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ENVIRONMENTAL VALUES: A COMPARATIVE STUDY OF GOVERNMENT FOREST POLICIES IN CANADA AND SWEDEN

by
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Thesis submitted to
The School of Graduate Studies and Research
in partial fulfillment of the requirements for a
Master of Arts in Sociology

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April 2000

ABSTRACT

In this thesis, the environmental values of Canada and Sweden as they are embodied in the forest policy of these two countries are examined within the framework of Beck's theory of the risk society to discover whether there is evidence to support Beck's theory of the evolution of industrialised countries from primary to reflexive modernisation. The historical, cultural and social-structural conditions underlying the development of Canadian and Swedish forest policy are also investigated in order to situate those policies in their historical and comparative context.

ACKNOWLEDGEMENTS

First and foremost, I must thank my thesis director, Dr. Raymond Murphy for his guidance, support and friendship throughout my Master's programme. I must also thank my committee members Dr. Victor DaRosa and Dr. Leslie Laczko for their advice and suggestions, and all of the staff in the Sociology department.

I would also like to express my gratitude to my parents Linda and Gerry, and my fiancé Jason for their ongoing support and encouragement.

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CHAPTER I

INTRODUCTION

> Environmental problems are not problems of our surroundings, but - in their origins and through their consequences - are thoroughly social problems, problems of people, their history, their living conditions, their relation to the world and reality, their social, cultural and political situations. (Beck 1992: 81)

In recent years, the issue of environmental protection has been attracting increasing attention from academics, the media, and the general public. The protection of the natural environment has attained a position of importance in international political debates.

Perhaps what is of even greater significance is that it is no longer just environmental disasters such as Chernobyl, where the environmental consequences are immediate and profound but nevertheless enduring, that are the sources of concern. Humanity is also becoming increasingly aware of more subtle but equally alarming indications that the natural environment is in a state of transformation. Modern society is characterized by the human manipulation of the natural environment which is occurring at unprecedented rates, and is resulting in the disequilibrium of the processes of nature. Toxic emissions produced by the cars and factories of the industrialised world have been linked to the process of global warming which, according to some members of the scientific community, may lead to an increase in the number of extreme weather events, the flooding of low lying areas, and the desertification of soils. Ultimately, human interference with the processes of nature may render all life forms its victims.

> Modernization results in hazards for humans precisely because nature is not inert nor infinitely malleable. Modernization produces risk because it destroys the self-regulating mechanisms constructed by nature, thereby letting loose previously dormant forces of nature that had been contained by nature. (Murphy 1997: 72)

One school of thought holds that as individuals, nations, and governments become increasingly aware of the impact of their actions on the natural environment, environmental values begin to emerge and take shape. Another claims that cultural differences between societies determine whether environmental values emerge and if so, what form they take (Hayer 1995).

The purpose of this thesis is to examine whether Canada and Sweden have differing orientations towards the natural environment and environmental protection and if so, why this is. A comparative analysis of the forest policy of the Canadian federal government and the Swedish national government will serve to highlight both the differences and similarities between the environmental values of Canada and Sweden. If different environmental values are found in Canada and Sweden, then an explanation will be sought in terms of the differing social, cultural, and political forces existing in these two countries, such as the form of government, the conditions leading to the emergence of the middle class and middle class values at the time of industrialization, and geopolitical relations. A documentation of the conditions that gave rise to the environmental values of Canada and Sweden will ensue.

This thesis will not presuppose that human society develops in a manner that is unaffected by the processes of nature. Instead it will be open to the possibility that the relationship between human society and the natural environment is a dialectic one. While it cannot be denied that

human society, especially since the period of industrialisation, has managed to shape and transform the natural environment, nature has also played a key role in shaping human culture. The availability of certain natural resources for exploitation as opposed to others determines social relations which in turn affects other aspects of the social world. Furthermore, despite human attempts to alter and sometimes stifle the processes of nature, natural forces remain uncontrollable, and even at times unpredictable, leaving humans awestruck and vulnerable (Zebrowski 1997).

> The built environment is wholly expressive of culture; its study is already well advanced in the history of architecture, technology, and the city. But with such phenomena as the forest and the water cycle, we encounter autonomous energies that do not derive from us. Those forces impinge on human life, stimulating some reaction, some defence, some ambition. (Worster 1995: 19)

The *Concise Oxford Dictionary of Sociology* (1994), distinguishes between attitudes and values in the following way:

> Regarding values as a type of social data, distinctions are often drawn between values, which are strong, semi-permanent, underlying, and sometimes in explicit dispositions, and attitudes, which are shallow, weakly held, and highly variable views and opinions. Societies can usually tolerate highly diverse attitudes, whereas they require some degree of homogeneity and consistency in the values held by people, providing a common fund of shared values which shape social and political consensus. (Marshall 1994: 552-553)

Stern, Dietz, Kalof and Guagnano (1995: 1615) "do not make strong claims that values are invariant throughout the life cycle or that they exist independently of social influences," they do however argue that values act as "guiding principles in life". For these authors values act as the foundation upon which an attitude towards a more specific object or behaviour is based. They

argue that in contrast to the specific and directed character of an attitude, values are more general and enduring (Stern, Dietz, Kalof and Guagnano 1995: 1615).

For Stern, Dietz and Guagnano (1995: 726) values are also "causally antecedent" to attitude formation, and argue that "information congruent with an individual's values and world view will be more likely to influence beliefs and attitudes".

According to Gooch, several factors such as economics and technology can shape a given society's most basic, "primitive" beliefs about the natural environment. These "primitive" beliefs can in turn constitute the foundation of a society's "environmental belief system and lead in turn to derived beliefs concerning conservation, pollution, and population, and to general environmental attitudes" (Gooch 1995: 516). Gooch further states that these beliefs can also be important in the formation of values.

This study will focus solely on environmental values because of the potential for variation in attitudes that can exist among the members of any given population as a result of their sex, social class, age (Lindén 1998: 35), or other differences. The focus on enduring government policy as a means to operationalize the concept of environmental values as opposed to, for example, focusing on the environmentally oriented behaviour of the population is based on the potential for discrepancy in behaviour between people of differing social classes, levels of educational attainment, etc. While the examination of government policy will provide for a more enduring description of the environmental values of Canada and Sweden, it is recognized that government policy may embody the values of a particular social class, and that these policies

may be the result in some instances of external political pressure. Hence stable differences between Canada and Sweden, if found, are all the more remarkable.

Lundqvist defines environmental policy as "government action taken to solve the problems of the society's relationship to its physical environment" (Lundqvist 1974: 6). While this study will focus on forest policy, due to the extensive web of forest policy that has been developed in Canada and Sweden since the period of industrialization, the object of study will be limited to Canadian and Swedish forest policy that directly addresses forest management.

According to Lundqvist, environmental policy generally consists of three elements. The first of these elements are "statements of intents or goals to be achieved." The second involves "recommendations concerning the ways and means of implementation." The final element consists of the "performance level" intended for the policy which can range from the mere initiation of an idea to a complete program including the evaluation of outcomes (Lundqvist 1974: 6).

Lundqvist argues that several factors can influence the environmental policy-making process and policy contents in a given society. These factors include societal values and historical events, the political structure of a given society and established routines in policy making, and power relations among different groups that are variously affected by environmental policy (Lundqvist 1974: 7).

Forests play an important regulatory role in the management of the earth's ecosystem. Often referred to as the "lungs of the earth", it is common knowledge that forests are imperative to the maintenance of the oxygen-carbon dioxide balance in the air that humans breathe (Marchak

1995: 28). Forests are also responsible for regulating water cycles by absorbing water from the soil through tree roots and returning it to the atmosphere in the form of water vapour. This process is important in preventing flooding and droughts. Unfortunately, an increase in floods and droughts is already being witnessed in many of the deforested areas of the world (Marchak 1995: 28). In addition, forests not only constitute an important economic resource, but also provide a habitat to many plant and animal species, and recreational enjoyment to humans.

The decision to focus on forest policy in Canada and Sweden was based not only on the availability of literature in this area of study, but also on an appreciation of the importance of the forest industry to the economies of both Canada and Sweden. Forest policy is particularly indicative of the underlying values of the Canadian and Swedish governments and their respective societies concerning the environment because of the significance of forestry in those two societies.

A Canada-Sweden study provides particularly interesting grounds for the comparison of environmental values because of their geographic and economic similarities. Canada and Sweden are both Nordic countries characterized by an abundant supply of natural resources. Forests cover 53 percent of Canada's total land area (Marchak 1995: 61), and 59 percent of Sweden's (United Nations Economic Commission 1997: 72). Both Canadian and Swedish forests are predominantly made up of coniferous trees, with the ratio of coniferous to non-coniferous trees being approximately 3:1 in Canada (United Nations Economic Commission 1997: 14) and approximately 5:1 in Sweden (United Nations Economic Commission 1997: 72). These forest resources have historically been seen from an "instrumentalist and utilitarian perspective" that has

had as a result the fostering of the forest industry (Sandberg and Sörlin 1998: 12). Both Canada and Sweden are located to the north of much more politically and economically powerful nations, and the economies of both countries have traditionally been based on the production of export staples (Sandberg and Sörlin 1998: 2).

The importance of forestry in the industrial development of Canada and Sweden cannot be overestimated and, "the similarities between nineteenth century Canada and Sweden are striking" (Laxer 1988: 204). While both countries entered the period of industrialisation relatively late (1870s), the forest industry was developed in both countries as a response to the demands of larger neighbouring countries for timber and other natural resources for industrial production (Laxer 1988: 204). As the forest industries in Canada and Sweden evolved, they played an important role in the development of the infrastructure of the two countries through the financing of roads, railways and the development of waterways for the transportation of timber (Laxer 1988: 205). Furthermore, as the production of timber was primarily for exportation, the revenue from these exports was invested in other areas of the Canadian and Swedish economies.

Modern Canadian society consists of a mixture of a welfare state and market capitalism. The government is decentralised and political power is shared by the federal and provincial governments. Modern Swedish society on the other hand, can most aptly be described as an advanced welfare state. The government is highly centralised and the Swedish economy is often said to be "state-owned" (Erickson 1997: 12).

Despite these differences, both Canada and Sweden are examples of "industrial consumer societies" (Erickson 1997: 1). Though the following quote was written in reference to the United States and Sweden, it is equally applicable to Canada and Sweden.

> Both have continuous economic growth as predicate and goal, and both socialize their members to believe that they can somehow have it all: cheap energy and food, a clean environment, boundless physical mobility, upward social mobility, and a very comfortable lifestyle. (Erickson 1997: 1).

While both Canada and Sweden enjoy a positive international reputation as being the developers of socially responsible policies (Sandberg and Sörlin 1998: 2), both are countries in which the promotion of trade, production and business has taken precedence over the protection of the environment. The result has been the degradation of the quality of forests in both countries, and the degradation of the quantity of forests and woodlands in Canada (Sandberg and Sörlin 1998: 13).

Are environmental values situated on a continuum characterized by the conservation of the natural environment at one pole, and the exploitation of the natural environment at the other (Lindén 1998: 38)? Or can exploitation in the business sense be reconciled with conservation in the case of the forest? The concept of conservation is not necessarily synonymous with "restraint and reduced consumption" but rather, it can involve the proper management of natural resources so that they may continue to be used for "growth and development" (Murphy 1994: 49). Is exploitation without degradation possible? This thesis will examine how Canada and Sweden are positioned with respect to the answers to these questions.

This thesis is organised into six chapters. Chapter II introduces the theoretical framework used in this thesis to examine forest policy. Beck's theory of the risk society outlines the evolution of modern societies from industrial to a stage at which they become aware of the impact of human action on the natural environment. It also outlines ways in which societies, once they have recognised environmental risk, can manage it. In Chapter III the development of Canadian forest policy is examined, while in Chapter IV the development of Swedish forest policy is examined. Chapter V presents a direct comparison of Canadian and Swedish forest policy followed by a discussion of the conditions underlying the social construction of Canadian and Swedish forest policy. Lastly, in Chaper VI, the forest policy is re-examined within the framework of Beck's theory of the risk society.

CHAPTER II

THEORETICAL APPROACH AND METHODOLOGY

Theoretical Approach

Beck defines the risk society as:

> ..an epoch in which the dark sides of progress increasingly come to dominate social debate. What no one saw and no one wanted - self-endangerment and the devastation of nature - is becoming the motive force of history. (Beck 1995: 2)

In his theory of the risk society, Beck argues that the benefits of modernization and progress are not without a price. According to Beck, modernity can be divided into two distinct phases: primary and reflexive modernization. The period of primary modernization began in the nineteenth century, and is characterised by the demystification of religious beliefs and the questioning of tradition (Beck 1992a: 10). It was reflective in the sense of discovering cause-effect relationships and deciding upon the most appropriate technical and organizational means to attain goals. It was a period in which science and technology achieved control of the processes of production, and "actors believed in the inevitability of progress" (Alexander 1996: 134). Of crucial importance in this period was the production of goods and thus nature, perceived from an instrumentalist and utilitarian perspective, was a force to be dominated (Alexander 1996: 134).

As industrial expansion and the development of science and technology progressed, risks began to emerge. While these risks did not go unnoticed, the view of science and technology as being synonymous with progress prevailed. These risks were therefore viewed solely as "residual" risks that required nothing more than a little fine-tunning of the technological processes

in order to be eliminated. For this reason, these risks never became the subject of public or political concern or debate (Beck 1994: 5) According to Beck, what distinguishes risks from the threats of preindustrial periods is that

> risks presume industrial, that is, techno-economic, decisions and considerations of utility. They differ from war damage in that they originate in peacetime in the centers of rationality and prosperity, and from preindustrial natural disasters in that they originate in decision making. (Beck 1995: 20)

The transition from the process of primary modernization (industrial society) to reflexive modernization (risk society) involves the realisation that certain elements of science previously believed to be beneficial are proving to be "unpredictable sources of danger" (Beck 1992a: 51). Modern society becomes reflexive in that the cumulative impact of technical and organizational decisions could undermine the very modern society that implemented them.

In the risk society, social conflict concerning the distribution of "goods" such as jobs and income that characterised the industrial society is replaced by social conflict surrounding the creation, distribution, and prevention of "bads" such as radiation, chemical disasters, genetic manipulation, and the destruction of the natural environment (Beck 1994: 6).

While the risks of industrial society were localised, usually restricted to the place of work or a given geographic location (Beck 1992a: 13), the risks of the risk society possess an "inherent tendency towards *globalization*" (Beck 1992a: 36). Not only does environmental degradation

affect all classes of a given society[1], but also certain types of risk such as pollution and radiation pay little heed to international borders. For example, the forests are dying in northern Scandinavia where little, if any, intense industrial activity is taking place (Beck 1992a: 36). Unlike the threats of previous eras, the hazards of the risk society lose their "spatio-temporal" limits (Beck 1996: 15).

Furthermore, the risks of the period of reflexive modernization differ from the threats of previous eras because they affect not only the natural environment but also, they threaten the very institutions upon which modern society is founded. Because of their unpredictable nature, the means by which scientific and legal institutions have traditionally calculated, managed and insured themselves against risk are no longer valid (Beck 1996: 11). The institutions that have in the past been responsible for risk-detection in the industrial society often prove themselves to be inadequate when confronted with the technological, social, political, and economic risks of modern society (Beck 1994: 5). As a consequence, these risks are not "accountable according to the prevailing rules of causality, guilt, and liability", nor are they "insurable" or "compensable" (Beck 1995: 2).

Modern risks are further characterized by the fact that they dominate both public and political debate.

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[1] Some authors have argued that environmental degradation, although affecting all social classes, affects some more than others. See Murphy 1994 , chapter 8 for further details.

> Here the institutions of industrial society become the producers and legitimators of threats they cannot control. What happens here is that certain features of industrial society become *socially* and *politically* problematic. On the one hand, society still makes decisions and takes actions according to the pattern of the old industrial society, but, on the other, the interest organizations, the judicial system and politics are clouded over by debates and conflicts that stem from the dynamism of risk society. (Beck 1994: 5)

In the risk society the nature-society dichotomy that characterised the nineteenth century no longer exists. Nature is no longer relegated to the outskirts of society but rather, as a result of industrial production, nature has become a "historical product"[2] (Beck 1992a: 80). In the risk society, "industrial production ceases to be 'mere' destruction of nature and becomes an integral component of the social, political and economic dynamic" (Beck 1992a: 80). At this stage of modernization, environmental problems are no longer perceived as being the problems of the surrounding world but rather, they represent a "profound institutional crisis of industrial society itself" (Beck 1994: 8).

Two processes characterise the risk society. The first involves the realisation by scientists and the general public that science does not only bring advantages and progress, and that science is not omniscient. Without science, many of today's environmental problems such as the depletion of the ozone layer and acid rain, would not exist. As a result of this realisation, scientists must "rethink and change their own conceptions of rationality, knowledge and practice,

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[2] It should be noted that theories which are sources of inspiration for this thesis will not none the less be swallowed whole in an uncritical manner. While it is true that in the risk society, nature is no longer on the outskirts of society, it is a fallacy on Beck's part to imply that nature becomes only a historical product. Despite human manipulation, the natural environment retains its autonomous processes and thus, it is not nature, but society's attempt to reconstruct nature that becomes a historical product.

as well as the institutional structures in which these are put to work" (Beck 1992a: 71). It is in this process that the discipline of science becomes the subject of scepticism, a process from which it had previously been spared (Beck 1992a: 155).

The second process involves the intensification of the application of science and technology, for although science is recognised as the creator of modern risks, Beck argues that science is imperative to the management and resolution of these risks (Beck 1992a: 163).

Thus Beck applies the term "reflexive" to the risk society in two ways. The risk society can be defined as reflexive because it is the period in which the accumulated effects of the period of primary modernization begin to turn against society, and latent risks become manifest. The risk society is also reflexive in the sense that it forces science, the foundation upon which modern society is built, to become more sceptical of its own processes while at the same time, there is an intensification of the application of science in order to detect and manage risk.

According to Beck, there exist two possible processes by which the risk society can deal with risk. The first scenario is referred to by Beck as "reindustrialization". In this society, Beck argues that everything will remain much the same as it is now with the exception of "a couple of ecological corrective measures" (Beck 1992a: 224). This is essentially a re-enactment of the nineteenth century "projected onto the twenty-first century," where economics continues to be the driving force of society and technological risks will continue to go unnoticed (Beck 1992a: 225). In response to the question "What should we do?" the members of this society will answer "The same as ever, only bigger, faster and more" (Beck 1992a: 225). When risk is recognized, it will

continue to be perceived as the responsibility of politicians, not the business people and scientists that created it. Ultimately, this type of society will lead only to further environmental degradation, putting all humans, and plant and animal species at risk. Unfortunately, according to Beck, this is the strategy that has been adopted by most countries (Beck 1992a: 224).

This contrasts with two processes which Beck refers to as the "democratization of techno-economic development" and "differential politics". This alternative kind of society is characterised by the intensification of individualization and democracy. According to Beck, individualization "does not mean atomization, isolation, loneliness, the ends of all kinds of society, or unconnectedness." It instead refers to "first, the disembedding and, second, the re-embedding of industrial society ways of life by new ones" (Beck 1994: 13). The outcome of this process is what Beck refers to as "sub-politics," a situation in which those from outside of the political realm (citizens' groups, workers, professionals, scientists) are permitted to take on a more active role in the shaping of society (Beck 1994: 22). In this society serious issues such as the use of potentially dangerous technology are discussed by the general public and by interdisciplinary committees at the political level, prior to the making of decisions. "The demand is for forms and forums of consensus-building co-operation among industry, politics, science and the populace. For that to happen, however, the model of unambiguous instrumental rationality must be abolished" (Beck 1994: 29). In this process, technological economic development is delegitimized, and ambivalence towards it is made acceptable. Furthermore, the notion that experts are always right is discarded (Beck 1994: 28).

Beck argues that the risk society is "by tendency a self-critical society" (Beck 1994: 11). Public criticism resulting from a growing awareness of technological risk forces science to become sceptical of its own processes and in this way, new knowledge is obtained (Beck 1992a: 161). Democratic, ecological restraints are also placed by the political sphere on the decision-making power that the scientific community and the market presently enjoy (Beck 1992a: 186). In this type of society, monopolies are eroded such as that of science on rationality, and politics on policy (Beck 1992a: 232).

> Only when medicine opposes medicine, nuclear physics opposes nuclear physics, human genetics opposes human genetics or information technology opposes information technology can the future that is being brewed up in the test tube become intelligible and evaluable for the outside world. Enabling self-criticism in all its forms is not some sort of danger, but probably the *only way* that the mistakes that would sooner or later destroy our world can be detected in advance. (Beck 1992a: 234)

Beck is not arguing against science but rather, he is arguing that counter expertise is necessary. In the risk society, knowledge is crucially important in detecting certain environmental problems such as the hole in the ozone layer. Knowledge also plays an important role in determining the causes and solutions of such environmental problems.

> Not only does the industrial utilization of scientific results create problems; science also provides the means - the categories and the cognitive equipment - to recognize and present the problems *as* problems at all, or just not to do so. Finally, science also provides the prerequisites for 'overcoming' the threats for which it is responsible itself. (Beck 1992b: 163)

The result is that a new structural form emerges. The media is sensitized to risk so that

it, along with the court system, can become a forum in which risk can be openly examined and monitored (Beck 1992a: 234). Other possibilities include: limitations imposed on technological development by parliament, the modernization of parliaments via the creation of interdisciplinary groups to examine issues, the inclusion of the populace at all levels of decision making and planning, and the creation of an "ecological variant of the welfare state." This would include the creation of such things as insurance for health problems brought on as a result of environmental degradation, as well as the creation of laws and institutions (Beck 1992a: 229-230).

Beck's Theory Applied to Canadian and Swedish Forest Policy

It is within these parameters of Beck's theory of the risk society that an empirical investigation of the forest policy of the Canadian and Swedish governments will be carried out. It will attempt to discover whether there is evidence to support Beck's theory of the evolution of industrialised countries from primary to reflexive modernization, and will attempt to determine in what ways the evolution of forest policy of these two countries is similar. This empirical investigation will furthermore examine the ways in which the forest policy of these two countries differs, and the causes of these similarities and differences in forest policy. Finally, this thesis will seek to determine if Sweden is further along than Canada in the evolution from primary to reflexive modernization. As a starting point a provisional hypothesis can be inferred that Canadian environmental values are less fully developed and progressive than Swedish environmental values as a result of differences in culture, economy, political structure, and political relations.

Beck has provided a general sociological theory of the evolution from primary to reflexive modernization and of the environmental implications of this change. In order to use this general theory to understand change in forest management, it will be necessary to examine the paradigms of forest management that have existed. Later chapters will investigate how Canada and Sweden have varied in the use of these paradigms.

Paradigms of Forest Management

Thomas Kuhn defines a paradigm as "an accepted model or pattern". Paradigms achieve their dominant status because they "are more successful than their competitors in solving a few problems that the group of practitioners has come to recognize as acute" (Kuhn 1970: 174). Paradigmatic changes occur as a result of changes in the "worldview" or values and beliefs of an individual or group (Gooch 1995: 514).

In the area of silviculture or scientific forest management which is the "theory and practice of controlling the establishment, composition, growth, and quality of forest stands to achieve the objectives of management", three forestry paradigms have dominated in the West since the period of industrialisation (Forestry Canada 1992: 53). While specific forestry practices may vary depending on the type of tree being cultivated, landscape, soil type etc, forestry paradigms provide general principles that guide a society's approach to and understanding of forestry.

Until the 1800s and early 1900s, exploitation was the paradigm that governed most Northern European and North American forestry practices. According to this paradigm,

forestry was considered much the same as mining, resources were extracted and then the site was abandoned. The goal was to obtain high-quality timber at a minimal cost, and little consideration was given to forest regeneration or to the protection of the soil or the wildlife (Tappeiner et al.1997: 152). The exploitation approach to forestry included such practices as clear cutting and partial cutting. While the practice of partial cutting ceased to be widely used in the 1940s, the practice of clear cutting remained a viable method of forest harvest within the parameters of the sustained yield model that succeeded the exploitation model (Tappeiner et al. 1997: 152).

The sustained yield model of forest development was established at the turn of the last century. According to this view, the annual quantity of forests harvested each year may not exceed the annual forest growth. In this way the continued existence of the forest is ensured. In this model, economics is the primary concern and therefore artificial regeneration methods are also widely used. The following quote summarizes the principle underlying the sustained yield model.

> Because the factory and the product are identical, care must be taken that trees are not felled at a time when and in a way which lowers the capacity of the forest to go on producing wood and providing its other services. (Westoby 1989: 33)

The multiple-use model of forest management eventually replaced, or is in the process of replacing the sustained yield model. The multiple-use model involves a concern for the many products and functions of the forest. It is a product of the modern welfare society wherein an important percentage of the population is no longer working in the primary sector and now want "leisure-related multiple benefits from forests" (Kuusela 1994: 142).

Under this model, the forest serves four primary functions. The first of these is the commodity function which involves primarily the production of wood as well as other products found in the forest such as game animals, seeds, mushrooms and plants (Kuusela 1994: 143). The second function is a protective function. This highlights the forest's role in controlling soil erosion and flooding, and absorbing noise and emissions (Kuusela 1994: 144). The social function underlines the recreational value of the forests as a place for fishing, hunting and relaxation (Kuusela 1994: 144). The final function of the forest under the multiple-use model is the cultural function which highlights the aesthetic and symbolic value of the forests (Kuusela 1994: 144). The multiple-use model also involves a heightened awareness of the importance of protecting biodiversity. These four functions are not organised hierachially with one being more greatly valued than the others as is the case with the sustained yield model but rather, within the framework of the multiple-use model, it is the responsibility of each society to view all forest benefits as objectively as possible and to adopt forest policies that benefit the entire society (Kuusela 1994: 144).

According to Yaffee and Wondolleck, future forest paradigms will consist of an extension of the multiple-use model. While they argue that science is an important element of forest management, it is not sufficient, and they warn against replacing "one technical fix with another" (Yaffee and Wondolleck cited in Kohm and Franklin 1997: 4). In the next century, forestry will involve a heightened decision-making role for a number of groups and including processes such as "effective, multiparty decision making, building broad coalitions of political support, and

participation in cross-jurisdictional management arrangements (Yaffe and Wondolleck 1997: 382).

The United Nations uses the following table to summarize how forestry perspectives have evolved over the last 100 years.

Historical perspective on forests and forestry in developed countries

19th century viewpoint	Viewpoint today
forest outputs are timber, game, fuelwood, and water	outputs are many including various goods but also complex ecosystem services and social values
the natural world can be managed and controlled	the effects of human interventions on the natural world can be difficult to predict and control
forest-dependent communities are local villages and farms	local, national, regional and global 'communities' demand goods and services from forests
management aims to produce commodities through sustained harvest yields	management treats the forest as a complex ecosystem and seeks to maintain its productive, protective and social values, and to preserve future options
the forester is an expert and a decision-maker	the 'public' is the decision-maker through democratic processes; the forester is a technical advisor and facilitator

(Food and Agriculture Organization of the United Nations 1997: 4)

It is within the context of these forestry paradigms that the forest policy of Canada and Sweden will be compared and analysed in order to determine how the two countries are positioned with respect to these paradigms and whether one country shows greater environmental awareness than the other. In examining the themes embodied in the forest policy and the social dynamics surrounding forest policy as it has been introduced since industrialisation, an attempt

will be made to determine whether the symptoms and causes of primary modernization and reflexive modernization as defined above can be detected and made more specific.

Methodology

This study will be based on a qualitative analysis of information gathered from the available documents such as the Canadian and Swedish Forestry Acts and other government initiatives concerning forestry and environmental protection. This information is pertinent to the research goal of determining whether similarities and/or differences exist in Canadian and Swedish government forestry policy which thus reflect differences in environmental values.

Examining the amendments and changes to government policy that have occurred since their initial formulation will provide a historical-comparative understanding of how the environmental values of each country concerning forestry and environmental protection have evolved.

University libraries in both Canada and Sweden are important sources of documentation for this thesis, along with the National Archives in Canada, and the Environmental Protection Agency library in Sweden. The language barrier is one of the greatest obstacles encountered in any comparative study of nations. As it is to be expected, the vast majority of Swedish documents on this subject are written in Swedish. Fortunately, most of these documents also include a summary in English.

The Comparative Method

The comparative method or "cross-system" sociology can be defined as "the comparison

of values, structures, processes, and behaviours across social systems to distinguish between those regularities... that are system-specific and those that are universal" (Tomasson 1978: 1). In comparative sociology, the object of study is often large macrosocial units (Ragin 1987: 3). The comparative method is therefore a holistic approach to the study of social units that attempts to explain existing social phenomena by means of historical interpretation.

> Historically oriented interpretive work attempts to account for specific historical outcomes or sets of comparable outcomes or processes chosen for study because of their significance for current institutional arrangements or for social life in general. Typically, such work seeks to make sense out of different cases by piecing evidence together in a manner sensitive to chronology and by offering limited historical generalizations that are both objectively possible and cognizant of enabling conditions and limiting means - of context. (Ragin 1987: 3).

As discussed in the introductory chapter, Canada and Sweden are both characterised by a similar Nordic climate in which similar supplies of natural resources are found. If differences do in fact exist with respect to the environmental values of these two countries, it is possible to conclude that they are not the result of climate type or the availability of natural resources but rather, causes must be sought among the cultural, historical, economic, and political conditions of each country.

In the following study, Canadian and Swedish forestry policy will be analysed and compared by means of a thematic content analysis. According to Turner, the goal of content analysis is "to make inferences about public opinion, belief, attitudes, values or preoccupations, or about the nature or dynamics of social structure or culture, from the content of some form of human communication" (Turner 1990: 146).

Content analysis can be quantitative: counting the number of times specific words appear in a written text. Because of the cross-cultural nature of this study and the high probability that the majority of the Swedish policies analysed will be translations of the original Swedish version (thus the original wording will have been altered), this approach is not feasible. Instead, the forest policies of the two countries being studied will be analysed in terms of concepts and ideas found therein. Based on this thematic analysis, these policies can then be situated within one of the dominant forest paradigms that have existed in North America and Northern Europe since the time of industrialisation.

This type of longitudinal analysis will identify which paradigm has predominated in the forest sector of both Canada and Sweden, as well as identifying substantive or chronological differences between the two countries in line with Beck's theory with respect to forest policy. . While it is true that content analysis can range from the "highly intuitive to rigorously quantitative methods," (Turner 1990: 146) my systematic approach to the analysis of Canadian and Swedish forestry policy will not be at either end of the scale. A qualitative thematic methodology will be used.

CHAPTER III

THE SOCIAL CONSTRUCTION OF CANADIAN FOREST POLICY

It has often been said that Canada is a forest nation (Natural Resources Canada 1998: 1), as it contains ten percent of the world's forests within its national borders (May 1998: 2). Forests cover 417.6 million hectares of Canada's total land area (May 1998: 2) and the forest industry currently employs approximately one million people (Hardy 1998: 1). As the world's largest exporter of wood and wood products, Canada also produces 1/3 of the world's newsprint (May 1998: 2) In 1997, the net export value of Canadian forest products totalled 31.7 billion Canadian dollars (Anonymous 1998: 1).

A. R. M. Lower has theorized that it was the early exploitation of Canada's forests that, through the provision of revenue for the construction of farms, cities, roads, railway system, and the social infrastructure, allowed Canada to become an industrialized country (Canadian Council of Resource and Environment Ministers 1979: 3). While changes have occurred in the forest industry since its initial development as a result of creation of domestic forest policy, fluctuations in the global market and the development of new technology, the statistics cited above make it possible to conclude that Canada's continued economic welfare is dependent upon its forests and the proper management of them.

Early Perceptions of Nature and the Development of Canadian Forestry

> Modern Canadians have an indistinct and distant perception of their country's forests. They are envisaged as relatively hostile environments, suitable for adventurous vacations but not for full-time residence." (Gillis and Roach 1986: 1)

Given that the forests are not part of the everyday life of the average Canadian urban-dweller, it is easy to forget how important they are to the economic well-being of the country, but the perception of forests as hostile and menacing environments is not new to the Canadian experience. This perception has existed since the first discovery of the Canadian wilderness by European explorers and for this reason, it cannot be attributed to the processes of modernization and urbanization.

Early sixteenth and seventeenth century European explorers failed to recognize the commercial value of Canada's forests but rather viewed them as an impediment to travel and settlement (Gillis and Roach 1986: 2).

Settlers in the eighteenth century, influenced by Edward Gibson's *History of the Decline and Fall of the Roman Empire* (1776) in which he expounds his theory of climatic progress, believed that cutting down the Canadian forests would improve the harsh, frigid climate (Zeller 1987: 172). According to Gibson, countries such as Germany had at one time shared the same cold climate as was found in Canada, but deforestation had rendered the climate more temperate (Zeller 1987: 172). Early politicians, convinced of the accuracy of Gibson's theory encouraged the settlers to cut-down the forests.

As early as 1721, Britain looked to its North American colonies as a source of white pine for its naval masts (Gillis and Roach 1986: 3), though it continued to depend on the Baltic countries for its other timber needs which because of Britain's proximity to the Baltics and the British market's familiarity with Baltic wood was the more logical source (Swift 1983: 33).

The timber trade in Canada actually began not as a result of economics but rather, for geopolitical and military reasons. The Napoleonic War at the beginning of the nineteenth century, which severed Britain from its Baltic wood source, served as the impetus to develop the Canadian lumber industry. Given that wood was an important war material, Britain turned to Canada and therefore logging on a large scale in New Brunswick, Quebec, and the Ottawa Valley began (Swift 1983: 33-34).

Businessmen of all kinds were attracted to the logging districts of Canada, and men such as William Price (Abitibi-Price) negotiated with the British government what was to become known as the Colonial Preference duty, a tax imposed on all timber entering Britain from sources other than Canada (Swift 1983: 34).

While Britain was the greatest market for early Canadian timber exports, by the 1840s, the United States began exceeding Britain as Canada's greatest export market (Swift 1983: 43).

Despite the boom in the lumber industry in the nineteenth century and the revenue that it contributed to the Dominion coffers, early Canadians continued to view nature in "a negative, even frightening manner" (Altmeyer 1995: 96). Immigrants of the early nineteenth century often reacted to the natural environment in one of two ways; the first was retreat, the second, encouraged by the development of science which was replacing religion as the dominant world view, was to cultivate nature (Zeller 1986: 3). From this perspective, nature was viewed as a machine and was therefore subject to universal laws (Zeller 1986: 3).

Northrop Frye argues that the historical foundation of the early settlers' fear of nature has transcended time to shape modern perceptions (Altmeyer 1995: 97). Frye's argument is as follows.

> Canada began as a group of small, outpost communities set amidst a menacing continent which could not be penetrated, but, unlike the American example, could not be pushed back. The all-pervasive insecurity inherent in such isolation compelled Canadians to retain a psychological, as well as a political and economic connection with England. Forced always to cling to the mother country for security, Nature became, for Canadians, the antithesis of all they most cherished in English society: order, security and, above all, civilization. (Altmeyer 1995: 97)

Frye further agues that "because Canadians did not make the psychological break with Europe through revolution, they could not face the harsh realities of North American Nature with the same positive attitude as the Americans" (Altmeyer 1995: 97)

Early Canadians' view of nature was also shaped by the vastness of the country and thus the early lumbermen came to believe in the inexhaustibility of the Canadian forests. This belief conditioned early logging practices and Canadian forests were ruthlessly exploited (Sandberg and Sorlin 1998: 5). Unfortunately, as early as 1866, those involved in the logging industry were becoming aware that readily accessible forests were disappearing at an alarming rate (Gillis and Roach 1986: 30). In 1871, Canadian Prime Minister, Sir John A. MacDonald wrote:

> The sight of immense masses of timber passing my window every morning suggests to mind the absolute necessity for looking into the future of this great trade. We are recklessly destroying the timber of Canada and there is scarcely a possibility of replacing it. (Gillis and Roach 1986: 30)

Early Forest Policy in Canada 1820-1920

During the infancy of the lumber trade in Canada, activities in the bush were characterized by unobstructed exploitation as lumbermen were subject to little or no government regulation. It was frequent practice for lumbermen to trespass onto government lands where they would illegally cut trees and then sell them for a profit (Swift 1983: 34). According to Swift, "the prevailing ethic was simple. Cut it down and get it out in as great a quantity and as fast as possible" (Swift 1983: 34-35).

The regulation of forest practices in Canada began in New Brunswick where in 1792, the colony government imposed a rudimentary form of legislation dictating how the St. John river was to be used by loggers (Gillis and Roach 1986: 10).

A central debate in Canadian forestry in the early nineteenth century was focussed on the ownership of forest lands. If forest land was to be publicly owned by the government, the felling rights of individual lumbermen would be determined by a system of licences and permits. It was this type of ownership that was preferred by those involved in lumbering (Gillis and Roach 1986: 17).

While the private ownership of land would have necessitated the investment of large amounts of capital on the part of the lumbermen in order to purchase property, once the land was cut-over and thus no longer of any value to the lumbermen, they would be faced with the problem of selling the land in order to maximize their profit from it. Most of the felling of trees occurred on the Canadian Shield which, because of its rocky terrain, was unsuitable for farming.

Lumbermen would thus have had great difficulty finding buyers for their tree-barren property (Gillis and Roach 1986: 17).

The public ownership of forest land was the form of ownership that was finally adopted in Canada. By 1826, the authorities, realizing the possibilities for securing revenue from the logging industry, began issuing licences granting individuals and companies the right to cut on specific timber berths (Swift 1983: 40). Traditionally, two types of licences have existed in Canada. The first grants rights to log on a specific territory, and is usually granted to large companies for an extended period of time. The second, grants the right to cut a certain volume of trees, and is generally granted to smaller companies for a shorter period (May 1998: 5). Gillis and Roach argue that because of the lack of personal investment required by lumbermen in this system, an "exploitive ethic" (Gillis and Roach 1986: 259) has been institutionalized in the Canadian forest industry. Historically, this form of land ownership has encouraged practices such as migrant-cutting where large areas of land are completely cut-over and then abandoned leaving nature to repair itself if at all possible (Gillis and Roach 1986: 259). Forest land in Canada continues to be predominantly publicly owned. In 1997, 71% of Canadian forests were provincially owned, 23% belonged to the federal government, and 6% were privately owned (Hardy 1997: 2).

While the government's primary interest in regulating forestry practices was to secure revenue, the issuing of timber berth licences was also a means by which the government could encourage settlement. The government, despite its awareness that forest land did not always constitute productive agricultural land, promoted the notion that the settler could transform cut-

over timber berths into a homestead and take up agricultural production. With this in mind, some timber licences issued by the government included time restrictions stipulating a time limitation for the removal of the timber (Swift 1983: 41). "Implicit in this policy was the recognition that the forest was a passing thing, an opportunity to make some money before farmers took over the land" (Swift 1983: 41).

While the technology used by the lumbermen during this period was limited, consisting essentially of cross-saws and axes, lumbermen were still able to inflict considerable damage on the forest ecosystem. Migrant-cutting and the practice of "high-grading" which involved cutting only the strongest, most commercially valuable trees while leaving the weaker ones behind, disturbs the forest ecosystem and erodes biodiversity (May 1998: 3). Despite the loggers' awareness of the destruction they were causing and the receding of the forests, the lumber industry continued to thrive. By the 1860s, almost 50 percent of Canada's male population worked in the lumber industry, and in 1871, the lumber industry accounted for 29 million dollars in export revenue (Gillis and Roach 1986: 1).

The British North America Act of 1867 secured Crown ownership of the forests by granting the provinces full jurisdiction over natural resources.[3] The federal government did however continue to play a leadership role with respect to forest policy, being the "only level of government capable of providing the 'big picture' of Canada's forests" (May 1998: 7).

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[3] The federal government retained control over the natural resources in Western Canada until 1930.

By the early twentieth century, the white pine that had been responsible for the initial birth of the Canadian lumber industry was all but gone. While earlier timber mills were transportable and therefore able to follow the receding forests, due to changes in technology and the large financial investments required to establish a mill and its heavy mechanized machinery, mills were no longer mobile . As cut trees had to be transported over ever increasing distances to the mills to be processed, government and industry could no longer find solace in the myth of the inexhaustible Canadian forests (Swift 1983 51-52).

As early as 1880 the conservation movement in Canada began to emerge, and the ideas and concepts of this movement dominated forest policy discussion for several decades. Early leadership in the movement was provided by businessmen and scientific foresters (Gillis and Roach 1986: 32). The basic premise of the movement was that the forest should be treated as a factory "with maximum control being exerted by efficient, scientifically trained technicians" (Swift 1983: 53). The conservation movement was brought about by the realization that if the forests were to continue producing, they would have to be treated as a renewable resource, and among its primary goals was the establishment of forestry as a profession in Canada. While the conservationist approach incorporated many of the concepts of the sustained yield model of forestry, it was essentially a "mastery of nature" approach advocating the efficient and rational exploitation of the forests to meet industry and government needs (Swift 1983: 201-202).

Although the federal government did make a couple of attempts at forest preservation and regeneration during the late 1800s, they were on the whole, ineffective.

In 1876, the federal government initiated a tree planting program on the prairies as it was believed that the absence of trees in that area of the country was a deterrent to settlers. As a result of innapropriate soil conditions, this initiative was completely ineffective and thus quickly forgotten.

In 1884, the federal government amended the *Dominion Lands Act* to create a forest reserve on the slopes of the Rocky Mountains (Gillis and Roach 1986: 46). While this amendment constituted on paper a positive first step towards the creation of a forest reserve system, it stemmed from the Prime Minister's desire to promote settlement in the West, and his awareness that the land there was suitable for farming only as long there existed adequate water supplies. The trees on the slopes of the Rocky Mountains played an important role in storing water (Gillis and Roach 1986: 46) This legislation to preserve the forests was in fact an attempt by the government to encourage development in the Western part of Canada. Furthermore, many berths had already been leased within the boundaries of the reserve. These leases were renewable annually in perpetuity and therefore the government was powerless to intervene to stop the logging. It did however make an effort to not lease any more berths inside the reserve, as well as warn the licensees of the dangers of forest fires (Gillis and Roach 1986: 46).

In the late 1880s and early 1890s, an economic depression had a profound impact on forest policy and practices in Canada. Forest operators, in an effort to cut costs, high-graded and overcut the forests. These careless practices were compounded by forest fires, and when the natural regeneration of the forests failed, soil erosion and flooding became a serious risk (Gillis

and Roach 1986: 47). Unfortunately, this situation has often repeated itself in the brief history of the Canadian lumber industry.

> When economic times were difficult, the forest industry lost interest in implementing conservation measures; concentrating instead on cutting operating costs. Down to the present, this attitude has prevailed with short-term economies winning over more risky and longer term advantages. In a way, it is as if a predominant part of the industry has never abandoned the nineteenth-century notion of the limitless forest.
> (Gillis and Roach 1986: 48)

The Laurier government that came into power in 1896 believed that "progressive" resource policies would aid the development of the West. It therefore created the first Forestry Branch in Canada as part of the Department of Interior. In 1899, it initiated a policy restricting cutting on all leased timber berths to trees of a diameter of ten inches or more. The policy further stipulated that operators were to be responsible for paying fifty percent of the cost of fire prevention (Gillis and Roach 1986: 51-52).

In outlining the desired themes to be incorporated into a national forest policy, the Laurier government stressed the importance of evaluating land prior to settlement, of reserving all non-agricultural lands, of promoting the management of these lands by qualified professionals, of improving fire-fighting practices, and of securing the cooperation of the railways in controlling forest fires (Gillis and Roach 1986: 61).

In 1906, the government introduced the *Forest Reserve Act*. This Act was highly contested by the forest operators as it imposed strict regulations that limited their access to the forests. This Act came at an unfortunate time for the lumber industry in Western Canada which

was enjoying a boom period resulting from an earthquake and fire that had destroyed the city of San Francisco. The great demand for timber to rebuild the city was forcing the mills in Western Canada to operate 24 hours a day (Gillis and Roach 1986: 62).

Ultimately the *Forest Reserve Act* accomplished little. Although the federal government had the legal authority to impose its regulations on Crown lands that were already leased, it was reluctant to do so in the fear of upsetting the lumber industry. In essence, it became a moral issue for the government whether it was justifiable to take away the pre-established rights of the licensees. The government resolved this dilemma by means of a compromise with the lumber industry. Once a berth was cut-over, it was to be returned to the Crown at which time forest regulations would be imposed. Unfortunately, at that point, the berth would be treeless and therefore, the compromise did not exactly constitute a victory for forest conservation (Gillis and Roach 1986: 62).

In 1909, the federal government created Canada's Commission of Conservation, a government forum in which commission members and experts studied various issues affecting Canada (Gillis and Roach 1986: 51-52). Among the topics studied was forestry.

At the first annual meeting of the Commission of Conservation in 1910, members isolated the problems associated with the existing method of lumbering. Among them was the destruction of young growth stands and the leaving of debris in the forests. Commission members stressed that the greatest risk to the nation's forest resources was fire, often caused by railway

locomotives, though they failed to point the finger at the lumber industry for any negligence in their practices (Canada 1910: 19).

At the meeting, the unintended consequences and risks associated with deforestation were discussed. It was mentioned that flooding and water contamination as a result of deforestation had already become a problem, and in reference to deforestation in Canada, one commission member said:

> This is not a problem of the far distant future; it is a problem of the present. We have already reached the beginning of the results of deforestation promiscuously carried on. Within a few years we have seen on the St. Lawrence, Niagara, and Ottawa, extremes of high and low water of which we should take notice. (Canada 1910: 20)

Commission member and Dean of Forestry at the University of Toronto, Dr. Fernow lamented the underdeveloped state of scientific forest management in Canada and stated that what was needed was not only better knowledge of the forest, but also a change of attitude on the part of the Canadian public such that the forest would no longer be perceived as a mine to be exploited but rather as a crop capable of regeneration (Canada 1910: 32).

According to Fernow:

> The one difference between forester and lumberman-and the only one- is the obligation on the part of the former to provide for the future, to leave a forest crop in place of the harvested one. (Canada 1910: 32)

For Dr. Fernow, the sole purpose behind the scientific management of the forest was not the protection of the natural environment, but rather the "production of larger and more valuable forest products per acre in a shorter time" (Canada 1910: 29). He argued that Canada could

learn from the history of forestry in Europe, especially Sweden, as it was the country that most resembled Canada in terms of "physical character, forest conditions and methods of forest administration" (Canada 1910: 37).

While Sweden in the past had policies similar to those existing in Canada that allowed the reckless exploitation of the forests, an in-depth analysis of the Swedish forest conditions led to a change in Swedish forest policy and ultimately forest practice. For Dr. Fernow, a greater knowledge of the Canadian forests was also the key to a successful policy based on the principles of sustained yield (Canada 1910: 40).

> Our knowledge as regards our forest resources is at present, to a great extent, guesswork. While it would be too expensive to make actual forest surveys of the whole country, yet a more authoritative collation of known facts presented in such a way to present the needs of future methods of treatment, is possible and desirable. (Canada 1910: 10).

Despite an awareness of the emerging risks and a recognition of the need for scientific forest management in Canada, between 1910 and 1911, little with respect to forest protection and regeneration was accomplished. In fact, it can be argued that as a result of amendments to the *Forest Reserves and National Parks Act* (formerly known as the *Forest Reserves Act*), a step backwards had been taken. The amendments made to the Act protected the rights of leaseholders, and limitations were imposed on the government's right to expropriate lands on forest reserves. The rational behind these limitations was that it was too expensive for the government to compensate the leaseholders (Gillis and Roach 1986: 65-66).

As stated, pre-existing leases were scattered throughout the forest reserves, leaving only the most unproductive areas under the control of the federal forestry branch. An unfortunate consequence of this was that because the federal forestry branch didn't control any productive land, it was unable to demonstrate the benefits of scientific forestry (Gillis and Roach 1986: 69).

Once again at the annual meeting of the Commission of Conservation in 1911, Dr. Fernow spoke of Sweden as a model for Canada to emulate. He was especially impressed by Swedish Forest Conservation Law and argued that Canada should adopt a system of forest administration similar to the Swedish Forest Conservation Boards[4]

Commission members also discussed the possibility of changing the timber berth leasing system to grant tenure to the licensee for the duration of the period during which there was valuable timber growing on their berth. This would perhaps have the effect of slowing down the rate at which timber was being cut (Canada 1911: 93).

In 1912, an important amendment was made to the Railway Act which penalized federally chartered railways lines for fires set by their locomotives. Given that 34 percent of all forest fires at the time were caused by locomotives, imposing some type of accountability was a first step towards the protection of the forests (Canada 1912: 21). The amendment further stipulated that the railway lines must keep fire suppression equipment on board their trains at all times (Gillis and Roach 1986: 189).

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[4] To be discussed in greater detail in Chapter 4.

In 1913, it was brought to the Commissions's attention that in New Brunswick, some logging companies had taken it upon themselves to introduce forest regeneration into their logging practices. Unfortunately, because these efforts were largely uncoordinated, their efforts were ineffectual (Canada 1913: 29).

Commission members argued that it was because of a misunderstanding of the word "forestry" among the Canadian public that scientific forest management was not developed in Canada. It was believed that the average Canadian thought that forestry was essentially the "romantic protection of trees, " and that it involved spending a substantial amount of government funds or the "absurd regulation requiring the planting of a tree to replace every one cut" (Canada 1913: 130). Commission members stated that to change the public attitude, the government must appeal to the business men among the Canadian population and present forestry as a worthwhile investment that would ensure a continuous supply of resources and increased profit (Canada 1913: 130). Thus the utilitarian ideas of the conservationists continued to dominate forestry discussions, while all other aspects of the forest with the exception of the economic, were ignored.

This form of conservationism continued to dominate the government's approach to forestry in 1915 when one commission member, in reference to forest fires stated:

> We have a choice to make. Shall we let these valuable industries perish for want of raw material, or shall we perpetuate them by protection of our present mature timber from fire, by protection of the young forests on our non-agricultural lands, and by the logging of our forests in such a manner as to encourage the reproduction of valuable forests? (Canada 1915: 131)

In 1915 the forest industry accounted for 12 percent of Canada's foreign trade and 16 percent of railway traffic (Canada 1915: 131). The need for a coordinated national forest policy was great. Commission members concluded that among the essential elements of a national forest policy was the expansion of the forest reserve policy, the need to teach the value of the forest to the general public from a business point of view, and the need to ensure permanent tenure for forest officers so that they become more dedicated to their jobs (Canada 1915: 192). What is somewhat odd about the last element is that in 1915, men were appointed to the forestry service by means of patronage appointments and thus often had very few qualifications for their jobs. As on one commission member put it, " sometimes by accident a good man is secured, but it is only once in a while" (Canada 1915: 194).

Scientific forestry in Canada in this period was underdeveloped. Proof of this includes the failure to complete forest inventories and to implement sustained yield policies. This underdevelopment is not only the result of a lack of technically trained men (which only worsened with the onset of the first World War) but was also the result of a failure on the part of the federal government to make an economic investment in the future of the forest resources. Forest policy in Canada at the beginning of the twentieth century was characterized therefore by a disparity between political disourse and practice.

In 1919, the final year of the Commission of Conservation, the patronage system with respects to the Canadian forestry branch was finally abolished and replaced by the merit system (Canada 1919: 146).

Forestry in Canada from 1920-1970

In the 1920s, logging continued to be perceived by both the government and industry as being more important than forestry. The economic boom of the 1920s along with increased competition in the timber trade from the United States, served only to reinforce the exploitive ethic of the Canadian timber industry, and keeping mills running at a profit became the industry's primary concern (Gillis and Roach 1986: 215).

In the 1920s, the Canadian Forestry Branch outlined four objectives that were to form the foundation of a national forest policy. These included the improvement of the forest reserves in Western Canada, the development of national research programs, the completion of a national forest inventory, and the education of the public on the importance of forest policy (Gillis and Roach 1986: 198). These objectives were followed by an announcement on the part of the King government of a new forest policy in which natural regeneration was to become the preferred method of regeneration after cutting. What distinguished this policy from its predecessors was that it applied to all Crown lands including those that were already leased. Unfortunately, shortly after the policy was announced, the King government was forced to step down and the therefore the policy was never implemented (Gillis and Roach 1986: 209).

In the period of 1900 to 1930, the state of Canada's forests was a major political issue at the federal level, but as Gillis and Roach argue, due to a series of ineffective policies, forestry was

one area in which the government's "lack of political will" was clearly visible. Gillis and Roach describe the ineffective forest policies of the period in the following manner:

> Such policies were completely in the tradition of Canadian Compromise. On the one hand, the government could appear to be taking action on serious national problems while, on the other, it could allow the exploitation of valuable Dominion forest lands to go on relatively unfettered and avoid offending influential political interests in the West. Because the federal government failed to apply forestry to the producing woodlands under its control, it also failed to present the provinces with durable examples of leadership which they might have copied. This failure of statesmanship had a tremendous negative impact on the development of forest conservation in the provinces. At best, it promoted diverse and partial solutions to the problem and, at worst, it gave a mode for avoiding, in a politically satisfactory manner, effective policies. (Gillis and Roach 1986: 78)

Several events occurred in the early 1930s that were to have a lasting impact on forest management and forest policy in Canada. The first was the transfer of resource jurisdiction from the federal government to the Western provinces. While this increased the federal government's popularity in the West, it was a setback as far as forestry was concerned as it hindered the cooperation between the federal and provincial governments (Gillis and Roach 1986: 212). The resource transfer also forced the federal forestry branch to redefine its role. Among the new functions that it envisioned for itself was an increased interest in silviculture and forest product research, the establishment of forest research stations, the completion of a national forest inventory, insect and disease prevention, the implementation of scientific ideas, and weather forecasting (Gillis and Roach 1986: 223-224).

Once again, proposed government action never came to fruition. The Depression of the 1930s pushed forestry onto the backburner of government concerns. Though the national forest

inventory had been started, it was never completed as a result of government cutbacks. In an effort to economize and pull the nation out of the Depression, the federal government began laying off federal forestry staff. By 1932, the federal forestry branch was operating at only 30 percent of its 1924 level. Its functions were limited to the role of caretaker of the forests (Gillis and Roach 1986: 227). The provinces followed the federal government's lead and made similar cutbacks to the forestry staff (Gillis and Roach 1986: 229). In 1943, governments at all levels were only spending 2.5 cents on every dollar received from the forest industry on forest protection (Swift 1983: 79).

As the Canadian economy got back on track, war was announced in Europe and thus the attention of the federal government and the forest industry turned to the production of timber for the war effort (Gillis and Roach 1986: 237).

> ...the cost-cutting of the Depression decade and now the war effort had, by several provinces own admission pushed forest protection , let alone forest regeneration plans, back to pre-1920 standards (Gillis and Roach 1986: 241).

In 1945, the federal government declared:

> It has been learned through experience that the forests, far from being inexhaustible, are being seriously depleted. There is growing realization of the fact that if our forest industries are to exist and expand, the forest must be handled as a crop and not as a mine, in other words, must be managed on a sustained yield basis.
> (Gillis and Roach 1986: 246)

In this way, the federal government ushered in the era of sustained yield in Canada, and it defined its role as being the promoter of the better usage of the forests and the expansion of trade. Although forest protection continued to depend largely on the provinces and to a lesser extent the

forest industry, as a result of their recognition of the over-cutting that had occurred during the war, they were much more cooperative and willing to work with the federal government (Gillis and Roach 1986: 246).

In 1949, the federal government passed the *Act Respecting Forest Conservation*, more commonly known as the *Canada Forest Act*. This Act was responsible for the creation of forest experimental laboratories, as well as giving the federal government the ability to assist the provinces and private forest owners with the protection and development of their forest land (Gillis and Roach 1986: 248). After the passing of the Act, the provinces began sending proposals to the federal government requesting financial assistance for forest protection initiatives as well as the implementation of silvicultural practices (Gillis and Roach 1986: 251).

In the post-war period, many new tracts of land were made available for exploitation and leased on long-term leases to forest operators. This was done because many of the older tracts needed respite from over-cutting. Though often effective, regeneration programs were not implemented as government and industry continued to have a naive faith in natural regeneration (Gillis and Roach 1986: 253).

In the 1950s, new tree felling technology revolutionized the forest industry. Mechanization in the forest industry had been slow, and horses were used to pull logs until the 1950s. Mechanized machinery was often perceived by the forest industry in much the same way as silviculture, very expensive with no short-term pay off. When the chainsaw, which was

developed abroad, was brought to Canada, it improved the efficiency of the forest operators without adding a huge cost (Swift 1983: 126-128).

Heavy equipment and tractors destroyed young trees and traumatized the soil making natural regeneration extremely difficult. A lack of silviculture research, of trained foresters, the unwillingness of all levels of government to invest in artificial methods of regeneration, and continued over-cutting by industry all served to compound the worsening situation in the Canadian forests (Gillis and Roach 1986: 253).

The myth of the inexhaustible Canadian forests persisted into the 1960s, and it was believed that the Canadian forests just needed better management. Unfortunately, the practice of opening new tracts of land served only to reinforce the practice of migrant cutting and the exploitive ethic in forestry practices, and relieved the forest industry of any type of accountability for forest regeneration (Gillis and Roach 1986: 253).

By the 1960s, forestry had become an important national program. "Their [the government] aim was to perpetuate supplies of wood which was underwriting industrial expansion and social stability in the forested areas of the country" (Gillis and Roach 1986: 252). Strangely enough, by the 1980s, the *Globe and Mail* and the Science Council of Canada were reporting that forest management in Canada was in a state of crisis. When questioned on the issue, the federal and provincial governments were forced to agree (Gillis and Roach 1986: 252).

In 1968, all federal-provincial cooperative efforts with regards to forestry were ceased and though federal funds continued to be spent on forestry, (more than 200 million dollars by the end

of the Trudeau era) less than 50 percent went to forest regeneration efforts because most of the money was being spent on industry incentives (Gillis and Roach 1986: 256-257).

The Modern Era: 1970-present

It is quite possible that the forest industry is still Canada's most important industry but even in the modern era, the management of the Canadian forests continues to be appalling. In the 1970s, both the federal and provincial governments were reinvesting only 5 cents for every dollar received from the forest industry back into forestry, and often more is spent on forest administration than silviculture (Swift 1983: 23).

The Canadian forest industry is dominated by large companies, most of them foreign-owned. Little research has been done and thus sustained yield policies have failed. Furthermore, the Canadian economy continues to rely on the production of standard wood products having failed at developing and diversifying the economy in new directions (Marchak 1995: 62). When trees become scarce, the industry moves north and opens new tracts of land. "In this way business and governments together have treated the forest as a gift of nature, a source of debts unpaid" (Swift 1983: 11). From 1975 to 1992, there was an increase in the harvested area from 680 000 hectares in 1975 to over 1 000 000 hectares in 1987, and then a decrease to mid-1980s level by 1992 (Canada 1996: 3).

In 1976, a Royal Commission advocated that timber licensees have greater security of tenure. In 1978, an amendment was made to the Forestry Act to guarantee security of tenure, and though it was reiterated that sustained yield was the primary goal of the governments, sustained

yield was defined in economic and political terms, not in terms of forest regeneration (Marchak 1995: 88).

Further evidence of the poor management of the Canadian forests can be found in a 1978 forest inventory which grossly overestimated the amount of available wood. The inventory was so poorly completed that one Swedish forester made the following comment.

> The plain fact is that the owner does not even know what the forests contain, or can produce...Canada has one of the lowest levels of forest inventory in the developed world. (Swift 1983: 103)

The forest industry is not committed to long-term regeneration, but rather to short-term profits. It is a joke in the Canadian forest industry that the "annual allowable cut," which is the volume of wood that can be cut in a year to allow the forest to continue producing in perpetuity, is often determined by dividing the volume of wood growing on a berth by the number of years that the berth manager has until retirement (Swift 1983: 120).

Though some new methods of harvesting have been introduced into Canadian forestry, some which even protect other life forms, from the period of 1975-1992, clear-cutting was the most widely used method of harvesting (Canadian Council of Forest Ministers 1996: 3).

The government makes several arguments to justify its condonation of the forest industry's use of clear-cutting. The first is that clear-cutting is the only economical way to log (May 1998: 23). Though clear-cutting may be more economical than other harvesting methods, the long-term effects may be devastating. The stress that clear-cutting imposes on a forest is enormous, and though the trees may eventually replace themselves, a forest as biologically diverse

as the original one is an impossibility (May 1998: 20). Risks associated with clear-cutting include not only the destruction of advanced growth and soil compaction but also, new technology introduced in the 1980s results in the leaving behind of less organic material in the forest thus further impeding the regeneration process (May 1998: 23). Technology has also produced machinery that is capable of enduring the harsh Canadian winters and therefore harvesting can take place 24 hours a day, four seasons a year (May 1998: 28). Furthermore, clear-cutting results in the regrowth of even-aged stands of trees which are not only ecologically undesirable, but also considerably more vulnerable to insects and disease (May 1998: 20).

Despite these facts, the government continues to support the use of clear-cutting and even defines it as though it was a method of forest regeneration. The Canadian Council of Forestry Ministers, an intergovernmental council made-up of forestry ministers of all levels, defined clear-cutting in the following manner.

> Clearcut: A method of regenerating an even-aged forest stand, in which new seedlings become established in fully exposed micro environments after removal of most or all existing trees. (May 1998: 20)

Public outrage over the ugliness of clear-cut sites had led the forest industry to clear-cut away from highways and out of the public's view (May 1998: 23).

Government and the forest industry also argue that clear-cutting is necessary in order to maintain employment. In reality, at the present time, as a result of changes in technology, a greater number of trees are being cut by fewer employees. For example, in Newfoundland in 1925, 8000 employees were required to harvest 725 000 cubic metres of wood. In 1995, 1500

employees were required to harvest 3 million cubic metres of wood (May 1998: 28). Nevertheless, the forest industry continues to present its position as a offering a choice between employment or the environment (Swift 1983: 209).

In the 1980s, the federal government renewed its cooperation with the provinces with respect to forestry (Gillis and Roach 1986: 258). Planting programs were initiated which by 1992, had "eliminated the backlog of *understocked* sites" (Canada 1996: 3). In the mid 80s, legislation was passed in most jurisdictions requiring that logging companies regenerate the berths that they had logged (Canada 1996: 9). By 1992, the areas of forests that were being treated by silviculture techniques were 123 percent greater than in 1980 (Canada 1996: 9).

Despite these efforts, BC's Chief forester has stated that while silviculture can increase the quality of timber, it rarely increases the quantity (May 1998: 8). May argues that:

> There is no track record of ecologically healthy second growth - and third - growth forests regenerating after heavily mechanized clear cutting. Canada is conducting a vast, reckless experiment. (May 1998: 8)

In 1991, Canada experienced international humiliation when British Colombia was dubbed the "Brazil of the North" because of its environmentally destructive forestry practices. The consumer boycotts of Canadian forest products that followed forced the Canadian government to re-evaluate its forest protection efforts (Clancy 1998: 109). The result was the creation of the *National Forest Strategy* introduced in 1992 and summarised in a document entitled "*Sustainable Forests: A Canadian Commitment*" (Beyers and Sandberg 1998: 105). While this document promotes the notion of the stewardship of the forests and the management of the ecosystems with

the protection of biodiversity as a primary goal, the text is "permeated with utilitarian ideology" (Beyers and Sandberg 1998: 105), contains several references to the competitive nature of the forest industry, and manifests an ambivalent attitude towards clear cutting stating that while it is a controversial practice, it is also very economical and efficient (Canada 1992: 16). These factors thus suggest the continued subordination of environmental to economic goals with respects to forestry practices in Canada.

A second outcome was the creation of the Model Forest Program (MFP) which established forests across Canada as living laboratories for development and research. Beyers and Sandberg however have criticized the guidelines of the program as having "supported rather than challenged the timber-driven, rational and technocratic production paradigm" (Beyers and Sandberg 1998: 104).

A further outcome has been the certification of forest products which is meant to alert the consumer of wood that has been produced using sustainable means. Unfortunately, the certification procedures, developed in Canada by the Canadian Standards Association, examines only the management system adopted by the logging company, not the actual product. Thus certification is based on whether the company is doing what it set out to do, not on whether its methods are environmentally sustainable (May 1998: 59-60). Therefore, the attitude of the government and industry continues to be "forestry in Canada is sustainable until it's gone" (May 1998: 38).

The Canadian Council of Forest Ministers provides a forum for forestry discussions and was responsible for producing the *Forest Accord* (1992) in which the stated goal is to:

> maintain and enhance the long-term health of our forest ecosystems for the benefit of all living things both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit and future generations. (Companion to Canada 1992)

This council was also responsible for the publication of a document entitled *Criteria and Indicators for Sustainable Forest Management*. Although these documents appear to show concern for Canada's forests, May argues that

> Canada's interminable political instability means that the provinces cannot be criticized, only capitulated to. Political contributions and traditional influence guarantee that the forest industry is immune to criticism despite its "cut and run" approach to Canada's forests (May 1998: 7)

In a 1995-96 federal document entitled *The State of Canada's Forests*, it was written that more than 12 percent (50 million hectares) of Canada's forests are presently protected from felling by some type of policy or legislation. This figure corresponds to a goal established by the World Wildlife Fund in the 1987 report of the World Commission on the Environment and Development.

In reality, only about four percent of Canada's forests are protected in parks. The 12 percent figure was a deliberate attempt on the part of the government to mislead the public, and was obtained by adding together buffer zones along waterways and highways, deer yards, steep hillsides and other areas where the trees are completely inaccessible (May 1998: 21-22).

While the federal government's role in forestry had expanded throughout the 1980s as a result of funding planting and other silvicultural programs, in the mid 1990s it once again became more limited, and as May states, "it now acts primarily as a propaganda arm of Canada's forest industry, helping to protect Canada's trade in forest products from nasty rumours of environmental malfeasance" (May 1998: 7).

Public opinion surveys show that the Canadian public presently believes that the forest industry is the greatest threat to the forests, whereas 40 years ago, it was commonly believed to be insects and forest fires (May 1998: 11). The Canadian forest industry has responded to this negative public image by employing Burston-Marsteller, the world's most successful public-relations firm, which had previously been employed by Tylenol following the poisoned caplets incident and Union Carbide after the nuclear explosion in Bhopal (May 1998: 12). The Canadian government has also worked closely with the forest industry to promote Canadian wood products abroad. During the 1990s, this propaganda effort has cost over 68 million dollars (May 1998: 12).

Multiple-use forest management has yet to become instituted in Canadian forestry practices. Thompson argues that multiple-use management has been:

> impeded by the self-interest and short-term profit motivation of forest companies, the lack of political will to force companies to consider other forest values; the failure of university forestry programmes to teach multiple use, the divided responsibility for forest resources among government departments in some provinces, scarce funding for research on forest wildlife species, failure by wildlife managers to provide tangible goals for habitat management, and a lack of recognition of principles of theoretical ecology and genetics in forest wildlife planning. Some of these situations have been corrected, some will never be changed and others are evolving slowly. (Thompson 1995: 215)

What is required is not only a greater investment of financial resources in forestry, but also a change of attitude and values.

CHAPTER IV

THE SOCIAL CONSTRUCTION OF SWEDISH FOREST POLICY

Sweden, as the first country to establish an Environmental Protection Agency (1967), to develop extensive environmental policy, and as a particularly active country in the encouragement of research in the field of environmental science and technology, is viewed by the international community as being highly committed to environmental protection (Eyerman et al.1990: X). This reputation has been further enhanced by Sweden's hosting of the UN conference on the environment in 1972, the active presence of the Green Party in the Swedish Parliament[5], and Sweden's strong commitment to international environmental co-operation (Erickson 1997: 75).

Traditionally, Sweden has been a resource extractor for Europe much in the same way that Canada has been for the United States and Great Britain (Marchak 1995: 50). Much like Canada, it was the forest industry in Sweden that served as the impetus for industrialization and provided the economic resources that assisted Sweden in developing into the modern welfare state that it is today.

Approximately 57 percent of Sweden's total land area is made up of productive forest land (UN Economic Commission for Europe 1996: 43) and among European countries, the importance of the forest industry to Sweden's national economy is second only to Finland (Kuusela 1994: 49).

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[5] The Swedish Green Party is the second largest environmental party in Europe behind Germany's Green Party.

While the greatest period of employment in the history of the Swedish forestry sector was between 1930 and 1940, as a result of more efficient technology, the industry is producing more today than ever before (Marchak 1995: 40). Today the Swedish forest industry employs approximately 73 thousand on a population of about 8.9 million, with the net export value of Swedish forest products in 1994 equalling almost 13 billion USD (SkogsSverige 1997: 1).

Pre-industrial Uses of the Swedish Forests

Östland divides the human impact on the Swedish forests into three phases. In the first phase, forest use was limited to agricultural practices. The second phase is characterised by diverse forest-use with both agricultural and pre-industrial activities taking place. The final phase is the industrial phase which has arisen within the last two centuries. It is during this period that the forest has been "transformed from a forest shaped mainly by natural processes towards a forest strongly influenced by human activities (Östland 1998: 60).

Prior to the fifteenth century, only the agricultural industry made use of the Swedish forests. In the fifteenth century, the Swedish iron industry developed and, out of a need for large quantities of firewood, it began to transform the Swedish forests. Sweden became one of the most important iron producers and exporters in the world (Streyffert 1938: 5), and because of the importance of the iron industry to the national economy, the Swedish government facilitated the iron workers' access to wood by allowing them to cut on state-owned forest land. As the state-owned reserves became depleted, the government forced farmers to supply the iron industry with

wood from their private forests (Streyffert 1938: 13). During this period, forest exploitation was rampant and little concern was shown for forest regeneration.

In the sixteenth century, Sweden was a principal power in Europe controlling Finland and a large part of the Baltic states, as well as important coastal areas of Germany and Russia (Laxer 1989: 81). During this time the iron industry continued to grow, and the forests were put to the additional use of supplying timber for the masts of the King's ships (Östland 1998: 60).

Sweden lost most of its empire between 1719 and 1721, and from 1718-1772 came the "Age of Freedom" in Sweden, a period characterized by increased peace, an increase in life expectancy and corresponding decrease in mortality rates, and a heightened interest in science and technology and the study of social problems (Laxer 1989: 84). The Swedish government encouraged and subsidized scientific research, and studies in astronomy, medicine and biology flourished. Sweden became the European leader in metallurgy with Swedish scientists developing a "practical and theoretical orientation" (Laxer 1989: 84), and rational approach to the study of the natural environment (Daun 1996: 136).

This rational approach was apparent in the domain of forestry as well. In the seventeenth and eighteenth centuries, Sweden adopted the German tradition of political arithmetic in an effort to quantify the existing forest resources available for use. According to this tradition, nature was to be viewed as a "well-endowed and a divinely privileged repository of people (labour power), plants and animals" (Sanberg and Sörlin 1998: 3). It was only logical then that political

arithmetic was to offer to the Swedish people "a key to calculating Sweden's potential and devising a new strategy for growth and prosperity" (Johannisson 1990: 353).

By the mid eighteenth century the Swedish Royal Academy of Science was already aware of the rapidly depleting forest resources (Öckerman 1998: 73), and in 1760 a commission of German forest experts was brought to Sweden to assess the state of the Swedish forests (Canada 1910: 38). Throughout the eighteenth and nineteenth centuries an increasing number of detailed and restrictive forest laws, which had as their goal the protection of the Swedish forests, were imposed. Unfortunately, as a result of a lack of the necessary means to enforce the laws, they were often ineffective (United Nations Economic Commission for Europe 1996: 49).

One such law stipulated that iron workers cutting on leased forest lands must restrict their cutting to trees with a diameter of 12 inches or greater at 18 to 20 feet above ground. What this law did not prevent however was the further leasing of these lands by the iron workers, who in reality had no legal claim to the land except their lease, to others who could then cut the smaller trees (Canada 1910: 38). In addition, iron workers cutting on state-owned lands often continued cutting on these lands even once the iron works had been abandoned in order to sell the timber for personal profit. In some cases these iron workers even sold state-owned forest lands as though they were their own (Canada 1910: 38).

In the nineteenth century the forest management paradigm of sustained yield came to Sweden from Germany (Sanberg and Sörlin 1998: 3). Out of dire need, the sustained yield

paradigm was first implemented in the iron mining districts of Sweden from which it then spread to the other forest districts (Streyffert 1938: 5).

Early Forest Policy in Sweden 1820-1899

At the beginning of the nineteenth century, the timber industry in Sweden was still largely underdeveloped, but important changes were occurring with regards to the form of forest land ownership that were to have a lasting impact on the Swedish forests.

From 1810 to 1830 the Swedish government gave away or sold its forests in the central and southern districts of the country to private citizens (Sundbärg 1904: 621). At the time farmers, often unaware of the economic value of their forests, granted logging companies the right to cut on their property or sold their forests outright. While it is easy to imagine that this type of forest ownership could only lead to the devastation and degradation of the forests, as one author writes, "Company owners, now in control of the forests which were to be used over a long period for the companies' own need, gradually adopted a positive attitude towards silviculture" (United Nations Economic Commission for Europe 1996: 45). Today 50 percent of all Swedish forests are owned by private citizens, 37 percent by companies, 8 percent by communities, and the remaining 5 percent by the state (SkogsSverige 1997: 1).

Another form of land ownership that developed, known as the forest commons, was modelled after a medieval pattern of ownership. As the process of industrialization began having an ever greater impact on the Swedish forests, the Swedish government, fearing that logging and timber companies would eventually purchase the rights to all forests, imposed legislation

stipulating that 1/3 of the forest lands that had previously been allotted to farmers be made into a forest commons. In 1861, the first forest commons was created (Carlsson 1998: 81).

Today there exists a total of 33 commons covering approximately 730 000 hectares of land (Carlsson 1998: 81). These forest commons are owned by a total of 25 000 shareholders with 68 percent belonging to private citizens, 18 percent to companies, and 14 percent to the church or state (Carlsson 1998: 81).

Each forest commons is run like a forest company and is headed by a board of directors elected by the shareholders that is responsible for the management and financial administration of the commons including tasks such as the marketing and sale of forest products. Each forest commons is also required by law to employ at least one professional forester (Carlsson 1998: 81).

The boards are made up of people of differing backgrounds with differing interests. While some shareholders may be interested in the forests for their recreational value, others may be solely interested in their economic value. As a result, extensive debates often occur before any decision is taken about how the forest will be used (Carlsson 1998: 81). The boards are also required to negotiate with the Sami people or other special interest groups when their harvesting or road construction plans threaten to interfere with their lifestyles. To date this method of co-management and conflict avoidance has been highly effective (Carlsson 1998: 84).

The owners of the forest commons also contribute to the local community in which the commons is located through the construction and care of roads, the maintaining of hunting and fishing areas, and the provision of subsidies to villages and farmers (Carlsson 1998: 82).

While all Swedish forests are subject to government forest policy, Carlsson argues that because the shareholders of the forest commons are personally accountable for the care of their forests, the commons have been able to survive without serious threat to its resources for over a hundred years.

As it was stated, the sustained yield paradigm was introduced in Sweden in the nineteenth century. It was already in mode in 1822 when Israel Ström, the "father" of Swedish forestry wrote *A Proposal for an Improved Forest Economics*, a text that was to be used for several decades to follow to educate Swedish foresters (Öckerman 1998: 73). In this text Ström argued that clear cutting should be used in order to clear the way for the growth of even-aged stands of trees that could be felled on the basis of sustained yield (Öckerman 1998: 73).

In 1859, the Swedish Forest Service (Domänverket) was officially founded, although in essence it had already been in existence for some time as a division of the Venery Service. The Venery Service dates back to the sixteenth century and was originally charged with the responsibility of regulating shooting and hunting. In the mid seventeenth century, it also acquired responsibility for looking after the forests (Sundbärg 1904: 626).

Almost concurrent with the establishment of the Swedish Forest Service was the rapid growth of the Swedish lumber industry. Several factors were responsible for this growth. Of

primary importance was the industrial revolution and the increasing demand for timber for construction. A second factor was the removal of an import duty on forest products going to France in 1865, and the removal in 1866 of the Colonial Preference tariffs imposed on all wood products entering Great Britain from sources other than Canada (Streyffert 1938: 16). A third factor was the technological advancements made in the area of saw milling technology. Until the 1850s, saw milling technology in Sweden was limited in capabilities and rather inefficient. With the advent of the steam engine, sawmills could now be constructed on the banks of rivers therefore allowing the water to be used for easier transportation (UN Economic Commission for Europe 1996: 45-46). Lastly, the Swedish forest industry had until the mid 1800s stood in the shadows of the Norwegian forest industry which was advantaged in both its geographic location with respect to large Western markets, and in its possession of superior technology. By the mid 1800s, the Norwegian forests were depleted thus forcing it to cede a large share of its market to Sweden (Heckscher 1968: 225).

As a result of these factors, Sweden was ushered into the "Golden Age" of its forest industry (Streyffert 1938: 16). Natural resources were seen by the Swedish people as being the key to their welfare, and the means through which Sweden would once again be able to restore itself to a great power in the newly industrialized Europe (Sörlin 1988: 335). As Swedish geographer and botanist Gunnar Andersson some years later wrote:

> Since natural resources were so essential for production...the country that possessed its own resources was more or less predestined to success. (Sörlin 1988: 335)

Along with the process of industrialization in Sweden emerged a deep respect and sensitivity towards nature. Sanberg and Sörlin argue that " it was the growth of the industrial economy and of an urban middle class with nationalist and aesthetic values that formed the sociological basis of the esteem for wilderness" (Sanberg and Sörlin 1998: 3). The Swedish attitude towards nature was one of nationalist pride, as the rich natural environment was perceived as a national asset which unfortunately at times had to be compromised in the economic interest of the country (Sandberg and Sörlin 1998: 3).

Amidst the rapid expansion, a reaction against the still under-regulated forest practices was growing and therefore more stringent forest policy began to evolve. By 1866 all trees intended to be cut for sale had to be marked by a forest worker prior to felling (Sundbärg 1904: 629-630). Furthermore, in recognition of the devastating effects that the boom in the forest industry was having on the Swedish forest stock, industry began looking in new directions. Not only was the forest industry already predicting that the next important development in forest technology would involve more efficient ways to use waste, it was also as early as the 1860s that the industry began to move towards the production of finished products. Among these finished products was the safety match. While it was first invented in 1846, Swedes automated the process of its production and by 1913, Sweden supplied Britain with 1/4 of its matches (Laxer 1989: 89).

While forest resources provided Sweden with the revenue and other social conditions necessary for it to enter the industrial age, Sweden was able to escape the staple trap through

concentrating on developments in science and technology. As early as 1870, Sweden was already involved in the development of new technology in the forest sector which soon expanded into other areas (Laxer 1986: 208). This process continued into the twentieth century, allowing the Swedish economy to become more diversified. As a result, the Swedish economy has become less dependent on its natural resources. In 1983, 80% of Sweden's exports consisted of manufactured goods, 60% of which were engineering goods (Laxer 1986: 205).

Despite the early attempts to move away from overdependence on its forests, at the turn of the century the extensive cutting that had occurred in the Swedish forests was becoming too alarming to ignore. As previously stated, the early Swedish forester Israel Ström advocated the use of clear cutting in order to secure the regeneration of even-aged stands. At the turn of the century a Swedish journalist for the Swedish Forest Service, in describing clear-cut sites, wrote:

> *...seen with the eye of a tourist, it may look dreadful. Black burned and littered clearfelled hills, clearcuts as sad open wounds in nature. Is this the so famous deep forest? No, this is modern conservation. A sign that the forests of these surroundings are at last being restored after exploitation.* (Öckerman 1998: 74)

The final years of the nineteenth century brought with them a marked change in professional foresters' attitude towards the forest. In 1897, the renowned Swedish forester Uno Wallmo argued:

> We shall seek to diminish clear cutting to a minimum and introduce selection systems...that incorporate every means possible to promote the individual tree's comfort as well as the security of the stand's regeneration. (Öckerman 1998: 74)

In the late 1800s, support for political intervention into forest regulation was also growing (Ekelund and Dahlin 1997: 7). The modern period of forest policy in Sweden began in earnest around 1900 and lasted until 1970.

Modern Forest Policy in Sweden 1900-1970

At the turn of the last century, the necessity of forest renewal dominated debates concerning the Swedish forests. In 1903, Sweden's first Forestry Act was introduced. Among the laws outlined by this Act was one which went into effect in 1905 and formed the foundation of all Swedish forest policy that was to follow. This law stipulated that forest owners were obligated to ensure the regeneration of the forest after clear felling (Marchak 1995: 51). In the early years of the twentieth century tree planting became a folk movement as well as providing jobs for the unemployed (Richards 1987: 66). Between 1905 and 1935, a total of approximately 2 350 000 acres were planted (Streyffert 1938: 46). The consequence of this law is that today the Swedish forests are now twice the size that they were in 1900 though they are still smaller than they were in the pre-statistics era (Marchak 1995: 51). An unfortunate outcome of this process is the considerable loss of biodiversity and increased homogeneity of the Swedish forests as a result of the replanting of uniform species of trees. Despite this, "even critics agree that reforestation has been more seriously undertaken in Sweden and the other Scandinavian countries than in Canada" (Marchak 1995: 51).

The Forest Act of 1903 also mandated extensive new research undertakings, a forest survey, and the improvement of wood-processing operations (Marchak 1995: 51). Furthermore, it

decreed that private forestry was henceforth to be regulated by a new regulatory agency, the County Forestry Boards (Canada 1910: 38). In 1903 the Minister of Agriculture summarized the role of the County Forestry Boards in the following way.

> It is of course necessary for us to work for forest management with measures other than pure legal regulations. In addition to the law there must be some agency which monitors forest management, which can awaken interest in silviculture and provide advice and information where it is needed. It is for this reason that the Government proposes the creation of County Forestry Boards. (Ekelund and Dahlin 1997: 8)

The County Forestry Boards came into being in 1905. While they were initially independent, since July 1980 they have been under the supervision of the National Board of Forestry, a central government authority responsible for ensuring that the state of the Swedish forests is satisfactory (Eckerberg 1990: 44). Each Swedish province received its own County Forestry Board made up of three unsalaried members, one appointed by the government, one appointed by the County Council, and one by the County Agricultural Society (Canada 1910: 38). The principal mandate of the County Forestry Boards was to enforce the Forest Act. This was done by requiring private forest owners to submit felling plans the Board prior to the commencement of felling (Canada 1910: 38). The Forestry Boards also provided forest owners with education and training, offered free advice in forest management and silviculture, and promoted the paradigm of sustained yield (Streyffert 1961: 68). The Boards also supplied forest owners and workers with seeds for forest regeneration at 1/10 of the market cost (Canada 1911: 86), and would even

provide a qualified forester at a low cost to supervise the work (Streyffert 1938: 46)[6]. The funds necessary to operate the County Forestry Boards came from a tax imposed on Swedish wood exports (Canada 1911: 86). Though the County Forestry Board had the authority to punish those that violated the Forest Act, forest officers preferred to use cooperation to secure compliance (Commission of Conservation Canada 1911: 86).

An important element of the Swedish Forest Act of 1903 was that while it provided guidance in forest practices, it recognized the diversity of landscapes characterizing the Swedish forests and thus gave the County Forestry Boards the freedom to apply the forest laws in the manner most suited to each specific case. In 1911, the Canadian forester Dr. Fernow described Swedish forest law in the following manner:

> ...the remarkable and eminently wise and democratic feature of the law is that it does not undertake to prescribe in detail what is to be done, but leaves this to the discretion of the Boards, with the mere injunction that a conservative treatment of the woods must be enforced and that regeneration or reforestation must be attended to. (Canada 1911: 85)

The success of the County Forestry Boards spurred Dr. Fernow in 1911, to advise the members of the Canadian Commission of Conservation that they should turn to Sweden for guidance in forestry matters, and adopt the Swedish model of the County Forestry Boards with a few modifications to adapt it to the Canadian situation (Canada 1911: 85). In 1935 alone, the Swedish County Forestry Boards received 49 550 requests for assistance (Streyffert 1938: 48).

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[6] These services were provided at little or no cost to the forest owner until the 1960s, at which time the forest owner became responsible for the full cost of the services that he/she requested (Streyffert 1961: 68).

The management of the forests remain much the same to this day with the exception that state forests were transferred to the management of Domän AB, a national forest enterprise in 1993 (Ekelund and Dahlin 1997: 11).

In 1909, the first Nature Conservancy Act led to the creation of national parks in Sweden. In the first year of the Act alone, nine parks were established on land that was owned or acquired by the state. These were also the first national parks to be established in Europe (Ekelund and Dahlin 1997: 12). According to the National Board of Forestry, a national park is defined as an area reserved "for conservation of a certain type of land in its natural or virtually untouched state" (Ekelund and Dahlin 1997: 12). Today approximately 767 000 hectares of productive forest land are protected in national parks though the majority are in the northernmost part of the country (Ekelund and Dahlin 1997: 12).

In 1914, 50 percent of Sweden's export earnings came from the forestry sector, and Sweden was the world's largest exporter of wood pulp. Although today the relative value of the forestry sector to Sweden's national economy is much less (accounting for approximately 25 percent of Sweden's total export revenue), the absolute value increases almost continuously (Richards 1987: 66). The Swedish forest industry continued to thrive in the early part of twentieth century and by the 1930s, revenue from the forests accounted for ½ of the national income, and 1/7 of Swedish exports consisted of forest products (Streyffert 1938: 6).

Throughout the 1920s and 30s, an ever-increasing number of foresters began to advocate the use of selective felling (UN Economic Commission for Europe 1996: 46). In 1923, an

amendment was made to the Forest Act to reflect this change in forest attitudes. The 1923 amendment reiterates the 1903 law but further stipulates that "vigorous forest" stands cannot be felled with the exception of improvement thinnings (Streyffert 1961: 58). In 1948 the Act was further amended and the concept of "vigorous forest" was defined in economic terms to mean "one that yields a return on the forest capital - growing timber and soil - at a rate to be decided upon by the National Board of Forestry" (Streyffert 1961: 58). During this period, the Swedish government's public forest policy consisting of extensive education programmes, and financial aid to private forest owners continued (Streyffert 1938: 57).

Jamison et al. write that "...forestry and natural history took on scientific status in Sweden at a comparatively early date" (Jamison et al. 1990: 13). Jamison et al. thus argue that the Swedish state is therefore justified in its extensive efforts to manage its natural resources. In addition to the numerous Boards responsible for ensuring the proper management and conservation of the Swedish forests, National Forest Inventories were completed in Sweden relatively early in comparison to other forest nations such as Canada. The first National Forest Inventory was completed by the Department of Forest Survey of the University of Agricultural Sciences between 1923 and 1924. The second was completed between 1938 and 1952 (Richards 1987: 67). By the 1930s, silvicultural practices were seen not only as a very necessary element of forest management but also as a very normal element (Streyffert 1938: 41). The National Forest Inventories included not only statistics describing the species and volume of growing stands, but also statistics on silvicultural measures and fellings (Richards 1987: 67).

Streyffert writes that in the 1930s large Swedish forest companies went beyond the guidelines set out in Swedish forest policy to ensure the adequate regeneration and proper management of their forests despite not receiving any financial assistance to do so from the state. To these companies, silvicultural practices were seen as investments. Streyffert goes on to state though that "the forest owner who looks the farthest into the future, however is the State" (Steyffert 1938: 51). This is because of its strong adherence to sustained-yield oriented forest policies.[7]

Streyffert further states that although one may fear that the private ownership of forests by citizens may lead to the mismanagement of private forests, the National Forest Inventory conducted prior to 1960 showed that there was very little difference in the management of forests owned by the state, forest companies, and private owners (Streyffert 1961: 53). This has in large part been the result of co-operative efforts among private forest owners (Streyffert 1961: 51).

The co-operative movement among forest owners in Sweden came about in the early 1930s, and was modelled after already existing co-operation between farmers. These co-operative associations, 23 in total, are linked by a central association in Stockholm, and allow private farmers to share education, advice and technology, and allow for co-ordinated action (Streyffert 1961: 60). Co-operations such as these have prompted one academic to conclude that "cooperation is the heart of Swedish forestry" (Yoho 1961: 79).

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[7]These attitudes stand in stark contrast to those of the Canadian government and forest industries at approximately the same time period discussed in Chapter III.

The 1940s brought with them a more intensive form of management of the Swedish forests based on maximizing the utility of the existing technology, and forest companies began concentrating on compiling their own forest statistics in addition to the National Forest Inventories (Hagner 1980: 45). Mechanization began in Sweden after WWII, though it was initially rather cumbersome with the first one-person chainsaw weighing approximately 20 kg (Richards 1987: 81). The stimulus for mechanization in the Swedish forest industry stemmed from increasingly frequent use of machinery in agriculture. Meanwhile, there was a growing emphasis on educating forest workers about environmental concerns (Richards 1987: 81).

Environmental problems in Sweden were initially seen as scientific/technical problems and were thus perceived as being amenable to scientific/technical solutions. From the 1960s onwards, perceptions of environmental problems in Sweden began to change, and they began to be "linked to more fundamental challenges to dominant perceptions of development and knowledge" (Jamison et al 1990: 21). This change in the perception of environmental problems may, at least in part, find its roots in changes that were occurring at other levels of society.

Among these changes was an ever increasing number of people leaving the primary sector and seeking out employment in the secondary and tertiary sectors of manufacturing and services (Jamison et al. 1990: 15). Although "communing" with nature had long been a popular pastime in Sweden, in the 1950s and 60s, Swedes were enjoying more free time which was often spent in outdoor recreational activities (Jamison et al. 1990: 15).

As a result of economic, social, and technological changes, the Swedish forest industry was forced to restructure, a process which took place throughout the 1960s and 70s (Marchak 1995: 49-50). As a result of decreased hiring in the forestry sector, the Swedish government developed retraining programmes and offered incentives to companies to encourage them to relocate to forest districts (Marchak 1995: 49-50).

In 1969, Sweden introduced its first comprehensive environmental legislation at a time when as stated, the natural resource sector was ceding its position of prominence to manufacturing and services. Shortly after, in 1972, Sweden hosted the first United Nations Conference on the Environment (Sandberg and Sörlin 1998: 3), thus reiterating its reputation as a leader in environmental matters.

Concern for Biodiversity and Multiple-use Forestry: 1970-present

Since the 1970s, the environmental aspects of Swedish forestry have been receiving increased attention (Ekelund and Dahlin 1997: 9). This is due in large part to public concern for the protection of biodiversity as a reaction to the use of clear cutting methods of harvesting, mechanized harvesting equipment, media reports of environmental devastation, and the increased use of the forests for recreational purposes (Eckerberg 1990: 1).

The Swedish population's access to the forests for recreational purposes is secured by the Allemansrätt (literally translated as Everyman's Right), a regulation which though it is not codified, is recognized by law. The Allemansrätt has its origins in the Middle Ages and grants to Swedish citizens the right to trespass, pick berries, mushroom and flowers, and camp overnight on

private property. In return, citizens are expected to follow certain "land ethic" rules (Hultkrantz and Mortazavi 1993: 117-119).

A 1985 study found that the average city-dwelling Swedish adult spent time in the forests for recreational purposes at least once every two weeks, therefore testifying to the importance of the forests in Swedish culture and the Swedish love of nature (Hultkrantz and Mortazavi 1993: 124).

Since 1974 the Swedish Forestry Act has stipulated that environmental considerations are to be respected in all forestry operations (Eckerberg 1998: 93). Since the 1980s, forest owners have been required to prepare and submit plans detailing the work to be carried out on their forest property. Furthermore, they must notify the County Forestry Board of any intentions to clear cut. The notification becomes an official document which is then made available to the public (Eckerberg 1990: 47). While every district forestry officer receives between 100 and 300 clear cut notifications which he/she may then choose to investigate further to ensure that the proper measures are being taken to protect the natural environment (Eckerberg 1990: 53), this law has "had the twin effects of reducing the rate of fellings and increasing the annual increment of standing timber" (Marchak 1995: 51). Since that time, forestry practices have also changed such that they more closely mimic the processes of nature (Skogsindustrierna 1999: 1).

Legislation in Sweden tends to be non-coercive for "often regulation confirms an already existing moral code" (Eckerberg 1990: 131). The only method available for a forestry agent to enforce the Forestry Act is via a prescription or formal document specifying the measures to be

taken. The forest agent may also dispense advice either in oral or written form to influence the forest owner's actions (Eckerberg 1990: 38). The result is that legal punishment rarely occurs.

> Their [County Forestry Boards] aspiration is that the forest owners follow the environmental recommendations naturally without any prodding form the authorities. The influence on the behaviour of forest owners and those who work in the woods is almost exclusively exerted by normative inducements - information, advice and persuasion. The environmental regulation is thus congruent with already existing social customs and ways of thinking. (Eckerberg 1990: 131)

Between 1980 and 1986, only 12 prescriptions were issued, while there are 2424 documented instances of the dispensing of advice (Eckerberg 1990: 39).

A study conducted by Eckerberg in the late 1980s that examined clear cutting in Sweden and respect shown for environmental and aesthetic values, and flora and fauna found that the state showed the most respect for these values followed by private forest owners and then companies (Eckerberg 1990: 71). It further found that mechanized methods of harvesting generally posed a greater threat to the environment than manual harvesting, and that the further away from residential areas that the harvesting occurred, the less likely it was that all of the above values were respected (Eckerberg 1990: 76-77).

Eckerberg concludes that though her study shows that there is definitely room for improvement in the forest owners' attitudes towards the natural environment, a large scale education program that has occurred since the study was conducted and that educated forest owners about clearcuts may have served that purpose. In interviews conducted after the study,

Eckerberg was able to detect that a change in attitudes was occurring and that flora and fauna, and environmental values were being more respected (Eckerberg 1990: 77).

In 1994 a new Forestry Act was introduced in Sweden which reinforced the desirability of multiple-use forestry, and for the first time rendered environmental goals equal to economic goals (Eckerberg 1998: 93). Section 1 of the Swedish Forest Act (1994) reads:

> The forest is a National resource. It shall be managed in such a way as to provide a valuable yield and at the same time preserve biodiversity.
> Forest management shall also take into account other public interests.
> (National Board of Forestry 1999: 1)

The goal of the policy is to harvest 100 MCM annually on a sustainable basis, excluding those areas which, as a result of a unique ecosystem, require complete conservation (Marchak 1995: 52). A further goal is to integrate commercial and non-commercial land in order to maintain " a balance between environmental, recreational and industrial values" (Marchak 1995: 52). Some large forest companies and small forest owners have voluntarily set some of their forest land aside for complete conservation (Eckerberg 1998: 93). In addition, some forest owners are able to negotiate Civil Rights Agreements on Nature Conservation with the Swedish state. These agreements compensate the forest owner for lost revenue as a result of the setting aside of land in the interest of the protection of biodiversity (Ekelund and Dahlin 1997: 12). While this program has been successful, the government has encountered some difficulty in finding financing (Eckerberg 1998: 92).

In 1997, after a long process of negotiation, the Swedish Forest Industry was able to reach an agreement on forest certification. The parties participating in the negotiations included

> ...the Swedish Forest Industries Association, the Swedish Society for Nature Conservation, the World Wide Fund for Nature (WWF), Friends of the Earth, the Swedish Ornithological Society, the Swedish Youth Association for Environmental Studies and Conservation, the Church of Sweden, the Forestry Society, Kinnarps AB, IKEA, the National Union of Swedish Sami People, the Swedish Wood Industry Workers Union and the Swedish Union of Forest Workers. (Skogsindustrierna 1999: 1)

This serves as another example of the primacy of co-operation in Swedish forestry. In commenting on the process, Jan Remröd, the Director General of the Swedish Forest Industries Association said

> The long negotiating process was necessary to increase understanding of the different parties' points of view. Everyone was invited to take part and arrive at a joint position. The agreement means that a neutral party can now verify that Sweden's forests are being managed in a good way. (Skogsindustrierna 1999: 1)

It can furthermore be argued that when those affected by a policy are consulted during its development stage, the implementation of the policy is easier and adherence to it is more widespread (Ekelund and Dahlin 1997: 16).

A 1999 public opinion survey conducted by the Swedish Forest Industries Association found that the public's view of the forest industry had improved over the last few years and had remained quite high, with 85 percent of the Swedish population stating that they had a "fairly favourable" or "very favourable" view of the forest industry. Furthermore, the Swedish forest industry was perceived as being very important to the Swedish economy (Swedish Forest Industries Association 1991: 1).

CHAPTER V

CONDITIONS UNDERLYING THE SIMILARITIES AND DIFFERENCES IN THE SOCIAL CONSTRUCTION OF CANADIAN AND SWEDISH FOREST POLICY

As explained in Chapter I, the forest industries in Canada and Sweden share similarities that go beyond having been developed in similar climates. Canada and Sweden began the process of industrialisation at approximately the same time, and the forest industries of both countries developed in response to the timber demands of neighbouring countries. Furthermore, the revenue secured from timber exports played an important role in developing the infrastructure of both Canada and Sweden.

Despite the geographic similarities and the comparable economic conditions surrounding the emergence of the forest industries in Canada and Sweden, the forest policies of the two countries have evolved in different manners as a result of differing cultural, material, and social structural conditions.

It is within the context of the forestry paradigms outlined in Chapter I that the forest policy of Canada and Sweden will be compared in order to highlight the differences and similarities between them, and to determine whether Canada and Sweden have differing orientations towards the natural environment and environmental protection.

Comparison of Canadian and Swedish Forest Policy

Important points of reference when comparing the forest policies of Canada and Sweden include the emergence of the sustained-yield forestry paradigm in Europe and North America in the late 1800s and early 1900s, and the gradual replacement of the sustained-yield model by the multiple-use paradigm that remains popular today.

The careless exploitation of the forests characterised the Canadian forest industry throughout the 1800s and early 1900s despite the emergence of the Conservation movement in Canada at the turn of the century. Why did the Conservation discourse not lead to conservation practices in Canada? As discussed earlier, the federal government's preoccupation with attracting settlers to sparsely populated areas of the country, an economic depression in the late 1800s, and the stress imposed on natural resources as a result of a dependence on a staple's economy all led to the continued reckless exploitation of the natural environment. Though it was much discussed at the turn of the last century, the Canadian government failed to make a commitment to protecting the Canadian forests via the implementation of conservation-oriented forest policy.

In Sweden, a number of laws were developed throughout the 1700s and 1800s governing the ways in which the forests were to be used. Unfortunately, as a result of the lack of means to enforce these laws, the result was much the same as in the Canadian case; exploitation was rampant.

While the Canadian government attempted to implement a tree planting program in the West in 1876, it was a complete failure as a result of inappropriate soil conditions, and was therefore

abandoned. Tree planting as a national policy in Canada did not come into effect until the 1980s. In contrast, the *Swedish Forest Act* of 1903 mandated the creation of a national regeneration program, the success of which is confirmed by the volume of forest stands existing in Sweden today.

In the early stages of Canadian forestry, policy was developed that had as its goal the protection of the Canadian forests. This included the creation of forest reserves on the Rocky Mountains in 1884, but because of prior leasing agreements between the federal government and forest operators, logging within the boundaries of the forest reserves continued and thus the desired degree of forest protection was not attained. Although forest reserves or national parks were not created in Sweden until 1909, all logging within these parks was immediately ceased and they have since been maintained in their natural state.

Other factors have also been responsible for impeding the successful management of the Canadian forests. Among them can be included the practice of appointing men to the forestry service on the basis of patronage appointments as opposed to merit which continued until 1919. The result was an unknowledgeable staff that was unable to effectively manage the Canadian forests. The successive interruptions to the completion of a National Forest Inventory, and the failure to introduce a national forest policy founded on the principles of sustained yield until 1945 also contributed to the poor management of the Canadian forests. The creation of experimental forest laboratories in 1949 constitutes a positive moment in the history of Canadian forest policy.

Swedish forest policy has involved a high degree of interaction between the Swedish forest owners and state-employed foresters who provide the forest owner with education, training, and supplies at little or no cost. Sweden also has a history of forest research that dates back to the seventeenth and eighteenth centuries consisting of early attempts to quantify the Swedish forest resources based on the German tradition of political arithmetic. Furthermore, during the 1920s and 30s, at a time when the Canadian government was cutting spending on forest management and eliminating positions within the Canadian Forestry Service, the Swedish government was encouraging the development of research and technology in addition to the completion of the first National Forest Inventory in 1923. While Canadian forest policy is characterized by the late introduction of the sustained-yield paradigm, the sustained-yield model was introduced in Sweden in the nineteenth century.

Throughout the 1960s, it was the belief of the Canadian government that better management was what was needed to improve the state of the Canadian forests. At the same time, new tracts of forest land were being opened to exploitation thereby encouraging the practice of migrant cutting. In Sweden at this period, the dominant perception of environmental problems as amenable to scientific fixes was beginning to be questioned. This along with a decrease in the number of people employed in the primary sector and the restructuring of the forest industry led to the emergence of more environmentally conscious forest policy.

While the Canadian government and Canadian forest industry have tended to offer the Canadian people a choice between employment and the environment, the Swedish government

restructured the Swedish forest industry in the 1960s and 70s to adapt to changes in the economy. To reconcile employment and the environment, it implemented worker retraining programs and offered incentives to industries willing to relocate to the forestry districts. While the Canadian forest industry continues to concentrate its efforts on the production of standard wood products, the Swedish government has encouraged research and development such that natural resource exploitation no longer constitutes the basis of the economy.

The Swedish government was implementing practices that the Canadian government was only timidly alluding to. In 1994, the Swedish government made multiple-use forestry, recognizing environmental values as being as important as economic values, the foundation of the national forest policy. In 1992 the Canadian government was only publishing documentation stressing the need for a greater recognition of a more diverse array of forest values.

Based on the research presented in Chapters III and IV and the above comparison, it is possible to conclude that though neither country boasts a perfect record with respect to forest management and forest policy, there exist several differences between Canadian and Swedish forest policy both in terms of content and times at which they were introduced.

While Canadian forest policy has resulted in the creation of forest reserves and laboratories, the regeneration programs of the 1980s, and the recent recognition of the need to protect biodiversity, all of which represent the attainment of significant milestones in forest management, Swedish policy has been responsible for introducing important paradigms such as sustained-yield at comparatively early dates.

Canadian and Swedish Values and Conditions

The differing Canadian and Swedish environmental values as they are represented by the divergences in Canadian and Swedish forest policy can be explained as resulting from differing cultural, material, and social structural conditions existing in the two countries.

As shown in Chapter III (p.28), early Canadians had a fear of nature which Northrop Frye argues was a result of viewing the Canadian natural environment as the antithesis to the order and civility of British society.

Gillis and Roach argue that the Canadian attitude towards the forests continue to be characterized by the pre-industrial belief that there is an unlimited number of trees to be exploited, and that technology will serve only to make more trees accessible and exploitation easier. It is also this view that has tended to permeate Canadian forest policy.

> It [policy] is based on an exploitive ethic, a naive liberal democratic myth of an ever open frontier and the consequent belief that the forest may be nibbled away at like a mine to pay for or underwrite other government programs. It is a popularly held view, which makes it very difficult to come to grips with serious management issues in the political process. (Gillis and Roach 1986: 259)

The Swedish attitude towards the natural environment as it has been portrayed in the available literature on the topic has been markedly different from the Canadian attitude.

According to Sundbärg,

> The characteristic of the Swedish nation that is most deeply rooted, and that forms the key, as it were, to the whole, is their intense *love of Nature*. (Sundbärg 1904: 139).

He further describes the "Swedish interest in nature as antithetical to interest in

people", and states that many Swedes feel that the "human voice in nature should be subordinate to nature's own" (Sundbärg in Daun 1996: 62).

> The individual conducts an inner dialogue with nature - or with his or her inner self with nature as a surrounding sanctuary. Experiences of nature affect the emotions, release memories. In nature these mental activities can go on without needing to take account or adapt to the demands of other people. In nature many Swedes feel a freedom akin to the totally relaxed feeling they can experience in the company of a dog. (Daun 1996: 62)

Sandberg and Sörlin describe the relationship between the Swedish people and the natural environment by stating that Sweden has

> ...operated within a conceptual universe of fundamental nature-culture dualism. Nature has been interpreted spiritually and manifested as the holy grail of national identity. (Sandberg and Sörlin 1998: 4).

In the case of Swedish forest policy, cultural values led to the enactment of laws and those laws reinforce those values.

What isn't present in the available literature on the Swedish approach to the natural environment is a sense of a struggle for survival that predominates in Canada. Swedes do not perceive the natural environment as harsh and unyielding. This may account for the relative absence of the desire to master or conquer nature in twentieth century forest policy. Instead, the natural environment is imbued with an almost spiritual quality, and is elevated to the esteemed status of a close friend. Given these factors, it is understandable that forest policy would be developed to protect that which is considered to be a symbol of national identity.

While no explanation has been found in the available literature as to why Swedes have such a different orientation towards a natural environment that is equally vast and cold as the Canadian

wilderness, it could be argued that unlike the Canadian case, which Frye presents as a settler society unable to make a psychological break from England, Sweden has existed as a nation for a much greater period of time and has been able to develop a more complete national identity into which the natural environment has been incorporated.

Several factors have already been mentioned that have been of the utmost importance in shaping Canadian environmental values. Among them is the vastness of Canada as a country, and the sheer density of the Canadian forests that existed upon the arrival of early European settlers that has contributed to the myth of the inexhaustibility of the Canadian forests. A myth that has transcended time and continues to shape Canadians' perceptions of the forests today.

Canada's colonial legacy is another factor that has played an important role in shaping Canadian environmental values (Beyers and Sandberg 1998: 100). Canada's early forest policies were developed with the timber needs of Great Britain in mind. These initial policies have formed the foundation upon which all subsequent policies have been based. Canada's early relationship with Great Britain led to the development of a staples economy in which the forest industry played a primary role in both the economic and social development of Canada (Beyers and Sandberg 1998: 100).

The Canadian forest industry, rather than focussing on the development of new technologies and ideas, has tended to encourage the "importation of ready-made technology (Laxer 1988: 208). As a result, natural resource exportation continues to be the foundation upon which the Canadian economy is built, and the forest industry continues to be an important source of export

revenue for both the provincial and federal governments (Laxer 1988: 205). This economic dependency on natural resources is apparent in Canada's present rudimentary protection efforts which place economic goals above environmental protection, and the underdeveloped character of manufacturing in Canada has consequently led to an emphasis on short-term economic interests in the resource sector.

The Crown ownership of non-agricultural lands is a further consequence of colonialism that has affected Canadian environmental values (Beyers and Sandberg 1998: 100). The provinces, because they have been vested with primary jurisdiction over the forests, are responsible for the implementation and enforcement of policy. While the federal government has historically attempted to play a leadership role with respects to forestry, it lacks both the political will and ability to enforce its policies. The political struggle over Quebec nationalism, in conjunction with the nation-building efforts of Quebec and feelings of provincial autonomy in the other provinces, have resulted in provincial resistance to federal guidance (Beyers and Sandberg 1998: 101). As a result,

> the federal role in forestry has been confined to the support of industry through the funding of research and operation of laboratories, the championing and protection of the industry and its products abroad, and the use of the spending power to assist forest management. (Beyers and Sandberg 1998: 101)

Unlike the Canadian case where the public ownership of forest land has historically led to its rampant exploitation and neglect, in Sweden, the private ownership of forest land has had quite the opposite effect.

In comparing forest land ownership in Canada and Sweden, Stig Hagner states that in Sweden,

> ...there are forest industry companies that get a significant part of their raw materials from their own forests. This has undoubtedly been a great advantage from the point of view of forest management. Obviously, a company that processes wood and harvests a large proportion of that wood from its own forests will be very much interested in the possibilities of being able to keep benefitting from this resource in the long-term. Such interest is bound to be less where there is no ownership between industry and forest. (Hagner 1980: 43)

As the primary caretakers of the forests, the Canadian provinces attempt to attract business resulting in a landlord-tenant relationship between the provinces and forest companies "in which the provinces sell the prospects of job creation and revenue for generous concessions in land, low royalties and lax management regulations" (Beyers and Sandberg 1998: 101). Forest companies argue that because they are only the tenants of the forests and not the owners, the management of forest resources including silviculture and regeneration initiatives is not their responsibility. In Canada, the provincial governments have favoured the granting of long-term leases, often to foreign-owned companies that gain a monopoly over the forests and the methods of extraction used (Marchak 1995: 30). Despite this fact, forest companies have argued that because their tenure is not secure, it would be a waste for them to invest in silviculture. In doing so, they are refusing to invest in the future of the industry.

In contrast, the Swedish forest industry is characterised by a low level of foreign ownership. There is therefore little resistance from foreign owners to the central Swedish government's intervention into forestry matters. Marchak argues that it is this capacity of the Swedish state for

direct action that has allowed it to efficiently "adapt to technological, employment and market changes" in forestry (Marchak 1995: 50). This led to the restructuring of the Swedish forestry sector in the 1960s and 70s. In contrast, Canada with its high level of foreign investment has historically been exceedingly slow in responding to change. Rather than restructure in the second half of the twentieth century, the Canadian forestry sector chose instead to open new tracts of land to exploitation (Marchak 1995: 50).

The Canadian situation with respect to forestry is one where the benefits of the industry are concentrated, whereas the costs are distributed, mostly among the taxpayers (Holland, Morton and Galligan 1996: 8). Professional foresters and forest companies along with the government play an important role in policy making, and as a result, a production ideology has dominated policy discussions, and a quick profit has often been perceived as being more important than protecting Canada's forests (Beyers and Sandberg 1998: 103). The forests therefore continue to be treated as a mine rather than a crop.

> Our economics are badly skewed. We subsidize short-term gain - logging the forest and building the mills - while long-term interests, the sustainability of the resource itself, and all other future values are heavily discounted. If the importance of the forests' role in maintaining global climate was properly valued, and weighed against the actual costs of reducing that ecological gold mine to pulp, logging in Canada would be drastically reduced. (May 1998: 3)

Furthermore, while Crown ownership of land essentially means that the land is owned by the Canadian people, for most of Canada's history, there has been little public interest in the forests (May 1998: 5). This has resulted in little public criticism of government policy, and little pressure

on the part of the public with regards to the enforcement of government regulations. Sandberg and Sorlin (1998: 5) argue that this "environmental blind spot" is a result of the Canadian dependence on the polluting resource sector.

> Canada is an example of a resource-rich country that lived off its inheritance. Even in the face of new global challenges, its response has been to open up some 200 000 hectares of boreal forests for exploitation on precisely the same dependency model characteristic of past development in Canada (Marchak 1995: 83).

Sweden on the contrary has focussed on technological development and used a sustainable resource sector to that end.

The Swedish state has a history of active intervention into forestry matters (Marchak 1995: 51). Sweden has existed as an independent nation for centuries and through the last century has demonstrated a remarkable level of political stability. As a result, Sweden has succeeded in developing a "coherent national culture" which has had the effect of fostering a top-down approach to government (Laxer 1989: 113).

Because Sweden has a relatively homogeneous population. The state has been able to implement the same system of administration across the country as a whole. "Swedish government is generally accepted as a 'helpful father' who is willing and capable of taking care of life as a whole" (Eckerberg 1990: 15).

Jamison et al. argue that

> As could be expected in a country that has served throughout much of the post-war period as a model welfare state, there has been a strong concern with environmental issues on the part of the state. (Jamison et al. 1990: 13).[8]

Jamison et al. conclude that because of this, an environmental consciousness has been "incorporated into the established ideologies" (Jamison et al. 1990: X). Sandberg and Sörlin concur with this conclusion and add that the state in reinforcing in the Swedish population the "ultimate ideology" of nature has defined nature as the "national common ground and the essential backbone of wealth on Europe's northern periphery" (Sandberg and Sörlin 1998: 3).

Furthermore, as a result of a greater degree of state intervention, Swedish policy has placed more consistent emphasis on the importance of research and the education of the forest owner. These have allowed for the easier implementation and adherence to Swedish forest policy.

It has also been argued that the Swedish culture is "permeated by rationality" (Daun 1996: 137). This is confirmed by Sweden's early attempts to quantify the natural environment using political arithmetic, as well by its "long-standing interest in education, scientific advancement, and utilitarian applications of new discoveries" (Laxer 1989: 113).

This Swedish trait of logic and moderation is embodied in the Swedish term "lagom" which although it has no English equivalent, can best be understood as meaning "reasonable" or "middle-road" (Daun 1996: 137).

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[8]Some studies have concluded that "egalitarian values and beliefs [can be] positively correlated with measures of concern about technological and environmental risks" (Stern, Dietz, Kalof and Guagnano 1995: 1613).

"Lagom" is the principle by which Swedes live their lives, and is reflected in twentieth century forest policy . While the Swedes seek to profit economically from their forests, they do so with restraint, adhering to policies that look to the future and keep the long-term interests of the economy and more recently the natural environment in mind.

Lastly, it can also be argued that the Swedish tradition of consensus seen in its co-operative associations and extensive processes of negotiation, is also capable of shaping Swedish environmental values by bringing to the forefront a multitude of opinions and interests.

Though the forest policy of both Canada and Sweden has evolved over the last two centuries from policies allowing the reckless exploitation of the natural environment, to policies that have as their aim a greater degree of environmental protection, it can be concluded that Swedish forest policy demonstrates the presence of more progressive environmental values than does Canadian policy. The result of these more progressive environmental values has been the more consistent protection of the Swedish forests.

CHAPTER VI

CONCLUSION

As outlined in Chapter II, Beck argues that industrialised societies have developed beyond the phase of primary modernization (industrial society) and are entering the phase of reflexive modernization (risk society), in which the risks created by industrial society become manifest. His theory has influenced the present thesis as a whole. In this chapter, Canadian and Swedish forest policy will be examined more explicitly within the framework of Beck's theory of the risk society.

In forestry, risk results from the over-exploitation of the forests which can lead to other environmental problems including soil erosion, an atmospheric imbalance of oxygen and carbon dioxide, and a loss of habitat for numerous plant and animal species (Marchak 1995: 28). The advent of mechanized felling equipment served to hasten the emergence of risk as well as create other environmental concerns such as soil compaction. In Canada and Sweden, other technologies that developed alongside the forest industry such as the railway system, and that was perceived as facilitating the forest industry's growth and rendering it more efficient, also led to the creation of risk. As discussed in Chapter III, in the early years of forestry in Canada, trains were often responsible for causing sparks which in turn could develop into forest fires destroying vast areas of the Canadian forests. Furthermore, the application of science to manage the forests in the hopes of improving their productivity has also led to the creation of risk. Changing the composition of the forests as a result of the replanting of a single species of tree after felling the forest renders it more vulnerable to disease. In New Brunswick for example, this practice has in

the past resulted in budworm epidemics. The solution to the epidemics, the spraying of pesticides, resulted in even greater environmental degradation, and therefore the creation of even more risk (Swift 1983: 175).

Beck argues that two processes define the risk society. The first involves the realization that science brings not only advantages but disadvantages as well. This realization forces scientists to "rethink and change their own conceptions of rationality, knowledge and practice, as well as the institutional structures in which these are put to work" (Beck 1992: 271). The second process involves the intensification of the application of science in an effort to manage risk.

Both Canada and Sweden were able to recognise the risks that emerged as a result of industrial forestry. Although Beck theorizes reflexive modernization and the risk society as having occurred recently, in forestry some elements were present more than a century ago. In 1866 the Canadian government was already aware of the rapid rate at which the nation's forest resources were becoming depleted. In the case of Sweden, the degraded state of the Swedish forests was recognised as early as mid seventeen hundreds. The reaction of both countries was to attempt to develop more aggressive policies to manage the forest resources.

As discussed in Chapter IV, by the 1960s, the perception of environmental problems in Sweden was beginning to change in a more radical sense. No longer seen as the unintended consequences of technology requiring a bit more fine tuning, environmental problems began to undermine the dominant perception of the infallibility of science. This in conjunction with changes in the economy led to the recognition of a greater range of forest values which, within the

last three decades, have gained importance in Swedish forestry and led to more environmentally conscious forest policy.

Beck outlines two ways in which the risk society can deal with risk. In the first way which he labels "reindustrialization", economics continue to be the driving force of society. In this type of society, risk continues to be dealt with in much the same way as before and thus measures enacted to manage risk are superficial and often ineffective. This is the situation that has characterised much of Canadian forest policy. While the federal government sought to create the forest reserve system in 1884, it continued to allow cutting within the reserves. Though it repeatedly stressed the importance of completing a National Forest Inventory, it wasn't until midway through the twentieth century that it became a priority. Rather than address the depletion of the forests, the practice of opening new tracts of forest land to exploitation continues even today. It was not until the early 1990s when the international community condemned the BC forest industry's reckless felling practices that forest policy in Canada began to incorporate a wider range of environmental concerns. It can be argued that this was done out of fear of losing export markets.

In the Canadian case, "reindustrialization" is identified by the Canadian government's ignorance of technological risk, continued use of practices characteristic of the period of industrialization, and the continued subordination of environmental goals to economic ones. In Canadian society, technological decisions are made by the scientific and business communities while politicians remain responsible for the development of policy regulating these decisions. The role of the general public in any of these processes is minimal.

The second way in which Beck argues that the risk society can manage risk can be referred to as the "democratization of techno-economic development" and "differential politics". This involves the intensification of democracy allowing independent scientists, citizen's groups, workers, and professionals to play a greater role in the shaping of society. Decisions are discussed by inter-disciplinary groups prior to actions being taken, and techno-economic development as the sole goal becomes delegitimized. As discussed in Chapter II, this results in "sub-politics," a process in which social actors from outside the political sphere, such as scientists, professionals and private citizens, adopt an active role in the shaping of society. In this method of risk managment, risks carry with them important political consequences. "People, businesses, state agencies, and politicians are responsible for industrial risks" (Beck 1995: 20).

In Sweden, forestry is founded on a history of co-operation between various groups possessing different opinions and ideas concerning the proper management of the forests. Though the co-operative associations and the intensified forms of interaction between forest owners and state-forest workers did not necessarily emerge as a result of the recognition of risk, it is possible to conclude through the examination of the development of Swedish forest policy that co-operative associations such as the Swedish forest commons constitute a form of sub-politics that have assisted in managing risk. Furthermore, though the Swedish government has traditionally encouraged the application of science in natural resource management, Sweden is a country that through early technological discoveries in the forestry sector has managed to develop its economy

in a direction such that it is no longer as dependent upon its natural resources for export revenue. As stated above, as early as the 1960s, changes in the perception of environmental problems occurred. Since the 1970s, which appears to be the beginning of the period referred to by Beck as the risk society, the environmental aspects of Swedish forestry have become increasingly important in forest policy, culminating in the 1994 Swedish Forestry Act in which environmental goals were rendered equal to economic goals.

In contrast, Canadian forestry has been marked by an ongoing debate between the federal government, the provinces and industry over who is responsible for protecting the forest resources. The result of this debate has been a system of organized irresponsibility. Beck would argue that this situation is "based fundamentally on a confusion of centuries. The hazards to which we are exposed date from a different century than the promises of security which attempt to subdue them" (Beck 1992b: 103).

It must be mentioned that though the power to shape the content of Canadian forest policy has traditionally rested with the provincial governments and the forest companies during the period of primary modernization, some efforts are being made to lessen the degree of control and render the process more democratic. For example, in the province of Ontario, the *1996 Forest Management Planning Manual*, outlines a "comprehensive process for public participation" in forestry matters (Balsiger 1998: 53), and the *Lands for Life* program introduced in 1997, gives environmentalists, Aboriginal peoples, tourism operators and recreational users of the forests the opportunity to "make recommendations to the Minister regarding areas for protection, resource-

use needs, basic conditions for compatible use and targets and indicators to determine the long-term health of natural resources including forests" (Balsiger 1998: 53). Therefore in Canada too, there seems to be some movement toward reflexive modernization and the inclusion of sub-politics.

It must be acknowledged however, that sub-politics, or the inclusion of people in the political decision -making process from outside of the political sphere, does not necessarily have to lead to the development of more environmentally sensitive policy. Some of the participants in this process may hold values that could lead to an increase in environmental exploitation. Furthermore, it is also important to recognise that political discourse is not necessarily reflected in actual practice. In Chapter III it was shown how, despite the Conservationist discourse adopted by Canadian politicians at the beginning of the twentieth century, the Canadian forests continued to be recklessly exploited.

Though Beck's two societal methods of dealing with risk are ideal types and therefore do not exist in their pure forms in reality, the above research on Canadian and Swedish forest policy presented in this thesis leads to the conclusion that within the area of environmental consciousness there does appear to be an evolution of societies from one based on the exploitation of the natural environment to one in which increased awareness of environmental problems leads to the greater protection of the environment while allowing for continued economic growth. In this respect, Sweden is further along on this evolution than Canada and has developed policies that allow for the exploitation of the forest resources with a lesser degree of degradation.

While Beck's theory of the risk society is a macro-level theory that traces the evolution of societies from the period of primary modernization to the period of reflexive modernization as a result of the recognition of risk, and outlines societal approaches to deal with risk, what Beck's theory does not address is that certain cultural, material, and social-structural conditions existing within a given society may predispose that society to manage risk a certain way. It has been the goal of this thesis to apply Beck's theory in specific contexts, namely the forest policies of Canada and Sweden, as well as to examine the cultural, material, and social-structural conditions that have shaped Canadian and Swedish forest policy. It was found in this thesis that the risk of depleting the forests influences environmental values. It was also found that historical, cultural and social conditions, though they may not have emerged as a result of the recognition of risk, nevertheless play an important role in determining what steps will be taken to deal with risk.

In Chapter V, it was concluded that Sweden had succeeded in developing more environmentally conscious forest policies than Canada and therefore possessed more progressive environmental values. In that chapter the cultural, material, and social-structural factors - such as the cultural attitude towards the natural environment, forms of land ownership, political stability, and government control of forest matters - that have shaped the development of forest policy in Canada and Sweden were also examined. Political stability has allowed the Swedish government to intervene in forestry matters and impose uniform forest policies from one end of the country to the other. This has allowed for a co-ordinated effort in managing risk. The form of private land ownership practised in Sweden has rendered the individual forest owner personally accountable

for the regeneration and management of his\her forest, and Sweden's co-operative forest associations ensure that many opinions are heard and debated prior to the making of decisions affecting the forests.

While both Canada and Sweden have been the creators of environmental risk in the domain of forestry, the above conditions have better equipped Sweden to manage environmental risk though they were not, with the exception of the form of land ownership, developed in response to risk. Conversely, conditions existing in Canada have impeded more progressive forms of environmental risk management. These include early attempts by the federal government to attract settlers to Canada, provincial jurisdiction over forest matters, close ties existing between provincial governments and forest companies, and Canada's continued dependence on natural resource exportation as the basis of the economy which has the effect of sacrificing long-term environmental values for short-term economic goals.

The purpose of this thesis has not been to uncritically celebrate or reject the forest policy of either Canada or Sweden. Rather, the purpose was to compare the environmental values of these two countries as they are represented in their forest policies, and to examine them within the framework of Beck's theory of the risk society. In describing the risk society, Beck was essentially referring to the period from approximately the 1970s onwards and the emergence of risks such as the depletion of the ozone layer, global climate change, and antibiotic resistant bacteria, all of which require a vast amount of scientific knowledge and sophistication to be detected.

Unlike the hole in the ozone layer that escapes unassisted human sensory detection, it is much easier to recognize risk when one sees a clear-cut forest. In the cases of both Canada and Sweden, risk in forestry was recognized at a much earlier period than that to which Beck refers to in his theory. Because the forestry sector developed significantly earlier than many of the technologies responsible for risks such as global climate change, risks in forestry emerged at an earlier period. Consequently, throughout the twentieth century, the governments of both Canada and Sweden have been aware of the repercussions of society's reckless interference with the forest ecosystem.

Beck's theory does not account for the possibility that the period of evolution of a society from primary to reflexive modernization may vary depending on the sector or culture in question. The risks in forestry emerged much earlier than those resulting from for example, the use of CFCs. Furthermore, as discussed above, Swedish society moved from the period of primary to reflexive modernization earlier than did Canada. This was in part the result of differing cultural, material and social-structural conditions shaping the recognition and management of risk.

Beck's theory is also unidirectional, proposing that all societies evolve from a state of environmental ignorance and risk creation towards the recognition and management of risk. This theory does not account for the possibility that a society could, after having experienced a period of environmental awareness, revert to environmentally degrading practices. This study found such a reversion in the history of forest policy in Canada. When economic times have been difficult, the Canadian government has typically reduced or abandoned forest management

initiatives. An example of this was the federal government's cost-cutting measures during the Depression. By reducing the staff of the federal forestry branch and limiting its functions, the government jeopardised any improvements that had previously been made in forest protection.

Beck's theory also fails to recognise that a society may refuse to acknowledge risk once it has manifested itself. An example of this is the careless forestry practices that continued in Canada in the early 1900s despite the recognition of the degraded state of the forests.[9]

Forestry consists of only one set of environmental problems among many - such as climate change, air quality, nuclear energy etc. - that presently face Canada and Sweden. It would be interesting to study whether similar differences between Canada and Sweden exist in these areas. A review of the literature concerning Canada and Sweden's environmental protection efforts has led me to believe that similar conclusions would be reached regardless of the environmental problems studied. Further study would be necessary to confirm this hypothesis.

This thesis has only studied forestry practices within the borders of the two respective countries. Canada and Sweden do not necessarily show the same degree of environmental consideration when involved in forestry outside of their national borders as they do within them. Further study should also be directed towards the activities of Canadian and Swedish companies outside of their national borders to determine whether the environmental consciousness of a society has global scope or is restricted to its national base.

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[9] A further example of the failure to acknowledge environmental risk is the lack of concern demonstrated by the general public towards the presence of radon in homes despite the repeated government warnings (Stern, Dietz, Kalof, Guagnano 1995: 1611-1612).

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