed regarding their ecological foundations. Instead of strengthening the competitive position of domestic agriculture, forcing intensification and expansion, the objective is now to get to the root of the problem. Regulations become stricter, and in some regions, restrictions are imposed on agricultural production.

Glasbergen (1992) argued that the UK has reached the point of transition from phase one to phase two. The Netherlands, on the other hand, is beginning a transition to phase three. Although the two countries are different with regard to the nature and scale of

agricultural pollution and the type of government regulations, their agro-environmental policies seem to proceed in the same manner. A common theme is opposition to far-reaching environmental measures by the Ministry of Agriculture and farmers' organizations. At the same time, expanding agricultural production leads to even greater environmental pressures, which in turn overwhelms the modest remedial measures and weak controls that had previously been conceded.

In this way, agro-environmental policy is making advances through a succession of crises. The pace of change continues to be dictated by the agricultural policy community but all the time the counter-forces are strengthened. In the long run, the agricultural policy community may come under so much external pressure as to run the risk of disintegration (Glasbergen, 1992, 47).

Understanding the policy development processes used in the UK and the Netherlands provides a valuable foundation for studying what is happening in BC. Unfortunately, there is almost no information on the use of negotiation to design policies in either the UK or the Netherlands. Thus the policy development process in both of those countries cannot be rigorously compared with that of BC's. One noticeable difference is that ENGOS (environmental non-governmental organizations) were not involved in the development of BC's Code, whereas they did play a role in both the UK and the Netherlands. Chapter Six begins the look at BC's nitrate policy development process with a description of the events that lead to the Code's negotiation.

CHAPTER FIVE

NEGOTIATION IN THE REGULATION OF POLLUTION

1. INTRODUCTION

This chapter discusses negotiation in the regulation of agricultural pollution. Like other sectors in Canada, institutions and agricultural interest groups have promoted the negotiation of regulations. This chapter examines the advantages and disadvantages of industry-government negotiation, and ends with some normative criteria for evaluating negotiations. These criteria are used later in the thesis to evaluate the negotiation of BC's regulation to control manure nitrates.

2. FACTORS THAT PROMOTE BARGAINING AND NEGOTIATION

Like other sectors in Canada, agricultural regulation is dominated by bargaining. In 1980, Andrew Thompson stated unequivocally that "bargaining¹ is the essence of the environmental regulatory process as it is practised in Canada" (emphasis in original) (Thompson, 1980, 33). In other words, both the regulations and the timetables for their implementation were negotiated with industry, at both the provincial and federal levels of government. In order to understand how this dependence on bargaining and negotiation evolved, it is important to understand

¹ The terms bargaining and negotiation are used interchangeably in this thesis. The definition of bargaining I am using is "...a process whereby two or more parties attempt to settle what each shall give and take, or perform and receive, in a transaction between them" (Dorcey, 1986, 68).

the specific interests, institutions, and ideas behind this policy style (Hoberg, 1993).

In earlier years, the interests involved were industry and government.² Environmental interests were assumed to be represented by the relevant government agency, rather than by private interest groups. Hoberg (1993, 314) characterized the power relations within this policy style as "... a relatively weak state, strong business interests, and weak environmental interests." The fear is that the government becomes "captured"³ by industry interests.

Industry has considerable influence. Government ministries that have direct links to a specific industry are often designed to promote that industry's interests (e.g. BCMAFF and farmers). The industry is constantly dealt with to ensure compliance, and over time the ministry and the industry develop a relationship. The industry has multiple points of access to the legislative process, both through the different levels of government and different government departments, and through its various trade or commodity organizations. Finally, the industry's control over investment gives it the power to threaten divestment if regulation becomes too stringent. (In the case of agriculture, it can threaten farm closures which affect the continuity of rural communities and the

²Now the interests involved are usually multipartite, and include environmental groups.

³ "Capture" occurs when the agency becomes increasingly influenced by its regulated clientele, and loses sight of the broader public interest (Bernstein, 1955).

security of the food supply.) All of this influence leads to tough, symbolic legislation and weak enforcement (Schrecker, 1984).

Schrecker (1984) outlined a number of institutional factors that help to explain Canadian governments' reliance on negotiation. The first is Canada's legislative framework. Canada's system of parliamentary government means that authority is centralized in Cabinet, which represents a fusion of both executive and legislative functions. Thus Cabinet does not need to develop detailed bills, and can give itself discretion in developing and implementing legislation. Discretionary legislation (i.e. legislation written in fairly broad terms) gives the agency the authority to implement the regulation, but it rarely specifies the criteria for developing regulations or timetables for achieving certain objectives. Sometimes the government chooses not to use existing powers, so as to not increase federal-provincial tensions, especially with regards to areas of overlapping jurisdiction. Many environmental regulations involve several departments, and many are made in closed Cabinet meetings, based on ministerial discretion (i.e. the Minister has the final discretion whether to approve the results of the negotiation or not).

Another institutional factor is the fragmentary nature of Canadian federalism. Canadian environmental regulation remains decentralized at the provincial level, with the federal government deferring to the provinces. Even when federal jurisdiction is clear, bureaucratic fragmentation affects state capacity.

As a general policy priority, controlling environmental

hazards may be at a distinct disadvantage in intra-governmental conflicts. . . . Departments with responsibilities for promoting industry . . . may find concerns with (environmental) hazard reduction irrelevant, or even antithetical to their principal objectives and those of their major client groups (Schrecker, 1984, 14).

The second factor is that agency resources are often limited. The agency does not have the funds or the staff necessary to collect comprehensive data on the environmental impacts of all industries. Consequently, they depend on industry for this information.

Third, is "how the cards are stacked" in terms of who is regulated and who benefits. As Wilson (1992) pointed out, environmental regulation involves distributed benefits for society as a whole, and concentrated costs on a small segment of society (i.e. industry). Policy entrepreneurs, those who work on behalf of the unorganized or indifferent majority, are a key element in the adoption of these regulations. Policy entrepreneurs are not as likely to emerge in Canada, due to political party solidarity, the closed decision-making process, and infrequent reliance on coalition building at the legislative level (Schrecker, 1984).

The ideas that supported this type of bargaining and negotiation were, as mentioned above, that the state represents the public interest in terms of environmental protection, and that cooperation - rather than conflict - with industry is valued (Hoberg, 1993).

Thompson (1980) and Dorcey (1986) emphasized the role of bargaining in natural resource management because of increasing

conflicts amongst stakeholders resulting from knowledge gaps. The government has to deal with three factors that lead to increasing conflict: 1) increasing demands for both resource development and resource conservation; 2) increasing complexity in biophysical, socio-economic and institutional systems of natural resources (these systems are complex in both their number of parts and their interrelationships); and 3) increasing uncertainty in the knowledge of the systems involved, and how changing one part of a system affects the other parts.

Bargaining occurs because of the knowledge gaps and uncertainties that pervade environmental issues, and allows the use of tradeoffs in resolving those issues. These knowledge gaps "...preclude any process of a more certain and precise nature. In effect, bargaining ... is a substitute for knowing in advance what the result should be" (Thompson, 1980, 37). As discussed in Chapter Two, these knowledge gaps are exacerbated in the case of agricultural non-point source pollution, and seem to indicate an even greater need for bargaining and negotiation in nitrate regulation.

3. ADVANTAGES AND DISADVANTAGES OF NEGOTIATION

There are a number of advantages and disadvantages for government-industry negotiation. The advantages are mainly pragmatic. Since there is a limited pool of resources available for regulatory activity in Canada, industry can provide advice on technological and economic issues, and provide information on emissions (Nemetz, 1986). If government bureaucrats have a wide

variety of legal responses (e.g. tax subsidies as well as regulations and fines) negotiation provides them with "...the right combination of cajoling and threats" (Webb, 1990). Perhaps somewhat optimistically, Thompson (1980) also argued that bargaining would promote the adoption of social responsibility within industry, reduce industry resistance to regulation, and ensure the feasibility of implementation of the negotiated measures. This sense of "ownership" should make industry more likely to comply with the regulation.

Nemetz (1986) and Thompson (1980) also listed a number of disadvantages. The government may simply be "outgunned" since industry holds most of the information and can hire experts to work full time on presenting their issues and concerns. The government's credibility may be compromised in the public eye. Environmental groups are concerned that the process has an apparent bias toward industry input. The "cosy" relationship established between government and industry may hamper government's ability to act decisively when faced with significant hazards to public health and safety. And finally, the option of negotiation may simply be temptation for polluters to delay complying with regulations. Harrison (1995) discovered that this was the case for the Canadian pulp and paper industry. Sixteen years after "standards were developed in closed negotiations between federal and provincial officials and the industry" (page 226), only 69 percent of mills complied with federal biochemical oxygen demand (BOD) standards on an annual basis, and only 59 percent of mills complied with their

total suspended solids (TSS) limits (page 238).

Given the disadvantages of negotiation, some feel it is better to discard government-industry negotiation and pursue other policy styles (e.g. multi-stakeholder negotiation, litigation) (Hoberg, 1993; Schrecker, 1984). Others feel that industry-government negotiation is inevitable, and should be improved (e.g. training government staff in negotiation techniques, developing effective information systems, and having more public involvement in the process) (Dorcey, 1986; Thompson, 1980). This thesis supports the view that these two alternatives are not mutually exclusive. Bipartite negotiation is still a form of negotiation, albeit a more practical one that requires fewer resources. It still involves identifying stakeholders and bringing together extreme ranges of opinion. The next section outlines an analytical framework for evaluating the negotiation process, including attempts to deal with some of negotiation's criticisms.

4. EVALUATION OF THE NEGOTIATION PROCESS

Negotiated rulemaking is defined as occurring when

...an agency and other parties with a significant stake in a rule participate in facilitated face-to-face interactions designed to produce a consensus. Together the parties explore their shared interests as well as differences of opinion, collaborate in gathering and analyzing technical information, generate options, and bargain and trade across these options according to their differing priorities (Susskind and McMahon, 1985, 136-137).

Negotiated rulemaking began in the US in the early 1980s. The Environmental Protection Agency (EPA) had a number of reasons for wanting to try an alternative to conventional rulemaking. About 80

percent of the rules it promulgated were challenged in court, and about 125 EPA staff-years of effort annually were devoted to managing these cases. The EPA also wanted to see if they could shorten the time frame it took to complete regulations (an average of three to five years) (Thomas, 1987).

The EPA conducted an assessment of its negotiated rulemaking activities up to the end of 1987 (Kelly, 1989). Their findings included the following positive points:

- the rulemaking proposals were more pragmatic in some respects, and produced better environmental results, than those the EPA would have developed through conventional rulemaking.

- the negotiations facilitated exchanges of information and understandings of the issues in dispute. For example, in the negotiation of farmworker health and safety protection standards, many of the participants provided information and insights about "real world" practices and conditions that were very useful in developing the regulations.

- using negotiation has made the final rulemaking easier and less costly. For example, the wood stove performance standards regulation saved the agency about \$150,000 in data collection and analysis, and was completed on schedule "...which is often not the case with EPA rulemakings" (Kelly, 1989, 164).

- the negotiations fostered working relationships which have helped some of the participants to work together constructively in other situations.

However, the Kelly report (1989) was unable to determine if

negotiated rulemaking did indeed result in a net saving of EPA resources, and whether the risk of litigation is reduced. In addition, some non-EPA participants had some reservations about the process. One concern was that the pressure to reach consensus makes people uncomfortable, and could result in "weaker" regulations. Another often-voiced concern, by both large and small organizations, was the amount of time required for participation. Overall, the report concluded that negotiated rulemaking was suitable for the select number of situations that met the criteria (discussed in the next paragraph).

Although a bipartite negotiation between industry and government is not exactly the same as a multipartite negotiated rulemaking, the normative criteria for a successful negotiation are largely the same for both. In his seminal article, Harter (1982, 45-67) listed criteria related to conditions and participants that would improve the likelihood of successful rulemaking negotiations. The conditions included the following nine criteria:

1. Countervailing power.

If any party has the power to act unilaterally and control the outcome, then negotiation is inappropriate. While government has this power in theory, the factors that promote bargaining and negotiation make it difficult for the government to unilaterally exercise its power in practice.

2. Limited number of parties.

In order to have the necessary give and take on issues and positions, Harter felt that the number of participants should

be limited to fewer than fifteen. After experience with a number of negotiated rulemaking efforts, it was discovered that up to 25 participants was workable (Pritzker and Dalton, 1990).

3. Mature/"ripe" issues.

Mature issues are those in which the parties should have stopped jockeying for position (e.g. lining up political support, building a media campaign), and the issues should have been clarified sufficiently to permit resolution. In other words, the issues should be clearly identified, and the parties should have sufficient information on the issues.

4. Inevitability of decision.

Negotiations are likely to work best if all parties believe a decision is inevitable, or better yet, imminent. "The most favorable climate for negotiation occurs when all parties believe there is some urgency for reaching a decision" (Harter, 1982, 47).

5. Opportunity for gain.

Negotiation is not likely to be successful in "zero sum game" situations, in which one party wins only to the extent that another loses. The dispute must be transformable into a "win/win" situation so that all parties are better off for having negotiated, or at least, the gainers must be able to compensate the losers.

6. Fundamental values.

The dispute should not only concern or be dominated by

fundamental value choices (e.g. issues that involve strongly held moral or ethical beliefs). For example, abortion rights or capital punishment are not suitable issues for negotiation, as they are value laden and there is no room for compromise or collaborative problem solving.

7. Permitting tradeoffs.

There must be multiple issues "on the table," to permit tradeoffs so that the parties can maximize their overall interests. Issues in negotiated rulemaking situations that allow tradeoffs include "the extent of the problem, the stringency of the response, the manner of compliance, the components of the regulation, and the date of implementation" (Harter, 1982, 50).

8. Research not determinative of outcome.

Negotiation may not be appropriate for regulations requiring basic research. This is because certain research results may dictate a particular regulatory result, and parties may not wish to commit themselves in advance to accepting the results of such research. Thus, negotiation may be inappropriate for regulations "...when fundamental research is necessary, the outcome is in substantial doubt, and the outcome would dictate the regulatory result" (Harter, 1982, 51). However, negotiations are appropriate when research would open up a range of regulatory alternatives, or where parties can agree on what research is needed, and the protocol for the research, as a first step.

9. Agreement implementation.

Parties may be unwilling to invest the resources needed to reach an agreement if implementation of that agreement is unlikely. Parties must believe that the agency will use the results of the agreement as the basis of public policy.

Since Harter wrote his paper, a number of negotiated rulemaking efforts have been completed. On the basis of their experiences, a number of authors have added further criteria for success:

10. Agency role.

The agency sponsoring a negotiated rulemaking should take part in the negotiations. This reduces the potential for parties to undermine the negotiating process by making "end runs" to the agency (Perritt, 1986), and promotes realistic expectations of what final rule will be acceptable (Perritt, 1987).

11. Role of a mediator/facilitator.

The agency should select a skilled mediator/facilitator to assist the negotiating group in reaching an agreement (Perritt, 1986).

12. Distribution of costs and benefits.

The nature of the regulation influences the intensity of stakeholder feeling. Programs that concentrate both benefits and costs are better candidates for negotiation because it is easier to mobilize stakeholders for bargaining when the interest groups are few in number and narrow in scope

(Perritt, 1986).

13. BATNA (Best Alternative to a Negotiated Agreement).

Susskind and McMahon (1985) added the criterion of a "BATNA." Parties will only come to the table if they believe that the negotiation will produce an outcome that is as good as or better than the outcome they could achieve from other available methods, including the traditional rulemaking processes. The BATNA concept was developed by Fisher and Ury (1981). Two effective BATNAs used in the U.S. have been that if the parties do not agree to negotiate a rule either the federal government will set a deadline to come out with a rule of its own (creating a Criterion Four situation); or, in the absence of a federal rule, there will be a patchwork of state rules (Stanfield, 1986).

14. Setting a deadline.

A deadline for completion of the negotiations will help the participants to keep moving toward a resolution at an efficient pace (Pritzker and Dalton, 1990). Without deadlines, the negotiation can be used by some participants as part of a strategy of delay (Doniger, 1990).

Harter (1982) also developed two criteria to determine the appropriate participants for negotiated rulemaking:

15. Who should participate.

This point relates to identifying the appropriate interests to be represented at the table, and identifying individuals who will represent those interests. Appropriate participants

represent all the groups who have an interest in, or will be affected by the outcome of the decision (Pritzker and Dalton, 1990). The representatives must have enough decision-making authority in the constituency they represent to make decisions without constantly having to check with their constituents first. Frequently, the most difficult job involves achieving the agreements between negotiators and their constituents, rather than agreements between negotiators (Perritt, 1986).

16. Financing the enterprise.

Those interested parties who may have difficulty participating due to lack of funds should have their expenses defrayed. This is because participation by all interested parties is essential to support the political legitimacy of a negotiated rule.

These criteria are used to evaluate the negotiation of B.C.'s nitrate regulation. The results are presented in Chapter Eight.

5. NEGOTIATION AND IMPLEMENTATION

As mentioned in Section Three, one of the hypothesized advantages of negotiation is higher compliance rates due to feelings of "ownership" of the negotiated agreement. When consensus is achieved, participants tend to acquire an interest in seeing the process succeed, since they feel they have a stake in the resulting regulation (Pritzker and Dalton, 1990).⁴ A minor emphasis of this thesis will be to evaluate, from the stakeholders'

⁴As mentioned previously, Harrison (1995) argues that this was not the case for the Canadian pulp and paper industry.

perspectives, whether the negotiation of B.C.'s nitrate regulation has affected the farmers' incentive to comply with the regulation.

6. CONCLUSION

Part One of the thesis has woven together two complementary factors that make nitrate pollution from manure difficult to regulate: nitrate-related information gaps and the political power of the agricultural policy community. These two factors were discussed in general terms, and then highlighted in a review of the nitrate regulations developed in the UK and the Netherlands. The UK's regulations are not as sophisticated as those of the Netherlands, and have focused more on voluntary compliance. The UK has had more debate over nitrate information gaps, specifically over the EC nitrate standard for drinking water, and over the causes of rising nitrate levels in water. The political process surrounding nitrate regulation has functioned mainly as private bargaining between the government and influential agricultural interest groups.

The Netherlands has more intensive livestock production, and more severe environmental problems from agricultural pollution. Not surprisingly, the Dutch had less debate over nitrate information gaps, and more stringent regulations. Even though the Dutch policy process focuses more on negotiation and consensus building than the UK's policy process, the corporatist agricultural policy community was able to weaken the regulations' impact.

European countries seem to move through a three phase evolution of governance in nitrate regulation. Glasbergen (1992)

suggested that the UK has reached the transition from phase one to phase two. The British have realized that voluntary measures are not sufficient to contain the problem, especially in the face of agricultural intensification. Glasbergen also proposed that the Netherlands is beginning a transition to phase three. Farming practices are being reassessed in terms of their ecological foundations, and regulations are becoming much stricter.

Industry-government negotiation of regulation is widespread across Canada. I have argued that, given the nitrate-related information gaps and the political power of the agricultural policy community, industry-government negotiation of nitrate regulation in B.C. was practically inevitable. Given that some form of negotiation is inevitable, government should ensure its productivity. One way to evaluate its productivity is by comparing the process to criteria related to its conditions and participants.

This part of the thesis has created a context for the research results to be discussed in Part Three (Chapters Eight and Nine). The research results will show where BC is in the three phase evolution of nitrate governance. The results will also determine the degree to which nitrate-related information gaps and the political power of the agricultural policy community played a role in the negotiation of nitrate regulation. Finally, the results will evaluate the effectiveness of BC's nitrate regulation negotiation; and secondarily, the influence the negotiation has had on implementation.

PART TWO

INTRODUCTION TO THE CASE STUDY AND METHODS

CHAPTER SIX

A CASE STUDY OF NITRATE REGULATION IN BC

1. INTRODUCTION

The second part of this thesis introduces the case study of nitrate regulation in BC (Chapter Six), and then links the research questions to the research methods selected (Chapter Seven).

2. BACKGROUND

A number of factors led up to the Code's development in BC. These factors included a growing awareness of the impacts of excessive manure use, and the political economy of agriculture in the province. The negotiation process that was used to develop the Code was influenced by the political power of the main farm lobby group in the province. This group was also able to influence how the Code is enforced.

2.1 Nutrient Impacts

Modern agriculture, with its intensive production practices, has been implicated in many environmental impacts, as discussed generally in Chapter Two and variously evident in BC. For example, one of the major impacts has been excess nutrients in groundwater and surface water. Nitrogen and phosphorus loadings from agriculture can reduce available oxygen in water, and this has resulted in fish kills in the Serpentine, Nicomekl and Sumas Rivers (Environment Canada and BCMELP, 1992). Nitrate contamination has also been detected in well water in the Lower Fraser Valley, the Okanagan and the Kootenays (BCMELP and Environment Canada, 1993).

Contamination of the Abbotsford Aquifer in the Lower Fraser Valley illustrates the potential seriousness of emerging problems. The aquifer is an important source of drinking water, and is probably the most publicized case of nitrate contamination. There are in excess of 500 water wells in the region, and the aquifer also supplies the municipalities of Abbotsford and Matsqui, and the Fraser Valley Trout Hatchery. Water usage can be broken down into industrial (including the Hatchery) (41 percent), municipal (34 percent), irrigation (21 percent), and domestic (4 percent) (Liebscher et al., 1992).

It is important to note that parts of the Abbotsford Aquifer already have concentrations of nitrate-nitrogen that exceed the 45 mg/l maximum allowable concentration limit. However, in the last 10 years, there has only been one reported case of methaemoglobinaemia. The case occurred in Langley. The family's well water contained 65 mg/l nitrate, and was located downhill from a manure pile. Undoubtedly other cases have been prevented by the actions of local Health Units and physicians. They routinely advise pregnant women and new mothers to have their well water tested, and to use bottled water for mixing infant formula if the family's drinking water is at risk (Ministry of Health respondent).

Precipitation is the principal source of recharge for the aquifer, and much of this water passes through agricultural soils. Consequently, the nature and amount of agrochemicals present in the soil will affect the quality of the groundwater below. In south coastal BC, the greatest risk of nitrate leaching occurs during the

fall and winter with the heavy rains. This is because any residual inorganic nitrogen in the soil after the growing season can be nitrified and leached over the winter (Kowalenko, 1987b).

Exposed manure stockpiles, manure soil enhancement (i.e. to increase soil organic matter), septic tank effluent, airport de-icing urea formaldehyde, soil nitrate mineralization, and manure and chemical fertilizers are all sources of contamination to the Abbotsford aquifer. While the sources of contamination of the aquifer are reasonably well understood, the mechanisms and degree of contamination from each of these sources remains unknown (Liebscher et al., 1992). Thus the information gaps on the effects of manure nitrates, and the uncertainties of nitrate leaching in this area typify the uncertainties mentioned in Chapter Two.

The nitrate contamination of the aquifer has international implications, in terms of the Boundary Waters Treaty (1909). The Abbotsford Aquifer extends across the Canada-U.S. border, and the pollution from the Canadian half is flowing south into the American half. This violates the Treaty, which states that "water flowing across the boundary shall not be polluted on either side to the injury of health and property on the other side" (Munro, 1992, B1).

2.2 The Political Economy of Agriculture in BC

The political economy of agriculture in BC also influenced the Code's development. Since 1941, farm numbers have decreased in British Columbia (except for the decade 1971-1981). At the same time, there has been a steady increase in the average size of farm units (except again for 1971-1981). These changes are generally

attributed to increased mechanization of agriculture, and the substitution of capital for labour. Farm incomes have been very unstable as a result of uncertain and often declining prices received for farm products, and the increasing costs of farm inputs. In the 1986 census, 51.1 percent of BC farmers reported off-farm work (Hay and Basran, 1988, 15). Along with farm expansion came the trend towards greater specialization.

These changes, coupled with new crop varieties and management practices, have resulted in increased productivity. However, these developments have also been accompanied by increased environmental impacts, such as contaminated bodies of water (as described in the previous section).

Because of BC's rugged topography, limited agricultural land base, and the agriculture industry's vulnerability to developments outside its borders, BC farmers face some unique problems. One problem is higher-than-average production costs due to transportation costs. These costs are incurred in moving cattle from the interior to other provinces to be finished, and transporting fruit from the Okanagan to out-of-province markets. Another problem facing BC farmers is high land values (as a result of a limited agricultural land base and speculation on agricultural land for developmental purposes). This not only drives up production costs, but also makes it difficult for young farmers to enter farming (Skogstad, 1987). In addition, the expanding suburbs have meant that farmers and municipalities have had to deal with increasing complaints of odours and noise emanating from nearby

farms (Wood, 1987).

The third problem is the competition from lower-priced American fruit and vegetables which reach the market earlier than BC produce (Skogstad, 1987). American farmers also have the advantage of a wider variety of pesticides to choose from. BC farmers feel that the more restricted number of pesticides registered for use in Canada limits their options in disease and pest control, and puts them at a competitive disadvantage (Egri, 1993).

However, BC farmers also have a political advantage. Skogstad (1987) notes that the intense competition between the two historically dominant provincial political parties (the New Democratic Party and the Social Credit Party) has meant that the parties cannot afford to alienate any interest groups. She speculates that this competition "...has probably given BC producers a clout beyond what their meagre 1.9 percent of the population would warrant" (34).

2.3 The BCFA As An Interest Group

As discussed in Chapters Three and Four, farm lobby groups tend to carry considerable political clout. The BC Federation of Agriculture (BCFA) is no exception. The BCFA was founded in 1935. The BCFA's mission "is to ensure that farmers can earn a living from farming and that BC's agriculture industry remains economically viable over the long term" (BCFA, 1991, 6). They lobby provincial policy makers directly, and federal policy makers through their membership in the Canadian Federation of Agriculture.

The BCFA is the largest and most important umbrella farm organization in the province, with 58 commodity association members and seven regional farmers' institutes.¹ In 1992 it was estimated that the BCFA represented 8,000 of the province's 8,500 farmers (Egri, 1993, 401). However, in 1993, the BC Cattlemen's Association (BCCA) voted to leave the BCFA. The BCCA felt their membership fees could be better spent, and that they were powerful enough to lobby the government on their own. The withdrawal of this large and powerful commodity association meant the loss of about 25 percent of the BCFA's membership, as well as a significant part of their finances and lobbying power (Egri, 1993).

Traditionally, the BCFA has had strong ties with BCMAFF. This was displayed after the creation of the ALR in 1972. Many farmers feared an immediate decrease in their land values, and felt deprived of the major source of their retirement income. The BCFA lobbied for, and obtained, a farm income stabilization program (The Farm Income Assurance Act), "the most generous of its kind in North America in terms of raising and stabilizing farm prices" (Skogstad, 1987, 62). The BCFA was further entrusted with a large degree of responsibility for administering the program.

Skogstad (1987) attributes the BCFA's influence to the "open clientele" relationship between BCMAFF and the farmers. This

¹At the time of the Code's negotiation, the BCFA included 55 member commodity associations. These commodity groups encompassed the diverse range of crops and livestock grown in the province. Examples of the commodities included berries, eggs, cattle, poultry, vegetables, tree fruits, sheep, grain, dairy, and horticultural crops (BCFA, 1991).

relationship is based on the traditional concept that the ministry is there to serve and help farmers. Thus the BCFA enjoys "regular consultation and close contact in the formulation of policy" (64).

Although this arrangement provides the farming community with several advantages, it can also be a double-edged sword. In the past, individual farmers have come to the BCFA for support concerning a specific problem with BCMAFF. The BCFA was reluctant to become involved for "fear that its involvement might harm its relationship with the ministry in a general sense, or jeopardize a specific attempt to execute a plan which would benefit the total industry" (Shoop, 1979, 88).

3. CHRONOLOGY OF THE CODE'S DEVELOPMENT

In the early to mid-1980's, the BC Ministry of Environment, Lands and Parks (BCMELP) became concerned about the vagueness of the wording of Section 11 of the Waste Management Act. In Section 11, farmers were exempted from having to get permits for waste disposal for "all discharges of plant and animal waste emanating from traditional farming operations which are managed and applied in a reasonable manner" (BCMAFF Memo, September 28, 1989).

At that time, responsibility for agricultural waste management was given to local agricultural associations with the assistance of BCMAFF personnel. This program was known as the Agricultural Environmental Service (AES). BCMELP personnel only got involved if the combination of peer pressure and BCMAFF action could not achieve pollution abatement. "A significant degree of success (was) achieved by this method" (BCMELP Memo, December 21, 1987, 2).

However a large number of problems occurred because the process did not have sufficient power to deal with polluters. These polluters were agricultural operations that overloaded their land base with wastes or nutrients, and should not have been exempted as "traditional" practices. The operations included concentrated livestock operations that produced large volumes of animal waste but did not have sufficient land available for adequate disposal by land application; large beef cattle operations with an insufficient waste/land ratio in their over-wintering operations, and that allowed free ranging of cattle into streams; and over-fertilization of agricultural land (BCMELP Memo, December 21, 1987).

Pollution from a Cargill-owned hog farm, located in Matsqui in the early 1980s, illustrated the weakness of the Waste Management Act. At this time the farm was the largest brood sow operation in the Commonwealth. The farm, which had 1,000 sows on 65 acres of land on the south bank of the Fraser River, had a major problem with manure disposal. Cargill built two large lagoons to handle the 60,000 gallons of liquid manure produced daily, in an attempt to treat the manure before discharging it into the river (Regina vs. Cargill Limited, 1984).

In 1982 BCMELP decided that Cargill could not dispose of its wastes by applying them on the land, and that the lagoons would have to be upgraded at an estimated cost of one million dollars. Cargill refused and the next time they discharged manure into the Fraser River, BCMELP took them to court. The provincial court

found Cargill not guilty. The judge's decision noted both BCMELP's lack of agricultural expertise, and the fact that they did not seek the advice of agricultural experts (Regina vs. Cargill Limited, 1984). BCMELP also felt that the vagueness of the Waste Management Act contributed to their not winning the case (BCMELP respondent).

While the Cargill incident made it clear that the Waste Management Act needed "tightening," the policy change was part of the general growing awareness of environmental issues, and the increasing emphasis placed on environmental sustainability in the late 1980s (Hoberg, 1993).

In October of 1986, at a meeting of BCMELP's regional managers, a decision was made to establish the Agricultural Waste Management Committee (AWMC) to review agricultural waste management problems in BC. Initially three BCMELP staff were appointed to the AWMC (BCMELP Memo, October, 1987). After two meetings they realized they needed the input of agrologists on the committee, so in September of 1987, at the request of BCMELP's Assistant Deputy Minister, two BCMAFF staff were appointed to sit on the AWMC (BCMELP Letter, April 21, 1987, and BCMAFF Letter, September 1, 1987). The Greater Vancouver Regional District (GVRD) was included in the Committee, at their own request (BCMELP Memo, December 18, 1987), and then the BCFA indicated that they too would like to attend AWMC Meetings (AWMC Minutes, February 4, 1988). By 1989, the Committee included Environment Canada (AWMC Minutes, April 10, 1989) and by 1990 it grew further to include the Department of Fisheries and Oceans (DFO) and the BC Institute of Agrologists

(BCIA) (AWMC Minutes, April 23, 1990).

The BCFA's incentive to participate was that they knew BCMELP was "tightening up" the Waste Management Act. Rather than just be handed the final legislation, the BCFA wanted to be involved so that they would have some say in what was done (BCFA respondent).

BCMELP wanted BCMAFF's agricultural expertise for designing the Code. The Deputy Minister of BCMELP specifically asked that the two ministries work together. BCMELP had no problems with the BCFA's participation. The farmers had a reputation for being environmentally conscious and cooperative (i.e. relatively proactive with regard to environmental issues as opposed to industry in general) (BCMELP respondent).

The AWMC used a multi-stakeholder negotiation process to develop a regulation to replace the previous loophole (Section 11). They didn't consciously choose a multi-stakeholder negotiation process, but that is what it ended up being. As described above, the committee only started out with two parties (BCMAFF and BCMELP). By the end of the first year it expanded to include three parties, and by the end of the third year it included seven parties. As described in Chapter Eight, there was a lot of give and take during the Code's development, with all parties working towards an agreement that they all could agree to.

During the negotiations, a BCMAFF representative met with the commodity groups' representatives, and the representatives then met with their groups' members. Thus there was a continuous feedback loop from the farmers back to the AWMC (BCMAFF respondent).

4. THE CODE'S FORMAT

In 1992 the AWMC produced the "Code of Agricultural Practice for Waste Management" which became part of the provincial Waste Management Act. They chose a voluntary compliance system, because it was felt that a more stringent permit system would not be acceptable to farmers (BCMELP respondent). It was felt that the policy could be amended in the future if it became evident there is a need to institute permits, or set quantitative limits on the amounts of manure that can be spread on fields.

The Code addresses the use and storage of agricultural products and waste materials, using a combination of quantitative and qualitative restrictions. Part of the Code focuses on preventing the application of excessive amounts of manure, and ensuring proper manure storage to reduce non-point pollution from agricultural sources. The Code is very general, and does not include inorganic fertilizer. For example, the Code stipulates at what times of the year or under what weather conditions manure may not be applied, but does not specify the quantities that can be applied. Farmers may estimate quantities from "Environmental Guidelines" booklets that are published for all the major commodity groups. The Guidelines are directly related to the Code, and are intended to support it. They complement the Code by offering detailed advice on related topics, including manure storage tank design and barn design.

The Guidelines are part of a larger "package" of programs and services aimed at helping farmers to comply with the Code. This

"package" includes a cost-sharing program (e.g. to help farmers buy manure storage tanks), farmer conservation groups (who do research and extension education on manure management), and Best Agricultural Waste Management Plans (BAWMPs) (plans designed by qualified professionals). When the concerns in the plan are addressed, the farm operation should be in compliance with the Code.

5. THE CODE'S ENFORCEMENT

The Code is enforced by a peer inspection system, administered by the Agricultural Environmental Protection Council (AEPC). Although the AEPC is not recognized in the legislation, it was part of the AWMC's negotiated agreement. The AEPC consists of members from BCMELP, BCMAFF, and BCFA.

The AEPC's objective is "to ensure that environmental practices used on BC's farms and ranches are maintained at the standard set by the Code" (BCFA, 1992). The AEPC responds to complaints about environmental concerns on farms and ranches using the following process:

- 1) Within 24 hours of receiving a complaint, the AEPC contacts the local peer inspector and has the complaint investigated.
- 2) The local peer inspector writes a report explaining:
 - what the environmental concern is;
 - whether it is justified;
 - recommendations made and what corrective measures are required; and
 - a date by which the corrective measures should be installed.

3) The report is sent within two weeks of the inspection to:

- the farm or ranch complained against;
- the person or agency who made the complaint; and
- the AEPC.

4) The AEPC contacts the local peer inspector to conduct a follow-up visit to the farm around the date that corrective measures should have been installed. Normally, this is no more than six months after receiving the complaint.

5) Farmers who are still not abiding by the Code after going through steps 1 to 4 are turned over to BCMELP for prosecution under the Waste Management Act (BCFA, 1992).

The AEPC conducts training sessions for peer inspectors across the province. They eventually hope to have 150 trained inspectors (Schmidt, 1992).

6. CONCLUSIONS

This chapter has outlined the biophysical and political factors that led up to the Code's negotiation, and briefly described the Code's format and enforcement. The Code's chronology helps to explain how the respondents who were interviewed were selected (Chapter Seven). This chronology lays the foundation for the findings of the empirical study on the Code's negotiation (Chapter Eight), the negotiation's effect on the form of regulation selected (Chapter Nine), and the negotiation's effect on compliance (Chapter Ten).

CHAPTER SEVEN

CASE STUDY METHODOLOGY

1. INTRODUCTION

This chapter begins with the research design for evaluating the case study of the Code's negotiation. The methods used to collect and analyze the data are then each explained in detail.

2. DATA COLLECTION METHODS

2.1 Document Analysis

In November and December, 1994, I visited the offices of the BCMELP respondent who chaired the AWMC, and the two BCMAFF respondents. These three people were the key players in the Code's negotiation. I was allowed free access to copy any documents in these three respondents' files that related to the Code's negotiation. I obtained minutes from meetings, memos, letters, drafts of the Code, and articles from the farm press. These were arranged in chronological order, and then colour coded to create the following documents:

- a list of the names of those who attended AWMC meetings, the groups they represented, when each group first began to attend meetings, and how they came to participate (e.g. whether they were invited to join the AWMC, or whether they asked to join). This list of names was used to determine the potential respondents for personal interviews.
- a timeline of the meetings held, and decisions made, from 1986 to 1992.

- a summary of each group's concerns or interests in participating in the AWMC.
- a list of the regulatory options that were considered in the drafting of the Codes.
- a description of how the drafts of the Codes evolved.
- and a summary of the role that information gaps played in negotiating the Code.

2.2 Personal Interviews

Based on the document analysis, a personal interview questionnaire was developed to meet the study's objectives. A semi-structured "focused interview" format was chosen, in which a set of predetermined questions was asked, but sometimes the order of questions was varied to accommodate a respondent's wish to speak about a certain subject first, or at length. This type of interview is commonly used for a more intensive study of perceptions, attitudes, and motivation than a structured interview permits. The focused interview's function is "to focus attention upon a given experience and its effects" (Kidder, 1981, 188). The interviewer's list of questions are derived from an analysis of the experience in which the respondent has participated, and from hypotheses based on negotiation theory. The list establishes the topics to be covered, but the interviewer can direct the interview, by exploring reasons and motives, and probing further in unanticipated directions.

The questions were open-ended, which allowed the respondents to give reasons or explanations, and to talk about those things

that mattered most to them. For example, some talked about other aspects of agriculture, e.g. the urban-rural conflicts in the Lower Fraser Valley.

I tried to ensure the respondents' ease of answering questions by pre-testing the questionnaire to check clarity of the wording, and by beginning each interview with an "ice-breaker" question about the respondent's background. Any potentially sensitive questions were put towards the middle or end of the questionnaire, so they would be reached when rapport was well established. I tried to establish rapport by mentioning I had a farm background, that my parents had grown up on farms in Switzerland, and that I had two degrees in agriculture from the University of Guelph, a respected agricultural institution. The importance of having a farm background was demonstrated when, by coincidence, one respondent also had Swiss-German parents who had emigrated to Canada to farm. His interview was very long (almost two hours), and he spoke very frankly. He also introduced me to his family, and showed me part of his farm.

Each interview started with an informal introduction to the study, and a sharing of my and the respondent's backgrounds. I explained the purpose of the study, and assured respondents that their responses would be anonymous. The respondents filled out a consent form, indicating whether they agreed to be tape recorded (all respondents agreed). They also indicated on the consent form whether they wished to see a copy of any material in which they were quoted in a draft form of the thesis, so that they could

verify the quote was accurate and was not taken out of context. An example of the consent form is located in Appendix II. If the response to a question was incomplete, I used probing to ensure that each question was adequately answered (Gorden, 1992).

At the close of each interview, I included a thumbnail sketch of impressions and observational notes to help flesh out the interview for final analysis. This included the respondent's non-verbal behaviour, initial thoughts regarding the data, and any other relevant thoughts or insights. These were recorded at the end of the handwritten notes taken during the interview, and were added to the typed notes at the end of each interview transcript.

2.3 Non-Point Source Pollution Workshop

In March 1995 a workshop on NPS Pollution Management was held in Richmond, B.C. This event was sponsored by BCMELP, Environment Canada, and DFO. The workshop included a focus on agricultural NPS pollution, and I was invited to attend. Other participants in the agricultural working group included representatives from DFO, Environment Canada, BCMAFF, BCMELP and an ENGO. I used the results of the workshop to familiarize myself with each of these group's perceptions of the issues, to add recommendations for changes to the Code (Chapter Ten), and to help develop the recommendations in Chapter Eleven.

2.4 Sampling

A selective sample of the main participants in the Code's negotiation was employed, to assess differences in participants' viewpoints on the Code's negotiation process. The names of

potential respondents who had participated in the Code's negotiation were developed from a list of participants obtained during the document analysis. Those participants who were not interviewed had only attended one or two meetings, and I interviewed other participants from the groups they represented. Those not interviewed included four BCMELP staff, and one technician from BCMAFF. A broad cross-section of viewpoints from the participant groups was still preserved.

In November and December 1994, I visited the offices of the two BCMAFF respondents and the BCMELP respondent who had chaired the AWMC and photocopied documents relevant to the Code's negotiation. The type of documents are described in section 2.1, above. From these documents I finalized a list of all the main participants in the Code's negotiation. Of the 13 participants on the list, only one could not be interviewed as she did not return my phone calls. This person represented the BC Institute of Agrologists, an organization that only became involved late in the Code's negotiation (see Chapter Six), and subsequently played a lesser role. The remaining 12 participants were interviewed between March and May, 1995. There were also two "indirect" participants. One was a legal counsel for BCMELP who had worked on the wording of the Code, and the other worked for the Ministry of Health. The Ministry of Health had only participated in the Code's development by the referral process, i.e. offering comments on the drafts of the Codes, and did not attend any AWMC meetings.

In addition, a selective sample of farmers and farm group

representatives from different commodity groups, and government staff involved in implementing the Code was employed to assess differences in viewpoints about the Code's implementation.

The implementers interviewed were also chosen to represent as many different commodities/sectors as possible, so that there would be a broad cross-section of viewpoints portrayed. The names of suggested farm commodity group respondents who were knowledgeable about the Code's implementation were obtained from a senior BCMAFF employee who participated in the Code's negotiation. For example, he suggested I contact the BCMAFF berry specialist to obtain the name of a berry farmer. The specialist initially gave me the name of a cranberry farmer, who didn't use manure in his operation. The cranberry farmer then gave me the name of the strawberry and raspberry farmer who was interviewed. The implementers interviewed included two farm conservation group leaders, a peer inspector, a member of the AEPC, two farmers who had had complaints lodged against them with the AEPC, and a farmer considered to be an innovator in the field of manure management. They represented the dairy, poultry, pork, vegetable, and berry commodity groups.

In addition, I interviewed three government staff and one BCFA staff person involved with the Code's implementation. The government implementers represented BCMELP, DFO, and Environment Canada. Of the ten implementation respondents, all agreed to participate in interviews.

2.5 Data Collection

Each selected respondent was sent a covering letter about two

to three weeks in advance of their interview. An example of the covering letter can be found in Appendix I.

Each respondent was then telephoned one to two days in advance to solicit their cooperation and to set up a convenient interviewing time. All of the participant respondents were interviewed at their offices, except for one who was interviewed at a restaurant (on his way to a meeting) and one who was interviewed in his home. They were all interviewed alone. The implementation respondents were either interviewed at their offices or at their farms. Two were interviewed with their wives and some family members occasionally present, but I did not feel that that influenced their responses. The interviews occurred in Victoria, Vancouver, North Vancouver, Burnaby, Delta, Langley, Surrey, Abbotsford, Chilliwack, Kamloops, Kelowna, and Penticton.

On average, the interviews lasted 30 to 45 minutes. The longest one took two hours, and the shortest took 15 minutes. Generally I felt that the respondents were open in their responses, and felt comfortable answering the questions. Two said that they had enjoyed the interview, and all were interested in receiving a summary of the research results.

The questionnaire was pretested with the first two respondents, a BCMELP respondent and a BCFA respondent. I had met each of them before, and asked them for feedback on the questionnaire. Subsequently, a few questions were dropped, and the question order was slightly changed. A copy of the questionnaire is located in Appendix III.

2.6 Questionnaire Format

The questions in the questionnaire were designed to elicit each respondent's view of the Code's development, and/or its implementation. The questions that evaluated the Code's negotiation process were based on the criteria listed in Chapter Five. After the introduction to the study, the questionnaire was divided into seven categories: the respondent's background, the history of the Code's development, the groups involved, each group's concerns and preferred regulatory options, the negotiation process, and the Code's implementation.

2.7 Data Analysis

The audio-taped interviews were transcribed from March to May 1995. As each tape was transcribed, I made notes in a separate file on any themes I saw emerging, where responses had been similar to other respondents', and any other notes I felt would be helpful later in the data analysis. After each transcript was completed, I played the tape again with a printed transcript in front of me, to check for accuracy of the transcription. The tapes were transcribed as soon as possible after the interviews, to aid my recall of the tone of the interview. Quotes from the transcript that are separated by four periods were made at separate times in the interview.

The interviews and documents were analyzed by using the objective/criterion/question/key word correspondence, shown in Table Three. The key words were derived from the literature on negotiation. Each objective/criterion was assigned a colour, and

the margin of the relevant part of the each transcript was marked in that colour. For example, the answers to Question 13 (which corresponded to Criterion Nine - Agreement Implementation) were marked with a yellow stripe in the margin. At an intermediate stage of the analysis, all the similarly colour coded parts of the transcripts were examined together, and a table created with a summary of each respondent's answer, as well as any sentences I felt might be useful as direct quotes. An example of the table can be found in Appendix IV. When all the relevant questions were colour coded, the parts of the transcript that were not yet assigned a colour were examined, to ensure that all relevant parts of the transcript were included in the analysis.

Table Three
Data Analysis

Research Objective Number	Method of Analysis
1 - Literature Review	Chapter Two
2a - Effectiveness of the Code's Negotiation Process	<p>Criterion 1: Questions 6 and 12</p> <p>Criterion 2: Document Analysis</p> <p>Criterion 3: Questions 2 and 11</p> <p>Criterion 4: Document Analysis</p> <p>Criterion 5: Key words: win, benefit, gain, better off</p> <p>Criterion 6: Question 9 and key word: common ground</p> <p>Criterion 7: Question 14 and key words: tradeoff, give and take</p> <p>Criterion 8: Question 15h and key word: research</p> <p>Criterion 9: Question 13</p> <p>Criterion 10: Document Analysis</p> <p>Criterion 11: Question 15a</p> <p>Criterion 12: Literature review</p> <p>Criterion 13: Questions 15c and 15g</p> <p>Criterion 14: Questions 15b, 15d and 15e; Document Analysis</p> <p>Criterion 15: Questions 5, 7 and 16</p> <p>Criterion 16: Questions 8 and 15f</p>
2b - Negotiation's Effect on the Regulation	Question 14 and Document Analysis
2c - Negotiation and Compliance	Question 17
2d - Suggested Changes	Questions 18 and 19, NPS Pollutants Workshop Results

PART THREE

FINDINGS

CHAPTER EIGHT

EVALUATION OF THE CODE'S NEGOTIATION

One thing that one person said to me once, 'There's two things that you should never know how they're made. One is sausages and the other is law.' (Laughs) . . . I'm beginning to think that's right (BCMAFF respondent).

1. INTRODUCTION

Part Three outlines the findings of my research on the Code's negotiation process. The section headings are arranged in the order of the research objectives (see Chapter One). This chapter begins with objective 2a): an evaluation of the negotiation process. The evaluation criteria, explained in Chapter Five, form the sub-headings. Each criterion is analyzed using results from either or both of the interview transcripts and the document analysis.

2. OBJECTIVE 2a: EVALUATION OF THE REGULATION MAKING PROCESS

2.1 Criterion One: Countervailing Power

This criterion addressed whether any of the parties had the power to act unilaterally and control the outcome. Respondents were asked whether any group was able to dominate the negotiation (Question 6), and what they thought would have happened if BCMELP had tried to develop a regulation on their own (i.e. acted unilaterally) (Question 12). Generally, all the participants interviewed felt that the Code's negotiation was equitable, and that no one group was able to dominate the process. As one BCMAFF

respondent said, "It's the model of cooperation, I think." A BCFA respondent added that "it was an excellent model of a consultation process at work."

Interestingly, one federal government respondent felt that the agricultural industry did have "a really strong voice" (emphasis in original), while another federal government respondent felt that the federal government probably dominated by virtue of having the authority of the Fisheries Act behind them. Both the BCFA participants mentioned that they sometimes felt outnumbered by the plethora of government agencies that sat at the table, but they also knew that they had the weight of the commodity associations behind them.

However, everyone agreed that it would have been a "disaster" and unworkable if BCMELP had tried to develop the Code on its own. There would have been "a lot of vociferous backlash" on the part of the farmers, and "it would have been blocked (by farmer lobbying and protests)," according to a BCMAFF respondent. Both of the BCMAFF participants noted that after the Code was enacted, BCMELP worked on two other pieces of legislation that affected farmers - the Open Burning Smoke Control Code of Practice and the British Columbia Environmental Protection Act (BCEPA). Both of the other pieces of legislation were developed by committees that had no farmer or BCMAFF representatives on them, and were simply presented to the farming community as final drafts, for comments. The farmers had major concerns about both pieces of legislation, and made their concerns known. The Open Burning Code was subsequently

rewritten with farmer input. The BCCA joined the BCEPA committee, and the legislation was revised. One BCMAFF respondent concluded that,

(BCMELP) should never have been allowed to do that, because they probably alienated a lot of people out there over that Burning Code. Sure they changed it, but why would you drag people out of their homes to have to go to public meetings because somebody has a piece of legislation that's not acceptable? And it wasn't. . . . We've got to do a better job in communicating between other ministries when it comes down to dealing with agriculture. We just want to make sure that we're at the table here.

The Code's negotiation met the first criterion, as no one felt that any one group was able to dominate. BCMELP would not have been able to act unilaterally and develop an agriculturally-related regulation on its own, as recent experience with other regulations has proven (even though they have the legal authority to do so).

2.2 Criterion Two: Limited Number of Parties

This criterion stated that there should be a maximum of 25 parties at the table, if the process is to be productive. The main parties involved in the AWMC were the BCMELP, the BCMAFF, and the BCFA. Other groups who attended some of the AWMC meetings were the GVRD, Environment Canada, DFO, and the BCIA. (The latter group appears to have attended only one meeting.) The Ministry of Health was involved through the referral process (i.e. they commented on drafts of the Code), but did not actually attend meetings.

The BCCA attended one meeting in 1991, and appears to be the only farm group to have participated directly in the process. Overall, more than 17 farm groups were consulted (BCFA and BCMAFF,

1992), and they made their views known outside of AWWC meetings through meetings or correspondence with BCFA or BCMAFF staff. Therefore, the AWWC negotiation process met the criterion of having less than 25 parties involved.

2.3 Criterion Three: Mature/"Ripe" Issues

In order to be successfully negotiated, the issue at hand should have clarified sufficiently to permit resolution. For example, the parties should have stopped lining up political support and building media campaigns. The respondents demonstrated, by recounting the history of concerns about farm waste management in BC, that it was a mature issue. They were asked how well they felt the previous exemption clause in the provincial Waste Management Act had worked (Question 2), and what their concerns were related to the regulation of manure management (i.e. how they saw the issues) (Question 11).

As one BCMELP respondent said, the Code resulted from "a combination of a lot of events that occurred over a number of years." Prior to concern about contamination in the Abbotsford Aquifer (discussed in Chapter Six), BCMELP started studying agricultural pollution in surface water in the Williams Lake area in the late 1970s. In the 1980s an inventory of farm waste management practices in the Okanagan identified some serious shortcomings. At the same time, BCMELP knew that in the Lower Fraser Valley "the density of animals was exceeding the capacity of the land to support those animals" (BCMELP respondent), and that there was excess manure application to the fields. DFO was

becoming concerned about fish kills in rivers, low dissolved oxygen levels, and bacterial contamination of shellfish (DFO respondent).

As mentioned in Chapter Six, there were a few court cases, where BCMELP tried to prosecute farms under the previous exemption, however they lost these cases. There were also problems with the AES system of peer inspectors keeping up with the volume of complaints. And agricultural pollution "didn't gain the attention it deserved in Victoria" (BCMELP respondent) until after municipal discharges were dealt with.

This combination of events culminated in a decision to form the AWWMC. According to a BCFA respondent, "Everybody recognized the current status quo wasn't working, wasn't sustainable, and that we had to have a better system. So I think that was probably the key in making the whole thing work."

Interestingly, there was no media campaign to make the public aware of the farm waste management issue. In fact, most of the publicity about agricultural contamination of groundwater came out in 1992, after the Code was enacted (see Munro, 1992, and Liebscher et al., 1992). One BCMELP respondent complained about the lack of media coverage.

I guess it's up to the technical people ourselves to heighten the concern about agricultural impacts, because they are significant. . . .I think one problem is that it's not an interesting or unique topic like dioxins is, or something new. Manure piles have been around since we were all kids, and the press just doesn't.. Who cares? But if it's dioxins or something that can cause cancer in one of a million people, let's write up that, rather than talk about the dozens or hundreds of wells that are contaminated from agricultural waste, either bacteriologically or from a nitrate perspective or a

pesticide perspective in the Valley. It's just not interesting to people to read about that. It's unfortunate (emphasis in original).

Thus, the issues that the AWMC worked on had clarified sufficiently to permit resolution.

2.4 Criterion Four: Inevitability of Decision

Negotiations are likely to work best if all parties believe a decision is inevitable. The documents related to the AWMC's negotiation process were used to determine whether or not the decision to regulate manure management was inevitable.

Shortly after the BCMELP Regional Managers met in October of 1986, one of the assistant deputy ministers for BCMAFF wrote the Soils and Engineering Branch suggesting that BCMAFF staff needed to start "discussions dealing with agricultural contributions to aquifer contamination" (BCMAFF Letter, February 16, 1987). BCMAFF's rationale was to act proactively to reduce the impact on farmers. "We should be considering what efforts need to be considered now in anticipation of restrictions that may be imposed to protect the groundwater resource in the Fraser and Okanagan Valleys" (BCMAFF Letter, February 16, 1987).

In April of 1987, BCMELP invited BCMAFF to appoint staff to sit on the AWMC. It became obvious that BCMELP intended to rewrite the exemption for agriculture in the Waste Management Act because of the severity of the documented agricultural pollution problems. BCMAFF saw this, and was happy to be involved in the AWMC's negotiation process. Initially, BCMAFF sought to reduce the Code's impact on the farming community by

producing guidelines for proper farm management practices that are environmentally sensitive. ... Failure for our Ministry to provide guidelines will inevitably result in other Ministries developing farming guidelines, that can be overly restrictive to the farming community. For example, Ministry of Environment and Parks are presently reviewing the Waste Management Act in response to known ground and surface water contamination. ... (BCMAFF should) inform other Ministries involved in pollution control of agriculture's new proposed standards that will address prevention of agriculture's pollution of the environment (BCMAFF Fax, October 9, 1987).

When the BCFA asked whether they could attend AWWC meetings in February of 1988, it was obvious to them the BCMELP was tightening up the Waste Management Act. Rather than be handed the new rules, the BCFA preferred to have some say in what was done if they became involved (BCFA respondent). Another factor was "farmers' desire to demonstrate their commitment to protecting the environment by launching a program to deal with polluters swiftly and decisively" (Walters, 1991, 32).

Overall, the decision to develop the Code was seen as inevitable, because BCMELP, BCMAFF, and the agricultural community were aware that the previous exemption was not working.

Everyone recognized the Waste Management Act needed to be changed, because the old wording just simply was not working. And there was the authority for the Minister of Environment, or government at least, to pass a regulation, aimed at controlling farm discharges. And there certainly was the knowledge that something had to be done, and the Ministry was prepared to do something if we couldn't work something out. And I think that did kind of help bring things together as well. There was that (imminence) of something about to happen because the present system wasn't working (GVRD respondent).

2.5 Criterion Five: Opportunity for Gain

Harter (1982) suggested that the negotiated dispute must be

transformed into a "win/win" situation so that all parties are better off for having negotiated, or the winners can compensate the losers. The transcripts and documents were searched for the key words of win, benefit, gain, and better off to obtain evidence to support this contention.

There were three aspects of the Code's negotiation that reflect "win-win" outcomes, and helped to add up to a "win-win" package overall. One was that while the Code requires farmers to protect the environment (BCMELP's concern), it also protects farmers. Section 19 of the Code states that nothing in the Code prohibits odours from agricultural operations, providing the operations are carried out in accordance with the Code. An article in a B.C. farm magazine described how the Code was valuable to the agriculture industry in terms of dealing with nuisance complaints from non-farming neighbours.

'It protects farmers' right to farm. Establishing a set of consistent farming standards should allow farmers using normal practices to farm free of harassment from the non-farming public.' ... 'We now have an airtight system, one that's good for industry. We've spelled out what good farming practices are,' says (a BCMAFF employee). ... The rules are public and official. That means everybody will have the same length yardstick. It'll be difficult for cranky neighbours, over-zealous environmentalists or eco-terrorists to criticize conscientious farmers (Walters, 1991, 32).

Two farm respondents remarked on this protective aspect of the Code.

And the Guidelines actually can work in our favour. We're in an urban area. As I joke sometimes, most farm boys leave the country and go to the city. Well, with me, the city came to me. Literally. Surrey's a city, I'm now in a city. And it's a major problem in my

opinion. Urban problems are a nightmare. It's to the point that I'd like to get out, if I could. I don't like all these people around here. They cause me nothing but problems. And at least if I have a Code of Practices, and I'm following it, I've got protection. If there's no Code of Practice, then who says, "This is standard farming practices?" (Vegetable farmer, emphasis in original).

What it does is it gives us a thing when there's environmental issues. . . .When we begin to get heat from the general populace, well we say, 'We have a Code of Practice. We are doing what we're supposed to. . . .In the meantime, what are you doing to keep up with the rest of us?' (BCCA respondent).

Another perceived advantage for farmers was that the Code could be used as a marketing tool to address cross-border shopping and foster consumer loyalty. The Code was seen as

an excellent opportunity to promote agriculture, to show that industry is taking the initiative, that farmers are taking responsibility for themselves and their neighbours and that farmers are committed to farming sustainably. Bragging about the Code could give B.C.'s farmers a real competitive edge, predicts (a BCMAFF employee). Farmers south of the border cannot lay claim to the kind of stewardship B.C. farmers can (Walters, 1991, 33).

The second win-win situation was the way the Code was written, as a regulation by reference. Regulation by reference means that the actual Agricultural Waste Control Regulation, which is part of the Waste Management Act and is only two sections long, refers to the Code. Section two of the Agricultural Waste Control Regulation states that anyone who carries out an agricultural operation in accordance with the Code is exempt from having to obtain a permit under the Waste Management Act. It gave BCMELP, DFO, Environment Canada, and the GVRD the regulation that they wanted, but it sounded "softer" to the farmers (BCMELP Respondent). As a BCMAFF

employee wrote,

This approach [the Code] is much "softer" than the "hard" legal controls adopted by many European countries. In this way it is our expectation that the legitimate environment protection mandate of the Ministry of Environment can be satisfied without undue financial impact on the industry (BCMAFF Letter, October 13, 1988).

Thirdly, in retrospect, both BCMELP and the farmers feel they proved the usefulness of involving producer groups in the development of regulations that affect them. As mentioned in Section 4.2.1, other branches of BCMELP subsequently tried to develop some other regulations without farmer input, with disastrous results. A BCFA respondent felt that government has

recognized that they can bring producers into the process, and . . . gain from it. Because they've been burned a few times with trying to come out and do things where they've developed them internally, and then just come out and try to impose them on the industry.

Another mutually beneficial situation arose with the involvement of farmers as the front line of the AEPC's enforcement approach. This saved BCMELP money and staff resources, and gave farmers more confidence in the validity of farm inspections.

I know everybody's budgets are limited and so on. . . . More and more we're talking about new ways of doing business, that transfers the responsibility to the owner of the waste, and to the lower levels of government. And that really involves a great deal of trust. And that means what we have to do, in senior governments, is to do spot checks and periodic audits, so that we're still out there buzzing around, you never know where we are. And that's about the only way we can cover the playing field (DFO respondent).

Thus, the Code's negotiation provided opportunities for gain for a number of the parties involved.

2.6 Criterion Six: Fundamental Values

This criterion states that the dispute negotiated should not only concern or be dominated by fundamental value choices (e.g. strongly held moral or ethical beliefs). The evidence was obtained indirectly, by asking the respondents whether the groups who were involved in the Code's negotiation shared common ground on at least some of the issues (Question 9). While the groups involved in the Code's negotiation all had fairly strongly held views, these did not involve overwhelming moral or ethical beliefs. In fact, the groups shared some common ground, which helped to make the negotiation process easier.

There were some areas where we started out a fair ways apart, but . . . it was never the really polar opposites so far apart that there wasn't even any room to start. . . . There was a common goal, which was to come out with something that everybody could live with. . . . There was really a common objective from the beginning. We might have had a little different view of what that common objective was, but we (all) knew that we had to get a better system (BCFA respondent).

A DFO respondent described a situation during the Code's negotiation where this common ground was expressed.

Often we talked about this other piece of legislation, the Agricultural Protection Act, . . . that said that if a farm moved into an area and made a bad smell, too bad for the subdivision that came in later. And all of us sort of cheered and went, 'Hear, hear.' When it comes to that kind of thing, it's not hard for Fisheries to agree with it because we don't have anything at risk. And as long as you keep that stuff out of the streams, then you do have the right to be protected to carry on your business. . . . And as well, a lot of the agriculture (representatives) would say, 'We're interested in protecting the environment. We have to live in the community too. And we happen to be recreational fishermen. We like to know that the streams are alive too.' So we had those common grounds to work from

(emphasis in original).

Thus the issues negotiated during the Code's development did not involve compromising any of the groups' fundamental values, and there was room for collaborative problem-solving.

2.7 Criterion Seven: Permitting Tradeoffs

This criterion states that there must be multiple issues "on the table," to permit tradeoffs so that the parties can maximize their overall interests. The respondents were asked what their initial preferred regulatory options were, and whether the options that they were willing to support changed over time, as the Code's negotiation progressed (Question 14).

During the Code's negotiation, there were multiple issues on the table that permitted tradeoffs. For example, the issues included rates and times of manure spreading, maintaining farmers' exemption from mandatory permitting, revising the peer inspection system, and determining setback limits for feeding livestock near water bodies.

A BCMELP respondent discussed how the AWMC had negotiated the times of the year for manure spreading, for different soil and weather conditions throughout the province.

And that's where you've got to go through this give and take, and say, 'Well okay, this would make life easy for me, but that doesn't work for you. So how can we do something here that will achieve what I want, and still give you the operational freedom that you need?'

BCMAFF's main concern was to maintain the farmers' exemption from permitting. They wanted to ensure that the Code was flexible enough "to recognize that there was a great range of ways that

people can farm in an environmentally sound manner" (BCMAFF respondent). The BCFA wanted to maintain their peer inspector system of enforcement, but had to concede that in case of serious environmental impacts, BCMELP would send their staff in first to deal with it.

When we first started out, government would have liked to have a stronger regulatory role. . . . They probably didn't really want the agriculture industry to be the first line of defense. . . . And one of the things that . . . we had to accept, is the fact that if there is outright pollution . . . the Ministry of Environment still has the authority to go in directly. They don't have to come back through the producer process. . . . And we had to accept that. . . . There was a compromise (BCFA respondent, emphasis in original).

The negotiation of setback limits for seasonal feeding sites for livestock were a very contentious issue towards the end of the Code's negotiation. Initially BCMELP and BCMAFF just arbitrarily chose a distance of 200 metres as a starting point for one of the drafts of the Code.

And people said, 'Well, geez, this is ridiculous. You're wiping out all this land base all over the place.' And it wasn't until we looked at a few (sites) that we realized that (it didn't) make sense. And one of the issues (the ranchers) were worried about was cattle having access to water. . . . Once we said, 'Okay, we won't go 200 metres, we'll go 30 metres, but if we're going to go that way, then these are the other regulations. You must feed throughout the field so the manure is spread, and there's no build up anywhere for runoff. . . . If you want permanent feeders you go to (BCMELP for approval). . . . Those two sections were added because we dropped the 200 metres and went to 30 metres. And we all discussed it, and everybody said, 'Yes, that would be fair' (BCMAFF respondent).

Thus the Code's negotiation did permit tradeoffs.

2.8 Criterion Eight: Research Not Determinative of Outcome

Negotiation may not be an appropriate method for designing regulations when fundamental research is necessary, and the outcome would dictate the regulatory result. The respondents were asked whether the necessary data to make a decision was readily available (Question 15h). While there were some data for certain parts of the province (e.g. the Okanagan, Williams Lake, the Lower Mainland) that indicated there were definitely agricultural non-point source pollution problems, there was very little information to help determine possible regulatory solutions.

(The lack of data) was the key issue for me. Having to agree to a certain number, not knowing whether I was stringent enough or overly stringent. And I don't think the engineering expertise exists. I don't think the studies are done. And it may be so site specific that it would be foolish to try and do them (DFO respondent).

The biggest technical issue around manure management was - what is the difference between using it as a resource, and just disposing of it? . . . When are you overloading it, and when does it become more than a fertilizer? . . . That took a fair amount of research. There's not a lot of work done in that area. And it's not an exact science either. It all depends on your crop cover, and your type of soil, . . . and the type of manure (BCFA respondent).

The AWMC used a few creative ways to work around the data limitations. Some examples were the use of photos from helicopter flyovers, with accompanying water quality data (if available) to document the environmental impacts of farms and feedlots; looking at other regulations for guidance; inviting specialists to speak to the Committee on specific topics; and utilising the expertise of those at the negotiating table to come up with ideas that were both practical and effective. For example, DFO relied on Environment

Canada's experience with enforcing pollution control under the Fisheries Act, to advise the Committee "as to what would be good enough to protect the resource, or give us the water quality we expect in the stream for the fish" (DFO respondent).

Consequently there was no research on manure management that dictated the regulatory result for the Code. The AWWC did not undertake any research, and none of the data they had available imposed a particular regulatory result.

2.9 Criterion Nine: Agreement Implementation

This criterion states that the parties involved in the negotiation must believe that the regulating agency will use the results of the agreement as the basis of public policy. The respondents were asked whether they were confident that BCMELP would use the results of the Code's negotiation as the basis for a new regulation (Question 13).

The respondents had a diverse range of opinions, as to whether or not they initially felt that BCMELP would implement the results of the agreed upon Code. Both the GVRD and the BCCA respondents felt that it was clear from the beginning that the results of the negotiation would be implemented. The DFO respondent was somewhat confident that the results of the negotiation would be implemented, but was "sceptical in areas of real controversy." He saw BCMELP as being in the middle, trying to be evenhanded and compromise between the industry's desire for more lax regulations and DFO's desire for more environmental protection.

The BCMAFF respondents and one of the BCFA respondents were

not sure that BCMELP would use the results of the negotiation as a regulation. One BCMAFF respondent felt that it was just part of the uncertainties of working in government.

You're always doing things that may never happen. That's the state of doing work around here. . . You never know, the government could have an election, the government could change, and that's just the way it is.

The other BCMAFF respondent expressed concern that senior BCMELP bureaucrats (who were not AWWC members) had tried to change the Code's wording after it had been agreed to by the Committee. (This problem is further discussed in Section 2.15). A BCFA respondent was worried that BCMELP "would have difficulty selling the final package to the senior levels in government. . . (because it wasn't) as tight and as tough as some people would really like."

Overall, this criterion was only partly met. Some of the respondents believed that the negotiated agreement would be implemented, while others had their doubts. However, all the parties stayed involved because they saw the possible lack of implementation as part of the inescapable uncertainty of policy making, not because of any specific mistrust of BCMELP.

2.10 Criterion Ten: Agency role

Criterion Ten states that the agency sponsoring a negotiated rulemaking should take part in the negotiations. This criterion was easily met, as BCMELP played an active role in the negotiations. One BCMELP employee was the chairperson of the AWWC, and there were two other BCMELP representatives on the Committee.

2.11 Criterion Eleven: Role of a mediator/facilitator

The regulating agency should select a skilled mediator/facilitator to assist the negotiating group in reaching an agreement. The respondents were asked whether a trained facilitator was used during the Code's negotiation (Question 15a). Most respondents identified either one, or both, of a BCMAFF participant and the BCMELP chairperson as having acted as a facilitator(s). These two people were credited with doing an excellent job.

I would say it was one of the best committees I've probably ever worked on. So, and if I can say, I give that to (the BCMELP chairperson). (He) chaired it in a very amicable way, not dominating. And I've worked in other legislation in (the Ministry of) Environment afterward, and I've not found that same type of relaxation dealing with a committee at all.

And what I liked about it was the way it was handled by (a BCMAFF participant). I seem to recall him being the lead - whether he was formally the lead or what - but he was kind of the focal point of the group. And he was continually showing evenhandedness, even though the BCMAFF is - I guess you could say - is an advocacy agency for the agriculture industry. They didn't run it with any undue bias, and they always listened to our Fisheries Act requirements. But at the same time had to listen to also industry's requirements, and they tried to balance those. So I think they did a good job (DFO respondent).

Interestingly, respondents from BCMELP, BCFA, GVRD, DFO, and Environment Canada all reacted negatively to the idea of a neutral, third party "facilitator".¹ They felt that such a person would

¹The respondents obviously had a certain idea of what a "facilitator" was, probably from labour-management negotiations. The negotiation literature differentiates between the role of a facilitator (who is in charge of arranging the logistics for the negotiation) and the role of a mediator (who is involved in helping the parties reach consensus during the negotiation). The

have made the process too formal, and was simply not needed because the Committee was small, and the Committee members shared a lot of common ground. As a BCMELP respondent said, a facilitator wasn't necessary in this case, "because all the right people were on this Committee."

Criterion Eleven was partly met, as the AWMC did not use a neutral facilitator. However, the BCMAFF and BCMELP participants who were identified as acting as facilitators were credited with doing a good job.

2.12 Criterion Twelve: Distribution of costs and benefits

Issues that involve concentrated benefits and concentrated costs are better candidates for negotiation because it is easier to mobilize stakeholders when the interest groups are few in number and narrow in scope. The regulation of farm waste is a case of concentrated costs (for the farmers) and distributed benefits (for society at large). Thus this criterion was only partly met, as the Code's negotiation didn't involve both concentrated costs and concentrated benefits. However, the Code's negotiation still worked because those who bear the concentrated costs (the farmers) were present, and the federal and provincial environmental agencies spoke on behalf of the general public (those who bear the distributed benefits).

The cost sharing programs that were available to farmers after the Code was enacted have been fairly limited, so the programs have

respondents were using the literature definition of a mediator when they referred to a facilitator.

not diffused the costs for farmers as a whole.² Farmers are also concerned that consumers will be unwilling to pay more for food if farmers attempt to pass on the costs of compliance (and make the benefits more concentrated).

The farmer has always said, "I'll do whatever you want me to do, but then pay me for it." And the person who goes to the Safeway, or Save-On store, he's not interested in paying any more for his food. He doesn't want to pay more. He'll say, "Well, let's buy it from California then." There's a cost involved when you make changes. And those costs have to be borne by someone, and if they're borne by an industry that's already struggling, that makes it very difficult to maintain that industry (BCFA respondent).

2.13 Criterion Thirteen: BATNA (Best Alternative to a Negotiated Agreement)

Parties will only come to the table if they believe that negotiation will produce an outcome that is as good as or better than the outcome they could achieve from other available methods. Respondents were asked what was their incentive to negotiate (as opposed to using other methods) (Question 15c), and whether they felt all the parties negotiated in good faith (Question 15g).

All the respondents agreed that all the groups who participated in the Code's development had an interest in being there, and in using negotiation as their preferred option to develop the Code.

The best way to resolve the problems is to work them out with those people who are concerned about the problems,

²For example, the Agricultural Land Development Assistance Program (which was disbanded in 1995) funded 25 waste management projects in 1991/92. These projects received \$1,616,000, or just under 30 percent of ALDA's funds (BCMAFF, 1993).

by far. As you say, there are these other routes. Legal routes can be quite resource intensive, and in many cases then not all factors are considered and certainly not all people who want to comment have an opportunity to comment. So in many cases the wrong decision can be made. So this is by far the best route to go. You can always resort to those other areas if this kind of route is not successful (GVRD respondent).

BCMELP wanted a regulation that was easier to enforce. The agricultural industry wanted what they considered to be fair and realistic standards, and the BCMAFF was in the middle "in being able to influence both sides, and helping (them) to reach something that would be workable for both of (them)" (BCMELP respondent). Even though DFO was regarded with some suspicion initially, they too were perceived as wanting the negotiation approach as their preferred option. Going to the courts would have been DFO's BATNA, and political lobbying (see Section 3) would have been BCFA's BATNA.

I think everybody felt that way (that negotiation was their best option). I certainly got that message from the agricultural community, from the Ministry of Agriculture, and our Ministry. . . . DFO made it clear that if pollution was being caused or there was a problem to the fisheries resource, whether (farmers) were following the Code or not, they'd be charged. And they said that in the meetings. I think it was still to the point where the commodity representatives were satisfied that DFO was on board, and also felt that this was the best way to go (BCMELP respondent).

All the respondents agreed that no one was there just to stall for time, and that everyone negotiated in good faith.

I didn't see that (stalling for time). And I think that's because the actors, particularly from industry, were there in good faith, and went away, and when they said, "I'm going to take this back to my people and get you their views on whether they could comply," they did so. And that was useful (DFO respondent).

2.14 Criterion Fourteen: Setting a deadline

Setting a deadline for completion of the negotiation helps to keep the participants moving toward a resolution at an efficient pace. The respondents were asked whether the AWMC had a deadline (Question 15b), whether they decided in advance where to meet, how often and at convenient locations (Question 15d), and whether they defined consensus in advance (Question 15e).

The AWMC did set a number of deadlines, although none of them were strictly adhered to. Initially, each member was assigned specific tasks, and the Code was to have been finished by May of 1988 (BCMELP Memo, October, 1987). By the spring of 1988 it became obvious that the activities chart was not realistic and would have to be extended (AWMC Agenda, March 14, 1988). In the spring of 1989, they hoped to finalize the Code by that September (BCMAFF Memo, March 30, 1989). Two years passed, and the (presumed to be) final draft of the Code was being reviewed by legislative counsel. The target date to enact the Code was August of 1991 (BCFA Letter, June 29, 1991). However the AWMC then received comments from the Ministry of Health, which necessitated some further revisions (Ministry of Health Memo, August 7, 1991). By November 1991 the Code had been sent to Cabinet (Walters, 1991), and it was finally enacted in April, 1992 (BCMELP and BCMAFF News Release, April 29, 1992).

Although the Code's development took a long time (almost five years), most of the participants thought that it needed to take years, as opposed to months. The length of time ensured that

everyone had input, the stakeholder support increased, and farmers had time to start thinking of how to incorporate the costs of new waste management practices or facilities into their budgets.

It would have been difficult to do it any faster, and have the support of all the stakeholders. We could have rushed it out. We could even have done it by ourselves and come up with something very close to what resulted, but in terms of effectiveness it would have been worse without everybody signing on (BCMELP respondent).

Another positive in taking so long . . . is that it gave the farmers more warning that things were changing. . . . The thing I've found about farmers is that they're always spending money on their farms. . . . So you have to get the work that you want done incorporated into that ongoing work cycle (BCMELP respondent).

However, a BCMELP respondent, a BCMAFF respondent, a BCFA respondent and the GVRD respondent felt a stricter deadline would have helped to make the process more efficient. As one BCMELP respondent said,

I think my biggest frustration was that there'd be times where . . . I would think we'd agreed to something and then we would come back - it would take a couple of months 'til we had the next meeting - and it would seem like we had to recover the same ground again. I think had we been on a tighter schedule, we might have been able to get through things. It just seems like there was so much repetition. But at the same time, perhaps that's all part of the give and take. That people really weren't ready to make that compromise yet. And you have to recover the same issue three times before everybody reaches consensus on how you want it to end up.

As mentioned in Chapter Six, the different groups became members of the AWMC at different times. This too may have added to the length of time the negotiation took, because the new members had to be brought up to speed.

'Cause every time you (brought) somebody new into the process, you'd have to go back and explain a lot of

things. . . . And it's not always bad, because sometimes new insights result in useful things, but, . . . I think . . . my biggest frustration was the number of times we covered the same ground (BCMELP respondent).

Two other factors that can help to make negotiations run more efficiently are to regularly schedule meetings at convenient locations, and to define consensus in advance (Dorcey, 1992). Almost all the respondents felt that the practice of setting the next meeting's date at the end of each meeting worked well. "Sometimes I think you can burn people out by having a 'meeting anyways' sort of thing. I think that was actually one of the good things. We never had a meeting that was wasted" (BCMAFF respondent). Only one respondent felt that it would have been better to have a regular meeting schedule, because "we could have all built that into our schedules. We could have . . . achieved the same number of meetings in a shorter time frame" (BCMELP respondent). Most of the meetings were held in Abbotsford, which was considered to be a convenient location.

All the respondents agreed that consensus had not been defined ahead of time. The AWWC was fortunate to have reached a long term agreement, as the negotiation literature suggests that defining consensus in advance is essential to ensuring a successful negotiation (National Round Table, 1993). Only one BCMELP respondent felt that it would have been beneficial to do this. The other respondents felt that consensus was reached anyway.

We didn't, no. . . . And I think it was deliberate from the beginning, not to do that. We didn't have votes, and we always said that this was just a process to come to a mutually agreeable system. And that we would continue to

work at it 'til we had it. And I think they knew there were basically three major players that had to be satisfied - Agriculture, Environment, and the producers. And when you have those three satisfied, we knew we had something that was going to work. . . . We didn't do it formally, but we knew at the end that the consensus had to be there, that everybody agreed. We didn't know exactly how we were going to get to it when we started out. (Laughs) . . . We had to have everybody on side to make it work. Because everybody had a role in the thing in the end (BCFA respondent, emphasis in original).

Well, consensus was defined in terms of the goal. And the goal was to develop a Code of Practice that could be embodied in a regulation. That was a very clear goal, right from the beginning. And everyone was working towards that goal (GVRD respondent).

We didn't do that. And I'm not sure how you would do it. Because what's consensus? I guess consensus is when people stop objecting strongly to something. Everybody says "Okay, we'll go along with it the way it's written." That's sort of the default that we arrived at as well. So I don't know that defining consensus ahead of time would have resulted in us working any differently than we did (BCMELP respondent).

The AWWC did not use firm deadlines, so this criterion was not met. When the participants encountered difficulties, they just kept talking about the issues until they were able to find a resolution.

2.15 Criterion Fifteen: Who should participate

This criterion is divided into two parts: first, were all the groups who had an interest in, or would be affected by the outcome of the decision, represented (Question 7)? Second, did the representatives at the table have enough authority to make decisions without constantly having to check with their constituents first (Question 5)?

The answer to the first question is that a broad cross-section

of government agencies concerned with environmental protection were present, along with BCMAFF and the farmers' interest group, the BCFA. There were no environmental non-governmental organizations (ENGOS) present, nor were there any representatives from the general public. The reasons given for not having an ENGO representative included the historical fact that involving ENGOS in policy development was not as much of an issue in the mid-1980s; that they didn't know of any ENGOS with agricultural expertise; and that the environmental agencies present did a good job of representing the public interest with respect to environmental issues.

With one exception, most of the participants did not feel that ENGOS would have been a benefit to the AWWC.

I personally feel that at that particular point in time there was a different kind of an environmentalist. They were a little more radical. . . . I think that there was a general consensus around that table that we would probably never have got this regulation through had we, at that time, too many environmentalist people at the table (BCMELP respondent)).

I may be wrong and my perception may be totally warped, but I believe (ENGOS) have a cause and the cause comes first, and logic and rationale have nothing to do with it. And so to include . . . the radical wings that we have seen - no, I don't think they would have benefitted the process at all. They would have hampered it (BCFA respondent).

The idea of consensus with environmental groups is almost a dichotomy. . . . And I mean, as a government regulatory person, I would also sometimes take the hard line and say, 'Absolutely none whatsoever, no toxic discharge, that's it.' And that would shut down major sections of our industries. And you can't. You have to stage it. Hopefully not to the detriment of the environment, longlasting. You may have to accept zones of influence, where you know there's going to be degradation and water

quality problems, and there's going to be conditions that you don't like. But over a period of time it's going to improve. . . . But that's not the case with some environmental groups. The consensus doesn't exist (Environment Canada respondent, emphasis in original).

. . . In small meetings like this, with agriculture, I don't think environmental groups would've been a great deal of help to us. They probably would've gotten stuck on odour and noise, and land use decision making, and subdivisions, and planning stuff. . . They haven't really caught on to (agricultural pollution) in a big way, and I don't think it would have been very useful (DFO respondent).

One respondent mentioned a negative experience with an ENGO on the committee that developed BCEPA.

They had some people on there that said they didn't want any pesticides. Now to me, somebody has to make the decision before they come in the room, that why would you invite somebody that says that? That's extreme. It's like somebody saying - who uses pesticides, "I want absolutely no regulation of pesticides." You wouldn't bring that person in, because they're illogical (BCMAFF respondent, emphasis in original).

With the benefit of hindsight, and if the Code were to be negotiated today, the respondents suggested they would add representatives from the following groups: the Ministry of Health (to be involved directly, not just through the referral process), First Nations groups³, an economist (to generate data on the state of the farming industry to gauge the impacts of different types of regulations), the BCCA, the horse industry, ENGOS, and the public.

The answer to the second question is that all of the respondents felt that they had enough authority to make decisions.

³As the Code is a provincial regulation, it does not apply to First Nation's Band land, which is federal land. There are quite a few Band operated ranches on the Nicola River (DFO respondent).

I was never challenged on any decisions that we made (BCMELP respondent).

I found complete support from my peers and superiors and subordinates in terms of what we were doing and the way we were doing it. Once they started to get into the meat of what we were doing, they really were enthusiastic. And I used to have to update them at every meeting, extensively, with what stage we were at. They were really anxious to get this regulation in place (BCMELP respondent)).

The one exception was some senior BCMELP employees in Victoria, who "would change the direction a bit" on the drafts, from what had been agreed to at the meetings. The Code's development was intended to be an iterative process, and all the participants were expected to bring back comments from their groups on drafts of the Code. However, these people acted in an arbitrary fashion.

There was quite a bit of work - I was going to say behind the scenes - but in a way to make sure it wasn't changed, right up until the day it passed. And that was working with other people - and no names - but other people in the Ministry of Environment that were above (the chairperson), that would look at some of this and figure that maybe it should be worded differently. And we had to sort of scurry quite a bit there to say to them, 'Listen. We have negotiated this, we've worked years, months, on this to get an agreement to the wording. And changing the wording could have a totally different meaning.' . . And so some of them would say, 'I think it would be better this way,' and it was kind of scary. We had to keep on top of them (BCMAFF respondent).

Thus criterion fifteen was only partly met. The AWMC did not involve ENGOS or members of the public, and there was some interference by some BCMELP staff who were not participants in the negotiating process.

2.16 Criterion Sixteen: Financing the enterprise

This criterion states that any parties who may have difficulty participating due to lack of funds should have their expenses defrayed. Respondents were asked whether they had enough resources to participate fully (Question 8), and whether there was funding available to help groups with fewer resources (Question 15f).

Lack of funding did not prevent any of the groups from participating at the time of the Code's negotiation. However, a number of respondents noted that if the Code was negotiated now, the farmers' representatives would need to be funded.

It should be required more now than it was then, because farmers are getting poorer, and there's just so many (public participation processes) it's unbelievable (BCMAFF respondent).

(Intervenor funding) wasn't an issue in this process. It certainly would be now, and probably would be useful on an ongoing basis. It puts a lot of stress and a lot of onus on the producers who are there volunteering their time (BCFA respondent).

The BCFA depended on the resources of BCMAFF, in terms of funds for obtaining background information.

From the Federation point of view, we counted very heavily on the resources of the Ministry of Agriculture. . . . But in terms of doing research, or getting background information, or some analysis, or anything like that, a lot of that was done by the Ministry of Agriculture staff (BCFA respondent).

Interestingly, one BCFA respondent saw intervenor funding as a way for the government to potentially co-opt the smaller groups.

If we have someone paying us to do this, and providing financial resources, then they also have some control over the outcome. And there's an old saying that goes "He who pays, says." (Laughs) So I think that's an area that would have concerned us. If government was going to

give us money to sit there and talk to them, then we would also be more susceptible to their ideas, and the outcome might have been different.

This criterion was fully met as everyone had enough financial resources to participate (at that time).

3. CONCLUSIONS

The research results show that the Code's negotiation was carried out in a productive way. The negotiation met eleven of the sixteen criteria set for negotiated rulemaking, outlined in Chapter Five (see Table Four). Four additional criteria were partly met, and one was not met. The one criterion that was not met was that of setting a deadline. Had the AWMC adhered to a deadline, this would probably have shortened the almost five years it took for the Code's negotiation.

Table Four

Evaluation Summary of the Code's Negotiation

Criteria Number:	Whether the Criteria Was Met
1	Yes - the negotiation was equitable. No one group dominated.
2	Yes - there were less than 25 groups who participated.
3	Yes - the negotiation dealt with mature/"ripe" issues.
4	Yes - the decision was inevitable.
5	Yes - there was opportunity for gain.
6	Yes - the issue did not involve fundamental values..
7	Yes - the negotiation permitted tradeoffs.
8	Yes - research was not determinative of outcome.
9	Partly - most participants believed the agreement would be implemented.
10	Yes - the implementing agency played a role in the negotiation.
11	Partly - the AWMC did not use a neutral facilitator.
12	Partly - the issue involved concentrated costs, but distributed (not concentrated) benefits.
13	Yes - no group had a better alternative than negotiation.
14	No - there were no strict deadlines.
15	Partly - the AWMC did not involve ENGOS, or members of the public. There was some interference by non-participants.
16	Yes - everyone had enough financial resources to participate.

CHAPTER NINE

NEGOTIATION'S EFFECT ON THE FORM OF REGULATION

1. INTRODUCTION

Objective 2b) is to assess how the negotiation process affected the form of regulation selected. This is done by listing the regulatory options considered, and describing how the regulatory options changed over time, and which groups played a role in supporting the various options.

2. NEGOTIATION'S EFFECT ON THE FORM OF REGULATION

The AWMC's preferred regulatory options evolved over time. The Committee started off by looking at some kind of a permitting system, to plug the "loophole" for farm waste in the Waste Management Act. In the spring of 1987, BCMELP's suggested strategy was to develop more specific regulations to exempt small, non-traditional agricultural operations from having to obtain waste management permits, and requiring permits for larger, non-traditional operations (BCMELP Issue Statement, March 4, 1987).

It is considered by most control personnel that a better description of traditional agriculture is required so that piggeries, dairies, feedlots and concentrated poultry raising operations require permits. One way of achieving this would be to exempt only those operations for which there is adequate land base on that operation to achieve satisfactory land application of animal wastes and silage effluent. Therefore, criteria (are) required for exemption - animals/acre with a matrix of criteria based on animal type, soil type, physical characteristics, such as: slope, depth to groundwater, distance to watercourse, etc. (BCMELP Memo, October, 1987).

The BCMAFF representatives concurred "with the consensus that

. . . there are many examples of bad operators - particularly in the concentrated livestock operation area - that are hiding behind the (loophole in the) regulation and are causing problems" (BCMELP Memo, December 18, 1987). One of the BCMAFF participants distributed copies of regulations from Texas that required intensive livestock operations to have permits for discharging wastes. "The committee generally felt regulations of this type are required to clarify the present exemption" (BCMELP Memo, December 18, 1987).

England's Code of Agricultural Practice was first mentioned at an AWMC meeting in February, 1988, in a discussion of regulations in other jurisdictions. At that point the committee still felt "that where agricultural operations can 'clearly' be identified as 'high risk' with regard to the method of storage, land base and inappropriate application of waste, a permit should be required" (AWMC Minutes, February 4, 1988). At the next meeting in March, 1988 it was becoming obvious that it would be difficult to establish whether or not a farm had an adequate land base for waste disposal (AWMC Minutes, March 14, 1994).

At the May, 1988 meeting, the two BCMAFF representatives submitted a paper on suggestions for the "new permit" system for the Waste Management Act. They based their suggestions on the assumption that

Waste Management staff do not want the responsibility of inspecting every farm to apply specific criteria for allowing exemption of a permit. Therefore, it is necessary to supply detailed information to the farming industry . . . explaining how the farmer retains the

exemption privilege" (AWMC Minutes, May 5, 1988, emphasis in original).

At the same meeting, they proposed to update the environmental guidelines booklets that they had first published in 1979, to provide explicit instructions on how to best dispose of animal wastes.

From June to July, 1988 one of the BCMAFF participants went to Europe on a fact-finding trip. He suggested that the European experience with regulating farm waste "strongly supports" the establishment of criteria based on a minimum manure storage period, and a maximum number of animals per hectare. At the same time, he recognized that farmers perceive legislation "as either not necessary or much too severe." He concluded that "on the surface, establishing criteria for manure storage and animal numbers appears to be a solution . . . that will satisfy both the regulatory agencies and farmers." However, he cautioned that more biophysical information was needed of the situation in South Coastal B.C., to make an assessment of how changes to the Waste Management Act would impact farmers. He suggested that "extension and education will remain the preferred method to change practices that are causing pollution." He proposed developing a Code of Agricultural Practice to "describe how certain practices cause pollution and then guide producers towards economic solutions" (BCMAFF Report, July 11, 1988).

By the fall of 1988, the Code's focus had broadened to include fertilizers, silage effluent, and wood waste. BCMAFF's

preferred approach was to follow the British model of developing Codes of Good Agricultural Practice. . . . This approach is much 'softer' than the 'hard' legal controls adopted by many European countries. In this way it is our expectation that the legitimate environment protection mandate of the Ministry of Environment can be satisfied without undue financial impact on the industry (BCMAFF Letter, October 13, 1988).

The following spring, after meetings with the BCMAFF representatives on the AWMC, the BCFA announced that it preferred "development of a code of good agriculture practice as opposed to specific regulations embodied directly in legislation" (AWMC Briefing, March 21, 1989). Consequently, two AWMC members met with a legal counsel from BCMELP to start developing the Code. The BCFA was assured that there was no intent to have a permit system, and that the AWMC wanted to maintain and strengthen the AES system. Initially the plan was to have commodity specific codes, and the industry was promised that they would be developed with full consultation with commodity groups (BCFA Minutes, April 13, 1989).

In May of 1989, BCMELP's legal counsel had a change of heart and decided that "there appear to be no unusual circumstances that would justify an adoption (of regulation) by reference" (BCMELP Letter, May 18, 1989). BCMELP, BCMAFF, and the BCFA immediately started a letter writing campaign to lobby to re-instate the regulation by reference approach.

This 'adopt by reference' procedure is the type of legislation used in England and is, in fact, the reason why it was proposed for B.C. . . . We have good and active support for the regulation/codes approach from the (Ministry of) Environment staff, BCFA and their commodity groups, and other members on the Agriculture Waste Committee. With this positive support from all these agencies, it is expected that some very effective codes

can be developed with strong support for implementation by the farmers. Any suggestion to farmer groups that agricultural practices be incorporated into a regulation will not be welcomed and, if thrust upon them, will no doubt be an administrative nightmare (BCMAFF Memo, June 8, 1989).

(A regulation) will likely not be acceptable to the BCFA or the commodity groups they represent. Farmers are known for their independence and impatience when it comes to the lengthy bureaucratic process. The regulation with reference to the Code was intended as a win/win situation (BCMELP Memo, June 21, 1989).

The success of the program and development of acceptable waste management practices will largely rely on the support and good will of the agriculture community. The concern is that BCFA support may not be forthcoming if the farming community does not develop a feeling of ownership for the program, and the regulations (BCMELP Letter, July 12, 1989).

The approach taken has run into a set-back because of a Ministry of Attorney General position that the Codes of Practice must be incorporated as regulations. This position is not supported by the industry or by either Ministry. Action is currently under way at the political and senior levels in the Ministries to try to resolve this issue so efforts can continue to develop the regulation and Codes in a manner supported by industry (BCFA Memo, July 19, 1989).

In July, 1989, the legal counsels at the Attorney General's office changed their mind, and agreed to the regulation by reference format again (Ministry of Attorney General Letter, July 19, 1989).

Over time, there was an obvious evolution in the preferred form of regulation. The initial emphasis on permits and livestock densities was dropped in favour of a Code of Practice. There was also an evolution in the Committee, which went from not even having the BCFA as a member to depending on the BCFA's support and approval. The information in Chapter Three on farm interest group political power, and the three phase evolution of nitrate

regulation in Europe helps to explain how B.C. ended up with a Code of Practice. B.C. obviously started in a phase one approach of hoping that extension education would solve the problem. The Code was intended to be an educational document, as well as a regulatory one.

The intention of the Code was essentially to create a model for educative and other purposes, in creating a certain goal that farmers would aspire to balance the interests of continued farming in a modernized traditional manner with a need not to pollute the environment (BCMELP legal adviser).

One could argue that a phase one approach offers a low standard of environmental protection, and that the AWMC should have been able to "leapfrog" to phase three by learning from the European experience. There are a number of possible reasons why this did not occur. The first reason is that it did not appear to be clear to the AWMC that the more stringent regulations in the Netherlands were the result of an evolution to a phase two or three approach. I believe the AWMC saw the different regulations in the Netherlands and the UK as simply different options that they could select from. Second, the selection of a phase one educational approach was the appropriate outcome at the time, if it reflected what the groups at the negotiating table could agree to. Obviously, tradeoffs were made between environmental and economic goals, and the perceived enforceability of different policy options. If more stringent regulations were selected, the AWMC was concerned that there would have been a backlash, and BCMELP would have needed more enforcement staff to deal with the increased

resistance.

However, the Code is not viewed as a static document. With the new information available on the seriousness of the manure problem in the Lower Fraser Valley (that was not available at the time of the Code's negotiation), the AWMC participants are aware that the Code will probably be made more stringent.

I think (animal density limits are) inevitable. . . . We have basically nearly passed our capacity of the Fraser Valley to absorb manures on land. . . . I know (the AWMC) didn't realize how serious this was. And (the BCMAFF representative) came back from his European trip, and he talked about . . . where they were restricting the number of animals per hectare, . . and he realized that this was inevitable, and that would have to come here. Now what form it would take, we don't know yet. We're just collecting information and defining the problem, and then we have to find solutions (BCMELP respondent).

I think we do know that the problem is bigger than that. That what they're faced with is handling more animals than the land can handle just to compete internationally now. And so it's a difficult issue, it's not one that the producers can address without having an economic impact on them. And it may even go beyond the point where they're economically viable. So we recognize that it's like that in some cases. But we also recognize that the impacts in certain parts of, say, the Lower Fraser Valley, are at a point where we can no longer condone those types of practices. Where they're handling more animals than the immediate environment can handle (BCMELP respondent).

The information gaps made it difficult to make the Code more stringent, or to set livestock density limits.

We probably discussed that approach (of density limits). But you find some problems with that approach. For example, the grazing cattle on rangeland. We thought it would be very appropriate if they brought the water to the cattle. And then we realized that there are many areas where they didn't have power. How were they going to pump the water to the cattle? . . . There are possibly areas that maybe should be fenced off, . . but then you have to think about what you do with the wildlife (BCMELP

respondent).

The Code was used as the first approach, because of the need for flexibility to deal with varying conditions around the province.

I think we decided that we should minimize the amount of numbers in the Code. If we say, 'You can't have more than so many animals, or you have to have a certain months (worth) of storage', . . . then anyone who didn't meet that was in violation of the Act. And in fact, they may well be doing things in a very reasonable way. It's just they've found a different way of doing it. So we needed to have the flexibility to recognize that there was a great range of ways that people can farm in an environmentally sound manner, and that we shouldn't have any numbers in the Code (BCMAFF respondent).

We started off with trying to put black and white standards in, and to some degree we kept that, but we had to put a lot of qualitative things in too. There's situations where the farmer can spread on snow-covered, frozen fields because he's so far away from the nearest watercourse that it's not going to get there. So if he wants to do that, why should it matter to us? So we ended up with things like, instead of saying you need this much storage, we ended up saying, 'You can't spread on frozen fields if there's going to be runoff that gets to a creek' (BCMELP respondent).

Part of the flexibility also included the economic impacts on the industry. Numerical standards were perceived as desirable, but ultimately unreasonable in terms of their financial consequences.

We were looking at it on a per unit basis, so many animal units per acre, this sort of thing. And we just found it wasn't feasible in today's marketing conditions and . . . the way they do business. Because the hog farmers and poultry producers, to meet the requirements of society, that would have been unreasonable. It would have been desirable. The farmer would have been out of business. . . . So I think we had to be pragmatic. . . . We're in the business of cleaning up the pollution problem, we're not in the business of putting people out of business (BCMELP respondent).

I think there was an issue of cost. When you change a

procedure, there's usually a cost involved. In some commodities, those costs will become very significant, and to ask someone who is struggling to make an adjustment that's costly, and not give them any guarantee that you're going to help them with that cost, that's difficult. It was difficult for the industry to accept that. We didn't want to rebuild beef feedlots. We didn't want to sell, or try to sell, all the waste disposal equipment we had and change to new things. We had tried some different forms of waste distribution, based on suggestions from the Ministry of Agriculture, and some of them worked and some of them didn't. And some of them created worse problems. And so the industry said, 'We're being asked to change with no guarantees that it'll work. We're being asked to invest sums of money and then find out that it doesn't work.' And the industry said, 'Maybe we should go a whole lot slower with these changes.' And they had a good point (BCFA respondent).

One BCMELP respondent did not feel that consideration of economic impacts was the factor that tipped the decision towards a code. Rather it was the ability to take a staged approach, and to make the Code more stringent at a later date if it wasn't effective.

I don't recall (livestock density limits) being discounted for a specific reason like (economic competitiveness). I know it was one issue that was brought up, but I imagine it was more that we felt it might be best to go in a staged process, where we put out the Code first and see how working with the Code will address problems. And if there are still significant environmental problems even with compliance with the Code, then we knew we would have to take a closer look at density issues (BCMELP respondent).

Another factor was that, in B.C., farmers are limited in the amount of land they can use for manure spreading because of the limited amount of land in the ALR.

Density is very difficult. . . . I still think there's probably a level we can all agree to. If you've got ten acres and you grow 100,000 chickens on it, and you can get that waste . . . and go and spread it down in Delta on vegetable soil, what's wrong with that? Whereas somebody with 10,000 birds could have manure running into

a ditch and running into a creek, and have major problems. So density didn't really mean anything. It didn't mean protection of the environment at all. . . . And you can do that, maybe, in some place like the Prairies or something, where you've got large land bases, where you can say the amount of manure you produce, you need that same amount of land to distribute it on. I mean, you couldn't do that here, because you'd eliminate a heck of a lot of the ALR (BCMAFF respondent)).

Also in BC we have the land reserve for agriculture. And that's an underlying factor in how producers can do their job. And that's actually a detriment right now, to a lot of producers because of the fact that their land is held in this reserve, and you can't do anything on it but farm or agriculture, but now you're not even allowing them to farm. So anybody else who buys a house, and some land, they can do what they want to do with it. They can sell it, and they can go somewhere else. Well these guys can't do that. Nobody's going to buy the farm if they can't farm it. And you can't do anything but farm it. So it's this catch-22 (BCFA respondent, emphasis in original).

Although none of the respondents mentioned it, there was another political factor - related to the ALR - that may have played a role in the Code's decision making. When the ALR was first introduced, the government of the day also announced a Farm Income Insurance (FII) program to provide assistance to producers when returns from the market place fell below the cost of production. "This was widely regarded by farmers as a measure to secure their support for the introduction of the (ALR)" (Anonymous, 1993). The FII program was cancelled in 1993, one year after the Code was enacted. The FII's demise may have been anticipated by BCMAFF, and thus a less stringent code may have been their preferred regulatory option. BCMAFF would have known that if farmers were faced with having their land tied up in the ALR, with no income insurance program and very stringent waste management regulations, the entire

agricultural community would have been very upset.

Over time, the drafts softened in their approach, but the bottom line is that the Code still charges farmers not to pollute.

Well, it seems to me from when the first time that I came in 'til the final documentation, that the words in terms of what shall constitute a pollution, or what sort of practices can be done, it softened quite a bit. When I first came in there was a little bit more teeth in the draft, in terms of what an operation shall and shall not do. . . I guess I felt that we could agree to the final wording because . . . the bottom line was, 'Thou shall not pollute.' And so that my feeling was well we (laughs) have a little ground here, we have some stuff that's laid out in the regulation. I mean, there's some good stuff in there. I would like to have seen stronger wording, but we still have, 'Thou shall not pollute' (Environment Canada respondent).

Ultimately, BCMELP felt that they would have come up with something similar had they developed the Code on their own, perhaps because of the uncertainties of nitrate pollution, and their lack of in-house agricultural expertise. But, as mentioned previously, they were afraid that producers wouldn't have bought into it. Thus there was a tradeoff between choosing a regulation that would be more responsive to environmental problems or one that would be more politically viable, in terms of producer acceptance.

I think there would have been some changes in the wording of the Code, but I think the main difference would have been in perception in the industry. That they were having something rammed down their throat, more than it's something that was negotiated and really is the proper approach that they should be taking. And I think that is a big advantage to having them at the table, that they recognize that they were represented there. So I don't think a major difference would be in the Code itself. I think the major difference would be in the perception of the Code, and how it was received (BCMELP respondent).

3. CONCLUSIONS

The AWMC looked at a variety of regulatory options, but ended up with a "softer" regulatory approach - a code of practice. Information gaps and the political power of the agricultural community both played a role in the choice of a code of practice rather than a permit system or livestock density limits. There was no definitive research that could answer the site specific constraints of setting numerical standards for different regions of the province, and different types of commodity groups. The political power of the BCFA became apparent when they successfully lobbied for the regulation by reference format used for the Code, and were able to influence the setting of setback limits for seasonal feeding areas.

The research results show that B.C. clearly falls within phase one of Glasbergen's (1992) three phase process of the control of agricultural pollution (first mentioned in Chapter Four). At the time the Code was negotiated, there was an awareness of the pollution, but the perception of the severity of the problem was limited. Producers were encouraged to take environmental aspects of their operations into account, but the AEPC relied on producers to voluntarily change their practices. With the stricter enforcement of manure management practices that began in the fall of 1995, it appears that B.C. may be beginning the transition into phase two.

CHAPTER TEN

COMPLIANCE AND IMPLEMENTATION

1. INTRODUCTION

This chapter begins with the research findings as to whether the Code's negotiation affected farmers' incentive to comply - objective 2c). The findings come from the interview transcripts, as well as recent surveys conducted for the federal and provincial governments. The chapter ends with the findings related to objective 2d), i.e. suggested changes to the Code and its enforcement. The suggestions are a summary of the recommendations from the respondents, as well as recommendations from the NPS Pollution Workshop.

2. NEGOTIATION AND COMPLIANCE

Objective 2c) was to determine how the Code's negotiation affected farmers' incentive to comply with the Code. As there was no baseline data collected as to farmers' waste management practices prior to the Code, this question can only be answered indirectly from the viewpoints of the respondents. The answer to this question is divided into two parts. First, did the Code's negotiation lead to increased awareness (on the part of farmers) about the Code (Question 17a)? This first question is important because knowledge is the first step in the innovation-decision process of changing one's practices (Rogers, 1983). The majority of the respondents felt that the Code's negotiation did increase farmers' awareness of the Code.

An example is the beef producers reprinted the Code in one of their publications, with little pictures of examples for some of the points. And I don't think that would have happened if they hadn't been involved in the (negotiation) process (BCMELP respondent).

I think there has been an effect. . . . You go to . . . a commodity group's meeting . . . and they can quote sections of the Code. It's become well known (BCMELP respondent, emphasis in original).

I think it's really gone up. I think they're very much aware of the environmental concerns out there. When I was going out to investigate complaints when the Code first came in, all the producers knew about the Code. In fact some of them knew the Code quite well, even the ones in noncompliance (BCMELP respondent).

It's helped tremendously. There's a lot more farmers out there who look at things from an environmental point of view now (BCFA respondent, emphasis in original).

Well, it's gone a long way to get the message out to them. And I think it was absolutely essential (DFO respondent).

A smaller number felt that the Code's negotiation alone was not enough to generate awareness. They pointed out that the farmer conservation groups (first mentioned in Chapter Six), which began just before the Code came into effect, have been more important in that respect.

You see, helping to develop the Code was only a small group, a few people. They are not representative (of) the pork industry, I think. . . . What the (conservation group) did to generate awareness, that was basically, I think, the main thing. And that was one of the major mandates under (the funding program's mandate) - generating awareness. . . . So a lot of time and money was spent in that direction (Hog producer, emphasis in original).

I don't know if the actual development of the Code would have increased the farmers' knowledge so much, (as) what was done . . . at the same time . . . as (the Code) was nearing completion. . . . Because of the follow-up (conservation group) programs afterwards, I think there

has been a fairly substantial increase in knowledge (Conservation group co-ordinator, emphasis in original).

You had to have the Code, there's no doubt about that. But the Code in itself, isn't the end and it's only a part of it. And whether it's the major part, or not, I'm not sure. But certainly it is something that you have to have. There's no doubt about that. In my mind, there's the three things you have to have. You need the Code, you need the regulators, and you need the conservation groups to bring about change. To lead them in the way you want to see the industry going (Conservation group co-ordinator, emphasis in original).

Only one respondent felt that the Code's negotiation had not made a difference.

No. Not the average (farmer). . . . And the people that are causing the worst problems are the ones that don't do anything. . . They wouldn't go to the meetings. They're the ones least in touch (Vegetable producer, emphasis in original).

The perception that farmers' awareness of the Code has increased is supported by the circumstantial evidence of two studies. A 1993 study of farmers in the Abbotsford Aquifer area found that 81 percent of BCFA members were very aware of the environmental concerns associated with manure and/or the Code. This compared to only 39 percent of non-members with the same level of awareness (Meier, 1993, 17-18). A 1994 survey of dairy and poultry producers in the Lower Fraser Valley found that 61 percent and 34 percent, respectively, had changed their attitudes towards manure management in the previous three years. Of those who had changed their attitudes, 92 percent of the poultry producers and 47 percent of the dairy producers attributed the change to their producer conservation group (FERENCE Weicker and Company, 1994, 20).

Secondly, did the Code's negotiation lead to increased compliance because the farmers developed a sense of "ownership" about it (Question 17b)? The majority of respondents felt that farmers' compliance was motivated by the "package" of programs associated with the Code, rather than just by the Code's negotiation alone. As mentioned in Chapter Six, this "package" includes cost-sharing programs, commodity-specific Environmental Guidelines booklets, the producer conservation groups, BAWMPs, and the AEPC peer inspectors as the front line in the enforcement process.

I think a lot have (changed their practices). I don't think it's just the Code. (Mentioned ALDA loans, Guidelines, AEPC). . . . So the Code doesn't stand in isolation. It's part of an entire program (BCMELP respondent).

It increased their willingness to comply. And that was for two reasons. One is that there was just heightened awareness, the other was there was a stronger compliance mechanism than there was in place previously. And when push comes to shove, sometimes that is useful (BCFA respondent)!

I think they do (have a sense of ownership), but mostly because they understand the reason, and it's a valid reason. Like, you can't dump your manure in a creek because it kills the fish. . . . So, because it's reasonable, and there's a valid reason for the regulation as it stands. That's where the buy-in is. And that's because they helped in developing it. That's the ownership. . . . They do have a sense of ownership because they were involved. Because someone came and asked them their opinion, and then their opinion was actually used. . . . I think it also helps having this peer advisor process because it's the peer reviewer who knows agriculture, . . . and who (is) sort of there to help you, not to hinder you. Which is still somewhat of an attitude with respect to any government person showing up on their farm. 'Oh great, now what's he going to make me stop doing?' (BCFA respondent, emphasis in original).

Well it's meant that they had to buy-in. And they therefore were part of the team. They had ownership of the product at the end. And even if they were recalcitrant members of the industry sector, their representative, brought them in. And if they didn't comply the peer pressure is supposed to bring those people in line. And so they do have that hanging over them (DFO respondent, emphasis in original).

A small number of respondents felt that the Code's negotiation motivated farmers' to comply because their advice had been incorporated into drafts of the Code.

(The farmers bought into the Code because of) the fact that they saw (drafts) in front of them and said, 'This is ours. Don't do that, do this.' And next time they saw the Code come back and they saw we'd listened to them (BCMAFF respondent).

We do feel we have ownership on this. It isn't something that was brought down from up above onto us. We had a hand in developing it - at least that's how we felt (Dairy producer).

As one Environment Canada respondent pointed out, complying with the Code involves a learning curve that has increased over time. This learning curve has been quantified by a 1994 study of farms in the Lower Fraser Valley (Figure Two). The study created an Environmental Sustainability Parameter (ESP) based on farm waste management. An evaluation of manure management methods is the largest component in the ESP value. The study surveyed 64 producers in the Matsqui Slough watershed, and 122 producers in the Sumas River watershed.

Well, our monitoring shows that it's basically a normal distribution in terms of meeting the Code. There are some extremes on either end of the scale. Some farmers are really taking a proactive approach and putting in manure storage for six months, and this kind of thing, and at the other end of the scale little is being done. (And everybody else is in) different degrees of

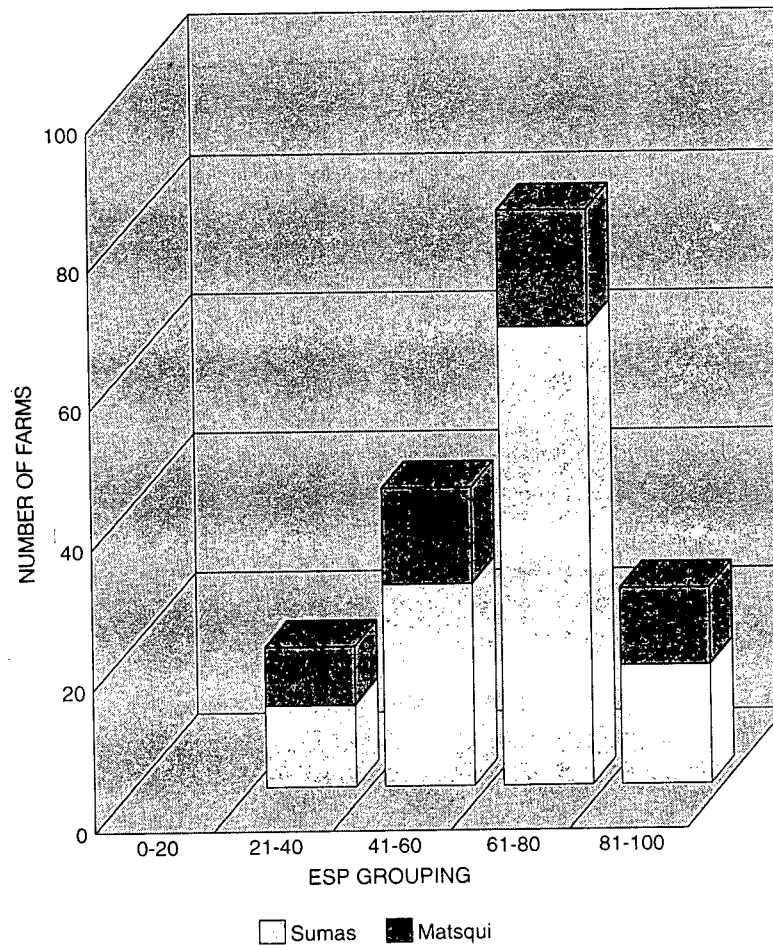


Figure Two: Environmental Sustainability Parameter¹ Distribution for the Sumas and Matsqui Watersheds
Source: Environment Canada and BCMELP, 1994.

¹An ESP of 80 to 100 percent indicates that the operation of the farm is likely environmentally sustainable.

compliance (Environment Canada respondent).

Overall, the general impression is that the Code was the catalyst to motivating farmer compliance, but in and of itself was not sufficient to motivate compliance. Motivation of compliance needed the ongoing efforts of the conservation groups, the Environmental Guideline booklets, the cost-sharing programs, the BAWMPs, and the peer inspectors.

An interesting point was brought up during the discussion of the Code's implementation. A BCFA respondent mentioned that farmers fear that the Code is a "slippery slope" to a more stringent regulation. They are worried that as more urban sprawl encroaches on rural areas, there's going to be more and more pressure on farmers in terms of what are allowable waste management practices.

That's the reality of it, it will be (more stringent). There'll be more and more conditions as time goes on. And the more urban sprawl that encroaches on rural areas, you're going to have more and more pressure. So in the end, we all realize the voter is in urban areas, (he's) not in the rural areas. So he's going to get listened to (BCFA respondent).

Another farmer respondent mentioned that the pork producers are not willing to accept the Guideline booklet that has been written for them because

they feel that as soon as they're accepted as Guidelines, they very quickly become law. The two fellows that are quite leadership involved in the pork producers are from England, and they both said that they saw this happen in England before they left².

² Interestingly, one of the conservation group leaders told me that a number of farmers in his commodity group were originally

3. SUGGESTED CHANGES TO THE CODE/ITS ENFORCEMENT

Only five of the respondents (a berry farmer, and representatives from GVRD, BCMELP, BCCA and BCMAFF) thought that the Code did not need to be changed. The changes that were suggested included differentiating the Code by region of the province, reducing the need to prove pollution, and adding fencing requirements to protect riparian zones. The NPS Pollution Workshop participants added the suggestions of mandatory BAWMPs for intensive livestock producers, and changing the Guidelines to enforceable regulations (as required) (BCMELP and Government of Canada, 1995).

The differentiation of the Code by region has just begun. BCMELP recently released a public advisory, reminding farmers in the Fraser Valley area that from October 1st to April 1st inclusive, all manure piles must be securely covered, and stating that there is to be no application of manure to bare land (BCMELP, 1995). Farmers reluctantly admit that this type of a restriction is necessary.

And I think also you've got to be aware that in different climates you're going to have different conditions. I'm sure that probably down in this area and the Fraser Valley, I hate to say this, is we're going to have to have the strictest. Not because of the people, but because of the rainfall (Vegetable farmer).

There's been some discussion about putting some date restrictions as far as spreading times. . . . I'm sort of wishy-washy on that one. . . . I guess my personal preference would be not to accelerate that process too

from the Netherlands. Some of them emigrated to get away from the stricter regulations there.

much, but I can see it coming in a period of maybe a few years or something (Conservation group leader).

A major frustration for BCMELP staff who have tried to enforce the Code is a number of sections that state that practices are acceptable as long as they do not cause pollution. In legal terms, this phrase gives protection to the environment, but in terms of practicality, there are difficulties. This phrase seems to imply that BCMELP had to prove pollution was occurring before they could charge someone with non-compliance of the Code.

I was never happy with the aspect where there were so many points that were qualified with, "This is okay as long as it doesn't cause pollution." Because that's a big value judgement (BCMELP respondent).

. . . In terms of one phrase that they added in to a lot of the sections was "that causes pollution." I certainly understand the producers' side of that, but I don't know if our concern was voiced to them strongly enough in how difficult it is for us to, and costly it is for us to go after the obvious non-compliant producers (BCMELP respondent).

I think that the way the Code is written, we're running into a few problems here. . . . Here's an example, 'A storage facility must be of sufficient capacity, etc. to prevent the escape of any agricultural waste that causes pollution, or in a manner to prevent pollution.' And it really puts the onus on us, that we have to prove pollution. And like I said, a lot of agriculture is non-point, so it really makes it difficult in some situations to enforce this (BCMELP respondent).

Traditionally, BCMELP would deal with clauses like this by issuing a pollution abatement order. At the time of the interviews, BCMELP was obtaining legal advice as to whether they could issue pollution prevention orders instead. The prevention orders would be easier to administer as they did not require that pollution be proved, only suspected. Presumably BCMELP's legal

counsel has agreed to the use of the pollution prevention orders, as the recent public advisory states that, "Producers who have not covered their manure piles within the given time frame will be served with a Pollution Prevention Order" (BCMELP, 1995).

However, one respondent cautioned that if the Code is changed, it should be done through the same stakeholder negotiation process.

. . . Now it's out there, somebody wants to say, 'Oh we should tighten this, we should do more of that.' And I said, 'There's a process for doing that. You've got to go back to the industry. You've got to do it the same way.' And that's the only problem. I think that people have seen the Code as a success. The success is not really in the way it's written, . . . (it) was just communication, direct communication. Sure it's written down, but unless somebody understood what the logic of it was.. And that was one of the successes. You have to understand the logic of the Code (BCMAFF respondent).

All of the respondents said that the Code's negotiation had helped them to establish better relationships with the other parties at the table. If another multi-stakeholder negotiation process is held, the good relationships already established will no doubt help to expedite the process.

The respondents had many suggested changes for the Code's implementation. These included increasing education (for farmers, BCMELP staff, and the public), increased enforcement (especially in the Lower Fraser Valley), improving the effectiveness of the AEPC, and setting up a separate board to deal with "nuisance" complaints (e.g. flies, odour, noise).

I think a lot more has to be done as far as education of the public and the Ministry of Environment as to when is a good time to apply manure, and it's something that the farmer has to be educated on, too (BCMELP respondent).

I would probably do more of what we're doing, which is trying to get out, inform, and educate the producers, train peer advisors, really encourage them to have more than one peer advisor. ...I would do the same thing with Environment Regional Branch people. ...They know environmental care, or they know their biology, but they've no understanding of agriculture (BCFA respondent).

And environmental training is another thing that (the peer inspectors) could probably do. We've offered to do a seminar or workshop or something, just to show them what to look for and what we would be satisfied with (BCMELP respondent).

And my suggestion is that we have to persevere on this course of educating our farmers. . . . We just have to be prepared to recognize that it's going to take a little time, and that it has got to be something that farmers do willingly, not out of force. If we're forced to do something because of a court action or court order against us, then we really have no control in that again. And I would view that, and I think a lot of farmers would view that, as we are being forced to farm by somebody or by some group who really don't know anything about what we're doing (Dairy farmer).

According to the BCMELP respondents, the Code's implementation seems to be having varying success in different regions of the province. The Okanagan and Williams Lake areas seem to be doing very well, while the Kamloops area has discovered more problems than were initially perceived (since they were able to hire an auxiliary staff person to work full-time on dealing specifically with farm waste). The area that is having the most problems is the Lower Fraser Valley. Astoundingly, for an area that produces 50 percent of the provincial farmgate receipts, and has some of the most intensive livestock operations in the province, the Lower Fraser Valley has only one BCMELP enforcement officer for the Code. She is an auxiliary (i.e. her contract is renewed annually), and

she usually has a co-op student.

To do an efficient job, we probably need three people. Two full-time would do, but three people would be great and then we could do proactive work. Right now we're strictly reactive (BCMELP respondent).

In my view, the province has to support the Code with enough person-year resources to implement it. . . . In fact we're supporting some staffing through FRAP (the Fraser River Action Plan) to deal with agriculture. In my view you need at least three years of presence to show that this is a serious concern, and changes are expected, and you just can't do it on a hit and miss type of basis (Environment Canada respondent).

The lack of adequate numbers of enforcement staff seems to be related to low levels of awareness within BCMELP regarding the seriousness of agricultural waste problems. As noted below, this conclusion was also reached by the NPS Pollution Workshop.

I don't think our Ministry, right now, understands the significance of the environmental impacts from agricultural waste management. I think that's one of the reasons why it's not adequately staffed (BCMELP respondent).

Another suggestion was to improve the AEPC, especially in the Lower Fraser Valley. In this area there are not enough peer inspectors, not all of the farm groups have peer inspectors, and there does not seem to be sufficient follow-up.

But I guess it would also help, if the AEPC had more inspectors. . . . And there's no inspectors for hobby farms, and a lot of our farms are hobby. . . . If (the peer inspectors) find a real problem, they should send it back to us - if it's something that they can't handle - (but) it rarely happens. And another problem that we find with the AEPC, too, is that they don't do follow-up inspections. They'll go on the farm, and they'll make recommendations, but they'll never go back for another visit. So they don't know whether the recommendations were followed up on, or carried out. And often, they haven't been, so the pollution carries on, often getting worse. . . . The AEPC right now isn't really effective.

And for anything that we think is serious we will handle it ourselves, and notify them that we've done it. But we can't afford the time frame. If we think something is serious, we're usually out there in a couple days, or right away if we think it's serious. And we can't afford the complaint going off, and maybe they don't get out there for two or three weeks. There was this one, it was seven months it took this one, sometimes three months. Oftentimes we don't get the inspection report back so it's kind of lost. There have been complaints that we have never heard back on (BCMELP respondent, emphasis in original).

As one Environment Canada respondent pointed out, this is a matter of accountability. There are many advantages to a self-regulating policy, but both BCMELP and the AEPC need to ensure that enough funds and human resources are committed to the peer inspection process to ensure that it is working.

And one thing we've done for agriculture is to provide funds to (the) B.C. Federation to set up a tracking system for complaints, to see how many complaints they're getting, what the follow-up is and what the status is. We haven't had any report yet, as a product of that initiative. . . . It's not a fully public process, and I don't think the public trust that process. They don't have a lot of faith in that process, so that's why I think you have to demonstrate or show whether the process is working or not.

The final problem that was identified with the Code's enforcement is that the current complaint system tends to have a large number of "nuisance" complaints, i.e. complaints about flies, odour, and noise. These complaints do not necessarily relate to the environmental impacts of farm waste management practices, and tend to be lodged by non-farming neighbours of farmers. Ironically the farmers, who would have a good sense of whether a fellow farmer is polluting, tend not to lodge complaints against their neighbours. This is because rural neighbours depend on each other

in times of need, and don't want to destroy the close-knit relationships of their communities. This catch-22 situation is causing some resentment amongst the innovative farmers who immediately complied with the Code, and spent substantial sums of money to install waste management facilities³.

I know a few examples of these producers that have done that, where now they look at the system and go, 'Why have I spent 100,000 bucks on improving my farm when the neighbour down the road has manure running off in the creek, whatever, and they haven't done anything yet, and there's no real heavy enforcement forcing that guy to do anything?' (Conservation group co-ordinator).

BCMAFF is addressing this problem with a new piece of legislation, the Farm Practices Protection (Right to Farm) Act. This Act, which is expected to come into effect in the spring of 1996, will expand on the "Environmental Guidelines" to establish "normal farm practice" standards. The Act will also set up a board to resolve nuisance complaints, and remove them from the AEPC's workload (BCMAFF, 1996). Another possibility is for the AEPC to allow anonymous complaints, something they're not currently doing.

The NPS Pollution Workshop participants offered the additional suggestions of increasing the profile of agricultural NPS pollution in BCMELP, trying to address the implementation within a watershed

³However, there is also subtle peer pressure that helps to counter farmers' unwillingness to lodge complaints against their neighbours. One conservation group co-ordinator described how first one farmer, located at one end of a road, had a BAWMP done and made changes to his/her farm. The following year, another farmer, at the other end of the road followed suit. The third year, a farmer located in between the first two farms, without any prompting from the conservation group co-ordinator, requested a BAWMP.

planning framework, setting clear timelines for compliance with the Code, and creating an "umbrella" provincial policy for all types of NPS pollutants, to ensure equity among the types in terms of management and regulatory effort (BCMELP and Government of Canada, 1995).

The issue of equity amongst all types of non-point source pollutants struck a chord with a number of respondents. Farmers feel that agriculture is being singled out or "picked on" in terms of having to comply with standards that no one else is yet being held to. The BCCA respondent specifically mentioned the case of sewage treatment which had been voted down in Victoria, and the fact that a lot of new subdivisions in Kelowna are on septic systems, not sewage treatment systems, and that there is no impact monitoring.

Because as you're telling farmers you want a little bit more here, you pick up the paper and GVRD is pumping sewage into the Fraser River, that they figure is killing the fish. And Victoria votes not to have a sewage treatment plant. They get the right to vote, not to have a sewage treatment plant so they can pump more sewage into the ocean. People won't even let a farmer do that. . . . And you have to put things in perspective. One person going over the bridge doesn't like the smell of manure and yet they're polluting our valley. . . . It's easy . . . for us to look up and say, 'Yes we think farmers should do this and that.' And pile the waste up, and drive our cars. I guess I'm always fighting for, before we get into (revising the) Code, let's make sure that everything's going down the road together. That everybody else is up to the farmers and their Code system (BCMAFF respondent).

At the NPS Workshop, the other NPS pollutants discussed were all urban-related. (Forestry was not included because forestry NPS impacts are covered under the new Forest Practices Code.) At the

end of the day, agriculture was recognized as being at the forefront of dealing with its NPS pollution problems.

4. CONCLUSIONS

The theorized benefit that having the farmers participate in the negotiation would lead to increased compliance with the Code did not unambiguously materialize. Rather, the Code was seen as part of a "package" of programs that, in total, are motivating farmers to comply.

Chapter Eleven discusses the conclusions in more detail, and offers some recommendations for the Code and its implementation.

CHAPTER ELEVEN

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This is a unique type of industry. It's not like the petro-chemical industry or the wood industry where you're dealing with a small number of large companies. Here you're dealing with hundreds of small, medium and large operations. So there's a lot of tradition that you're working against. And one thing we've had to accept is that there's a time frame to change things, to get things into compliance. And really the only way you can do that is to work together (BCMELP respondent).

The process that they went through, and what was developed since then, I still feel is really good. And it's working well. Whatever you do, you're always going to come up against problems you have to solve. So I don't suggest that because we come up with a problem, that it's not working. What's working is the fact that we can solve the problem (BCFA respondent).

1. INTRODUCTION

This chapter provides a summary of the thesis. It includes the research objectives, methodology, major findings, discussion, and recommendations. The reader should remember that this research was conducted in the spring of 1995, and is just a "snapshot" of what is a dynamic regulatory scenario.

2. GOAL AND OBJECTIVES

The goal of the research was to describe and evaluate the negotiation process used in the Code's creation, and to evaluate how the process has affected the Code's implementation. The description and evaluation was based on the perspective of various stakeholders, as well as from document analysis. These stakeholders included BCMAFF, BCMELP, BCFA, Environment Canada,

DFO, GVRD, and farmers.

The research had five objectives:

1) To review the literature on negotiation, and regulation of agricultural pollution to place the Code in context.

2) To assess, from the stakeholders' viewpoints,

a) the productivity (efficiency and effectiveness) of the Code's negotiation process;

b) how the Code's negotiation process affected the form of regulation selected;

c) how the Code's negotiation affected the farmers' incentive to comply.

d) how well the Code's implementation is working, why, and what changes they would suggest.

3. METHODOLOGY

Qualitative data for the research were obtained from document analysis, transcripts of taped personal interviews, and attendance at a NPS pollution workshop. Fourteen people who had participated in the Code's negotiation, and ten people involved in the Code's implementation were interviewed. The interviews included questions on the history of the Code's development, the groups involved, each group's concerns and preferred regulatory options, the negotiation process, and the Code's implementation.

The data was analyzed using the objective/criterion/question/key word correspondence shown in Table Three, Chapter Seven.

4. MAJOR FINDINGS

4.1 Literature Review

The literature review began with an overview of manure nitrate as a non-point source pollutant, and the information gaps which make it so difficult to regulate. These gaps are due to the nature of non-point source pollution, the uncertainties of nitrate leaching, and the health risks of nitrate consumption.

The next section of the literature review outlined historical, socio-economic, and political factors that affect agro-environmental regulation. These factors include the agrarian myth, special features of the agricultural sector (e.g. land is agriculture's central resource and it may limit pollution control options), and the political power of farm interest groups.

The combination of information gaps and factors that affect agro-environmental regulation influence the type of policy options selected to deal with manure nitrate pollution. A chronology of nitrate regulation in the UK and the Netherlands illustrated the effect of the above-mentioned two factors. While the Netherlands currently has the most stringent regulations in Europe, both it and the UK are moving through a three stage evolution of governance (Glasbergen, 1992). Over time, this evolution changes in terms of the relative power of the actors involved (the farm groups become less influential), the reliance on voluntary measures (which decreases), and the degree to which economic or ecological factors are seen as being the most important (with ecological factors gaining prominence).

Finally, the literature review ended with a discussion of the factors that promote industry-government negotiation in Canada. I argued that industry-government negotiation was practically inevitable in the case of nitrate regulation, and that the process should be improved. Using criteria for negotiated rulemaking, the Code's negotiation process was evaluated.

4.2 The Effectiveness of the Code's Negotiation Process

The Code's negotiation process was evaluated against suggested criteria for negotiated rulemaking. Table Four (in Chapter Eight) outlined how well the Code's negotiation met the criteria. Eleven of the sixteen criteria were easily met, four were only partly met, and one was not met. Those that were partly met included the following points:

- only some of the groups believed that BCMELP would use the negotiated outcome for a regulation. However, their scepticism originated from the vagaries of the policy-making process, rather than from any specific mistrust of BCMELP.

- the APMC did not use a neutral facilitator. None of the respondents identified this as a problem, because one or two of the participants took on that role, and did it very effectively. Interestingly, several respondents reacted negatively to the idea of a facilitator, perceiving that such a person would have made the process too formal and too adversarial.

- the ideal candidate issue for negotiation is one where there are both concentrated costs and concentrated benefits. The

Code involved a situation of concentrated costs (for farmers) and distributed benefits (for society). However, it is my impression that the federal and provincial environmental agencies represented the public interest in terms of environmental protection. A number of the respondents mentioned that DFO, in particular, was more "hard line" in terms of representing the environmentalist point of view. The cost-sharing programs available after the Code was enacted have been limited, and thus farmers still bear most of the concentrated costs.

-there were no ENGOs or public groups represented on the AWMC. The AWMC participants said that they were not aware of any ENGOs with an interest in agriculture, and that it would have been difficult to reach consensus with (perceived to be) radical groups. Also, broadly based stakeholder participation processes were not as prevalent when the AWMC began as they are today.

The one criterion that was not met was the setting of a deadline. The AWMC had several deadlines, but none were strictly adhered to. While most of the participants thought it was appropriate that the Code's negotiation took years (as opposed to months), the almost five years that the Code took to develop could be considered to be excessive. The length of time it took to develop the Code could have been shortened to possibly two or three years by identifying all of the participants at the beginning (as opposed to having different groups join at different times

throughout the process), and by setting firm - but realistic - deadlines.

The success of the Code's negotiation suggests that the same type of process be used in establishing the regulations for the new Farm Practices Protection Act.

4.3 Negotiation's Effect on the Regulation

The AWWC's preferred regulatory options evolved over time. The committee started out by looking at a permitting system and setting livestock density limits. In 1988 one of the committee members went to Europe on a fact-finding trip. He proposed developing a code of practice, as he felt extension and education should remain the preferred approach to change farmers' practices.

The BCFA preferred a "regulation by reference" format. This meant that the Code was referred to by a two paragraph regulation, rather than being embodied directly in the legislation. When BCMELP's legal counsel decided that the "regulation by reference" format would not be used, they were subject to protests from BCMELP, BCMAFF, and the BCFA. The Attorney General's office relented, and the regulation by reference was reinstated. This was one of the "win/win" options mentioned in Chapter Eight.

This "softer" regulatory approach was chosen because it was more appealing to farmers, and because it allowed a "staged approach" whereby the regulations could be made stricter in the future if the Code was not effective. A code of practice was also selected because of the information gaps in terms of the extent of the nitrate problem, and the financial impacts of the other

regulatory options on the farming community.

The Code was intended to be an educational document, as well as a regulatory one. However, the Code is not viewed as a static document. Now that new information is available on the impacts of the manure problem in the Lower Fraser Valley, the Code will be made more stringent.

4.4 Negotiation and Compliance

The Code's negotiation led to increased awareness, on the part of farmers, about the Code and environmental issues related to farming. However, it was not sufficient - by itself - to motivate farmer compliance. Rather the Code is part of a "package" of programs and services that in total are helping to motivate compliance. This package includes cost-sharing programs, commodity-specific Environmental Guidelines booklets, the producer conservation groups, BAWMPs, and the AEPC peer inspectors as the front line in the enforcement process.

4.5 Suggested Changes

The Code is not viewed as a static document, and the respondents interviewed suggested a number of changes to the Code itself, as well as for the Code's implementation. The changes suggested include differentiating the Code by region of the province, reducing the need to prove pollution before non-compliance was established, adding fencing requirements to protect riparian zones, and increasing the number of enforcement staff (especially in the Lower Fraser Valley). The NPS Pollution Workshop participants added the suggestions of mandatory BAWMPs for

intensive livestock producers, and changing the Guidelines to enforceable regulations (as required).

However, it seems prudent to use a stakeholder negotiation process to make any changes to the Code, to take advantage of the good relationships developed during the Code's negotiation. At the next negotiation, the committee should be a multipartite one, and include environmental groups.

The respondents also suggested changes for the Code's implementation. The AEPC continues to meet regularly, and might be the vehicle for implementing some of these changes. The suggested changes included increasing education (for farmers, BCMELP staff, and the public), increased enforcement (especially in the Lower Fraser Valley), improving the effectiveness of the AEPC, and setting up a separate board to deal with "nuisance" complaints (e.g. flies, odour, noise). The NPS Pollution Workshop participants offered the additional suggestions of increasing the profile of agricultural NPS pollution within BCMELP, trying to address the implementation within a watershed planning framework, and setting clear timelines for compliance with the Code, and creating an "umbrella" provincial policy for all types of NPS pollutants (to ensure equity among the types of pollution in terms of management and regulatory effort). The last point was emphasized by many respondents who pointed out that many urban NPS pollutants are not yet regulated, and that it is unfair to increase the stringency of the Code before these other pollution problems are dealt with.

5. DISCUSSION

B.C. clearly falls into phase one of Glasbergen's (1992) three phase process of agro-environmental regulation. The AWMC was aware of agricultural pollution problems, but their perception of the problems' severity was limited by information gaps. They chose to rely on voluntary compliance (as opposed to all farms being inspected) and education. After three years of the Code's implementation, further waste management problems are coming to light, and B.C. appears to be moving into phase two. New measures are being considered, ecological concepts are becoming more prominent, and agricultural practices are being questioned. BC has not yet dealt with the core of the manure nitrate problem, and still has more work to do.

Although the AWMC clearly knew about the different types of regulations in use in Europe, they opted to follow the U.K.'s code of practice model, as opposed to Holland's more stringent regulations. However, they saw the Code as part of a staged approach, which could be modified to be made more severe in the future. Interestingly, farmers perceive this as a "slippery slope." Some of the farmers who have emigrated from Europe specifically chose B.C. because it had fewer environmental regulations for agriculture, and have warned their commodity groups that the Code will probably be the first step in a series of stricter regulations. These two different perceptions will lead to mistrust on both sides if they are not clarified. Farmers need to understand that all industries have been subject to a staged

approach, and that it is not meant to single out or "pick on" the agricultural industry.

At the same time, the urban-rural pressures that impact on farmers (especially those in the Lower Fraser Valley), and the economic pressures created by the ALR need to be kept in mind before making the Code more stringent. A large number of nuisance complaints have been lodged with the AEPC, and the council was not set up to deal with this type of complaint. The new Farm Practices Protection Act should take care of most of these complaints. At the same time, farmers need to see that urban NPS pollution is also being dealt with, so that they do not feel that they are being asked to do more than urbanites in terms of addressing their waste problems. This will help to enhance the "win-win" aspect of the Code, mentioned in Section 2.5 of Chapter Eight.

The Code's negotiation process met most of the criteria for negotiated rulemaking and was perceived favourably by all of its participants. But how did the Code stack up against the theoretical advantages and disadvantages of industry-government negotiation (Chapter Five)? In terms of the advantages, the farm groups were able to supply advice on technological and economic issues. The negotiation did promote the adoption of social responsibility and reduced farmers' resistance to the regulation. However, as mentioned before, the Code' negotiation alone was not sufficient to develop the sense of "ownership" that would make the industry more likely to comply with the regulation.

Most of the disadvantages did not materialize. The government

was not "outgunned" - (nor was anyone else), as the industry did not hold most of the information, and did not have the funds to hire full-time experts to present their issues and concerns. The government's credibility was not compromised in the public eye. In fact, the public seems basically unaware of the environmental impacts of farm waste, and seems only to have focused on the "nuisance" factor of normal farm operations. Although BCMAFF and the agricultural industry do have a well established relationship, this relationship does not prevent BCMELP or any of the federal environmental agencies from acting decisively to protect public health and safety. The industry did not use the option of negotiation as a means of simply delaying compliance with regulations. Admittedly the Code's development did take a long time, but there was no evidence that anyone on the AWMC was there just to stall for time. However, the Code's negotiation did result in a "softer" regulatory approach.

As discussed in Chapter Three, the agricultural industry has some unique features. It is important to keep in mind that manure, to a certain degree, is different from other types of industrial wastes. In the right amounts it can offer the benefits of being used as fertilizer and a soil conditioner, and thus is different from some of the other wastes that the Waste Management Act covers. The Code was written to cover the flexibility of manure's use, as well as the varying farming conditions around the province. The "Thou shall not cause pollution" clauses were meant to give that flexibility, but have unfortunately caused difficulties with the

Code's enforcement.

6. RECOMMENDATIONS

Industry-government negotiation works well in the regulation of agricultural NPS pollution. In order to bring the farming industry on side, and minimize the enforcement agency's costs, I would argue that negotiation is even essential. If the Code is revised, a multi-stakeholder negotiation process should be used again, with the addition of environmental groups.

As BC moves into stage two of the three stage process of agro-environmental regulation, experience in the UK and the Netherlands may suggest that there is a need for increased financial support. Cost-sharing programs may need to be increased, or something similar to the Farm Income Insurance program reinstated. The government could justify these costs by pointing out that the land in the ALR, especially the best land, is as unique an ecosystem as old-growth forest and should be preserved. The costs could also be justified by pointing out that farmers are bearing the costs of preserving a common good (agricultural land), and should be compensated.

A negotiated approach is most easily transferable to other NPS pollutants where there is a clearly identified interest group that bears the concentrated costs of new regulations. An example of an issue where this approach might work is NPS pollution from urban development. There are relatively easily identifiable groups (e.g. construction companies), and they bear the costs of any changes to standards of urban development.

A negotiated rulemaking approach would be more difficult in terms of dealing with septic systems and stormwater runoff. These types of NPS pollutants have two characteristics that make it difficult to organize groups. A large number of people share the same interest, but the interest affects each person in only a small way. There are no organized groups of septic tank owners (although there are homeowners' and ratepayers' associations), and everyone who lives in an urban area contributes to stormwater runoff. Septic tank owners have no incentive to form such groups because they then could be made to bear concentrated costs, as opposed to the distributed costs they now bear.

However there are ways to work around this problem. If the companies that make or install septic tanks are subject to some form of regulation or increased costs, they will attempt to find ways to pass on the regulatory requirements or the costs. Thus there are methods to increase the likelihood of collective action, and promote the formation of interest groups that would then be in a position to negotiate NPS pollution reductions.

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APPENDIX I
COVERING LETTER

February 22, 1995

(Respondent's Address)

Dear (Respondent):

I am a graduate student in the Resource Management and Environmental Studies Program at the University of British Columbia. The title of my thesis is "Negotiation in Environmental Policy-Making: A Case Study of Nitrate Regulation in B.C.'s Code of Agricultural Practice for Waste Management." The purpose of my thesis is to describe and evaluate the negotiation process used to develop the Code, and to evaluate how the process has affected the Code's implementation.

I am working under the supervision of Professor Tony Dorsey, School of Community and Regional Planning, at UBC. My research is independently funded, and will increase understanding of the effectiveness of regulating agricultural non-point source pollution using a negotiation process.

As a stakeholder in the Code's negotiation and/or implementation, I am interested in your opinions, and the opinions of the group you represent. The interview will consist of about 20 questions, and should take about 1 hour. Your participation is entirely voluntary. You may refuse to participate or withdraw your participation at any time.

Within a few weeks I will be calling you to arrange a mutually convenient time for an interview. All of the information collected will be treated as strictly confidential, and your name will not be identified in the thesis or related publications.

I would appreciate your assistance in this study, as a variety of stakeholders is needed to obtain valid results. I thank you in advance for considering my request, and look forward to your response when I speak with you by telephone.

Yours sincerely,

Kathleen Zimmerman
M.Sc. Candidate

APPENDIX II
CONSENT FORM

APPENDIX III
QUESTIONNAIRE

Preamble:

To begin with, let me tell you a little bit about my background and how I became interested in researching the Code of Agricultural Practice for Waste Management. I grew up on a small farm in the Interior, and both my parents grew up on dairy farms in Switzerland. I have a B.Sc. in Agriculture from the University of Guelph, and an M.Sc. in Extension Education, also from Guelph. I then worked in Indonesia for two years, as the field manager of a Canadian development project. I'm currently in the Resource Management and Environmental Studies program at UBC. My main interest is the regulation of the environmental impacts of agriculture, and how government can develop such regulations by responding to both the general public's interest in protecting air and water resources, and the farming community's interest in maintaining the viability of their sector of the economy.

Increasingly it has been recognised that all those with an interest should be involved in discussing these issues. How best to do this is not clear, because of limits on time and resources. One way that has been proposed is to bring all those with an interest in the issue (i.e. the stakeholders) to sit down at a table and discuss or negotiate how to resolve the problems. Negotiation and stakeholder involvement are some relatively new techniques that the B.C. government is using to develop regulations, and I am interested in seeing how well they work in the case of regulating agriculture. That's why I am interested in talking to people who were involved in the negotiation process that developed the Code, and also in people who are involved in implementing the Code. I am particularly interested in the parts of the Code that relate to manure use and storage. I want to take a constructive look at what worked in the Code's negotiation, and what, in retrospect, people feel could have been improved. Over the next hour, I'd like to talk about a number of areas I am particularly interested in: why the Code's negotiation occurred in the first place, the types of issues "on the table," the parties involved, how the negotiation meetings were arranged/organized, and the Code's implementation. There are no right or wrong answers to these questions. I am simply interested in your point of view. If you feel you don't know the answer to a question, we'll just move on to the next one.

Before we begin the actual interview, I would like to request your permission to tape record what you tell me. After years of experience, UBC has determined that the best way to protect the interests of people who are interviewed, and to make sure that there are no misunderstandings about what might be quoted, is to ask them to sign a consent form. If you don't mind, we'll just take a minute to go over the consent form, and if you're agreeable I'll ask you to sign it.

.....

INTERVIEW QUESTIONS

I. Respondent's Background

1) To start off with, can you tell me something about your involvement in agriculture and environmental regulation, before you became involved with the Code?

II. Origins/History of the Code's Development

Now I'd like to ask you some questions about why the Code's negotiation occurred in the first place.

2) Prior to the Code's development, there was a clause in the Waste Management Act that exempted farmers from having to obtain permits for wastes if they were farming "traditional farming operations", and managed and applied the waste in a "reasonable manner." How did you see the old system working/not working?

Probe: Can you give me some specific examples that showed that the exemption wasn't working?

III. The Groups Involved

Next, I'd like to ask you some general questions about the groups who participated in the Code's negotiation.

3) How did your group first come to join the Code's negotiation? (I.e. Invited by BCMELP, asked if they could join, etc.)

4) How were you chosen to represent your group at the Code's negotiation?

5) Did you ever have problems with the people you represented, i.e. you had different views on the issues and how they should be resolved?

6) Was any group able to dominate the negotiation?

7) Were there any groups missing from the negotiation? If yes, why weren't they invited to join?

Probe: -Were they not readily identifiable?

8) Did you feel that your group had enough funds/resources to participate fully?

9) Did the groups who participated in the Code's negotiation share common ground on at least some of the issues?

10) Did participating in the Code's negotiation help to develop an ongoing relationship between your group and the parties, or with your group and BCMELP?

IV. Concerns

Next, I'd like to talk about your group's concerns, with regard to the regulation of manure management.

11) From your perspective, what were the main concerns related to the regulation of manure management?

12) What do you think would have happened if BCMELP had tried to develop a regulation on their own? (I.e. Could they have done it unilaterally?)

13) Were you confident that BCMELP would use the results of the Code's negotiation as the basis for a new regulation? **Not for BCMELP respondents.**

V. Options

After all the groups involved became aware of the issues related to manure management, they probably had a number of different options that they preferred to deal with the issues.

14) What were your original ideas on how to deal with the manure management issues?

Probes: How did your options compare with the options that other groups in the Code's negotiation were in favour of?

Did the options that you were willing to support change over time, as the negotiation progressed?

VI. The Negotiation Process

Now I'd like to move to some general questions the Code's negotiation process.

15) What factors do you think helped or hindered the discussions while the Code was developed?

Probes:

a)- a (trained) facilitator? (E.g. Took care of logistics of meetings, pointed out areas of agreement, kept the parties communicating, and created confidence in reaching a resolution)?

b)- a deadline (to keep participants moving toward a resolution at an efficient pace)? Was the time available adequate?

c)- an incentive to negotiate? (What was your group's incentive to negotiate, as opposed to other methods of influencing the Code's decision-making process?)

d)- decide in advance on where to meet, how often, and at convenient locations?

e)- define consensus, or how you would know when you had reached an agreement that everyone could live with, in advance?

f)- funding to help the groups with fewer resources to participate as fully as possible?

g)- all the parties negotiated in good faith? (E.g. no one had a hidden agenda, no one merely tried to stall for time?)

h)- the necessary data was readily available? The reason I'm bringing this point up is that Code mainly regulates non-point source pollution, which means it is much harder to measure amounts of pollutants released, and where they're coming from. Was a lack of information, or uncertainty about the information, a problem when you were trying to design regulations for manure use and storage? If yes, how did you deal with these information gaps and uncertainties?

16) With the benefit of hindsight, if you had to negotiate the Code's development over again, is there anything you would change in terms of the procedure used or the groups who participated?

Possible probes:

- additional funds
- additional participants
- increased participant training in negotiation methods
- wider circulation of information
- increased amounts of information
- improved understandability of information
- more basic data about current conditions, and future implications of the options considered
- presentation of opposing viewpoints
- setting deadlines
- more frequent meetings
- other (please explain)
- no changes needed

VII. Implementation

Finally, I'd like your opinion on how well the Code's implementation is working, and how farmers feel about complying with the Code.

17) In your opinion, how has the BCFA's and other farm groups' participation in the Code's development affected:

a. The knowledge of farmers with respect to manure management and the environment? Please explain.

b. The farmers' incentive to comply with the Code?

18) In your opinion, how well is the Code's implementation working? Why is it working/not working?

19) What changes would you suggest to make the Code a more effective regulation?

20) Thank you very much for participating in this interview. Are there any other comments you would like to add, or questions you would like to ask me?

APPENDIX IV

SAMPLE OF A SUMMARY TABLE

Criteria #6 - Fundamental Values

While the groups all had fairly strongly held views, they weren't moral or ethical beliefs. In fact, the groups shared some common ground which helped to make the negotiation process easier.

Key word search: common ground

Name*/Org'n.	Response Summary
XX, BCMELP	9) "We were all trying to do our best for the environment, without bankrupting the farmers. . . . Yes, I'd say we had a fair amount of common ground." 20) BCMAFF was "the common ground between us. . . . They were trying to bridge the gap between us and the farmers."
XX, BCMAFF	10) "It's certainly helped to bring people together, to try to find where their common interests lay, rather than continuing to be some sort of adversarial situation."
XX, BCFA	9) "There were some areas where we started out a fair ways apart, but. . . it was never the really polar opposites so far apart that there wasn't even any room to start. . . . There was a common goal, which was to come out with something that everybody could live with." 16) "There was really a common objective from the beginning. We might have had a little different view of what that common objective was, but we both knew that we had to get a better system."
XX, Environment Canada	9) "I do believe that all the interest groups felt they were at the table because they all believed that there was a need for some Code of Practice. . . . So that would be the common ground."

*Names have been suppressed to preserve anonymity.

APPENDIX V

LIST OF ACRONYMS

AEPC - Agricultural Environmental Protection Council (the council that oversees the peer inspector system)
AES - Agriculture Environmental Service (precursor to the AEPC)
ALDA - Agricultural Land Development Assistance Program
ALR - Agricultural Land Reserve
AWMC - Agricultural Waste Management Committee (the group that negotiated the Code)
BATNA - Best Alternative to a Negotiated Agreement
BAWMP - Best Agricultural Waste Management Plan
BCCA - British Columbia Cattlemens' Association
BCEPA - British Columbia Environmental Protection Act
BCFA - British Columbia Federation of Agriculture (farm lobby group)
BCIA - British Columbia Institute of Agrologists
BCMAFF - British Columbia Ministry of Agriculture, Fisheries and Food
BCMELP - British Columbia Ministry of Environment, Lands and Parks
BMP - Best Management Plan
CFA - Canadian Federation of Agriculture
DFO - Department of Fisheries and Oceans
EC - European Community
ENGO - Environmental Non-Governmental Organization
EPA - Environmental Protection Agency
ESP - Environmental Sustainability Parameter
FII - Farm Income Insurance (Act)
FOE - Friends of the Earth
GVRD - Greater Vancouver Regional District
MAFF - Ministry of Agriculture, Fisheries and Food (in the United Kingdom)
NFU - National Farmers' Union (farm group in the United Kingdom)
NPS - non-point source
NAAs - Nitrate Advisory Areas
NRA - National Rivers Authority
NSAs - Nitrate Sensitive Areas
UK - United Kingdom