Complex Network Management and the Governance of the Environment:
Prospects for Policy Change and Policy Stability Over the Long Term

Michael Howlett,
Department of Political Science,
Simon Fraser University,
604-291-3082
howlett@sfu.ca

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Abstract:
This chapter examines the prospects for Canadian governance of medium to long-term trends in the environment. It finds policy processes promoting both policy change and policy stability to exist, but argues that those enhancing the prospects for policy change are likely to predominate. The chapter notes that internationalization of environmental management efforts, ecological crises, economic re-structuring and changes in Canada's social and political systems are likely to promote rapid paradigmatic policy change. However, it argues that such change can either be resisted or facilitated by a programme of network management activities undertaken by Canadian governments. The paper outlines several procedural policy tools which can be utilized by Canadian governments towards either end.

1. Introduction: Modern Governance and Policy Change[1]

Contemporary governance takes place within a very different context than that of past decades. Government capacity in terms of human and organizational resources has increased, but its autonomy or ability to independently effect change has been eroded. This is due, at the international level, to the growth of powerful international and trans-national actors and systems of exchange.[2] At the domestic level, however, modern governments have also been affected by the re-structuring of societies into complex networks of interorganizational actors.[3] As a result of both movements, states have undergone a kind of "hollowing" out, as various functions and activities traditionally undertaken by governments now involve a variety of significant non-governmental actors. This is true of services previously provided directly by government employees - from highway maintenance to psychiatric care - which have been contracted out to non-governmental organizations; the replacement or augmentation of legal and regulatory enforcement - in areas such as energy conservation and drinking and driving - by information-based quasi-private public relations campaigns; a general shift in regulatory activities from "enforcement" to "compliance" regimes; and a shift in the use of financial instruments away from taxes and subsidies towards the increased use of tax expenditures.[4] Intentionally or not, these changes have all had the effect of further deepening the network structure and complex character of contemporary life by fostering the creation and interaction of non-governmental and governmental organizations.[5]

These processes and paradoxes pose challenges to public administration at the turn-of-the century. The result, in practice, has been for many governments to develop a renewed interest in types of policy instruments which can deal with the complexities of modern societies. That is, governments in many countries have turned away from the use of a relatively limited number of traditional, more or less command and control oriented, "substantive" policy tools - such as public enterprises, regulatory agencies, subsidies and "moral suasion" - which attempt to directly influence the allocation of goods and services in society. Instead, modern governance more and more entails the use of an entirely different set of tools, "procedural" instruments such as government-NGO partnerships, public advisory commissions, interest group funding and information dissemination, which act in a less direct fashion to guide or steer social actors in the direction government wishes.[6]

As such, modern governance is becoming less and less a matter of direct service delivery and more and more a matter of indirect network management,[7] in which governments attempt to influence network actors, or re-structure networks themselves, in order to manage change and achieve their ends.[8] Thus contemporary governance, in contradistinction to government in past epochs, is very often indirect, subtle and largely invisible. However, it requires a great deal of pre-planning and much foresight to steer the immense ship of state indirectly in what are largely uncharted waters.

This chapter examines how changes in a specific sector, the environment, are likely to affect policy outcomes in a single jurisdiction, Canada. It develops a model of policy change and

assesses the manner and extent to which such change can be led by governments, rather than simply reacted to. As such, it provides the foundation for a discussion of how Canadian governments can best position themselves to steer policy in the environmental sector in the near future.

2. Understanding Policy Change

Assessing the likely impact of developments in any particular sector on government policy-making requires an understanding of the general processes through which policies change. Moreover, it requires, at the outset, a clear understanding of exactly what the dependent variable, "policy change" entails.

At the present time, several competing definitions of policy change can be found in the literature of the policy sciences. Peter Hall, for example, has developed one notion of policy change as involving an alteration in either the means or ends of policy-making. In his work, Hall identified three types or "orders" of change: *first order* change in which only the settings of policy instruments vary; *second order* change in which the types of instruments used to effect policy change; and *third order* change in which the goals of policy are altered.[9] Examples of first order changes would include increasing the safety requirements automobile manufacturers must follow or altering the level of allowed emissions from a factory. In these examples, second order changes might involve such actions as adding or substituting financial incentives for regulation in the traffic safety field or changing the type of instrument used in pollution control, such as changing from an administered emission standard to the imposition of a tax on emissions. Third order changes would involve a shift in policy goals, such as moving away from a focus on private vehicles to one on public transit in the traffic safety area or, in the pollution case, a shift from a focus upon *ex post* end-of-pipe regulation to a focus upon *ex ante* preventative production process design.

Although this formulation has some advantages in terms of simplicity and clarity, there are some difficulties associated with its focus on changes in policy outputs as an exclusive measure of policy change. That is, as Hernes has pointed out in the context of a general discussion of sociological change processes, change can involve not only changes in outputs but also changes in inputs and changes in processes.[10] A focus on instrument change, in particular, is problematic in the case of public policy-making. This is because (1) the same types of instruments can be used for different ends, meaning a change in instrument will sometimes be evidence of a change in goals and other times not, (2) it is sometimes very difficult to disentangle goals and means in the way that is required for the analysis to proceed, and (3) even a change in the setting of an instrument can sometimes reflect a major shift in policy goals, as occurs, for instance, when tax rates are increased in a progressive or punitive direction.[11]

Case studies of instances of policy change have in fact revealed a variety of different types of change and a number of distinct processes through which change has occurred. These same studies have also uncovered a number of processes and factors which inhibit policy change. Taking these together, it is possible to identify the key elements of policy change, the basic types of change, and the relationships that exist between basic processes and types of change.[12]

2.1. Policy Change and Policy Stability: Different Processes and Different Outcomes

Until fairly recently, it was often thought that policy change occurred largely as a result of events and occurrences which took place outside of stable policy-making systems or sets of

relatively stable actors, instruments, institutions and ideas related to specific policy issue areas.[13] That is, it is possible to identify in almost any policy area a policy system consisting of the current collectively accepted definition of an issue, the current state of relevant policies (laws, regulations, fiscal instruments, government programs and relationships) on the issue, and the people and institutions, both inside and outside government, actively engaged in and debating the policies' maintenance and modification.

The notion that such systems change only due to exogenous events or "shocks" arose from the assumption that policy systems or sub-systems were a form of stable or self-adjusting "homeostatic" system.[14] Given an initial set of characteristics and composition, it was argued, policy systems would adjust to any internal changes and could only be thrown out of equilibrium by external events which introduced new dynamic elements into the system.[15] In addition, it was often argued that a policy system had a set capacity for action which, once reached, would prevent or restrict any internal changes from occurring - the "overload" thesis.[16] This notion of the exogenous nature of policy change focussed attention on the various types of external crises which could provoke a government response or policy change.

Although aspects of these models remain useful,[17] more recent conceptions of policy systems are more chaotic, abandoning notions of dynamic equilibria in favor of adaptive concepts in which systems can affect their environments and therefore alter the nature of their own constraints.[18] In the policy sciences, this shift has manifested itself in the acknowledgement that crises are not the only external source of policy change, and that factors internal or endogenous to policy-making systems and sub-systems can also independently, or in conjunction with external factors, lead to policy change.[19]

This recognition has led to more systematic efforts to measure, chronicle, and account for policy change. These efforts have moved well beyond the original "external-internal" distinction and have identified both a number of distinct processes which influence the type and speed of change, and a number of distinct types of change determined by the scope and tempo of change. In particular, four major processes which underlie policy change and four major processes which enhance policy stability have been identified. Listed in order of their appearance in the literature, the processes which facilitate policy change are: *systemic perturbations; venue change*; *policy learning*; and *subsystem spill-overs*. In contrast, the processes which enhance policy stability are: *non-decisions; hard issues; path dependency,* and *closed networks*. Each of these processes is briefly described below.

2.1.1. Policy Change: Four Processes

Systemic perturbations is a formal term provided to describe the oldest known form of policy change-enhancing process - that originating in external crises which upset established policy routines.[20] These can include idiosyncratic phenomena such as wars or disasters, or repeating events such as critical elections and leadership rotations. The well known American student of policy processes, Paul Sabatier, for example, has argued that "changes in the core aspects of a policy are usually the results of perturbations in non-cognitive factors external to the subsystem such as macro-economic conditions or the rise of a new systemic governing coalition".[21] The principle mechanism by which change occurs is via the introduction of new actors into policy processes, very often in the form of enhanced public attention being paid to a policy issue as a result of a perceived crisis situation.

Venue change refers to a second process of facilitating policy change, one related not so much to changes in external conditions as to changes in the strategies policy actors follow in order to pursue their interests.[22] In their work on policy formation in the United States, for example, Baumgartner and Jones noted several strategies employed by actors presently excluded from policy systems or subsystems to gain access to policy deliberations and affect policy outcomes.[23]

This usually involved members of policy communities attempting to "break into" more restricted networks of central policy actors, but also can involve jockeying for advantage among network actors.[24] Venue shifting strategies usually involve the redefinition of a policy issue in order to facilitate the alteration of the location in which policy formulation occurs. These include notable instances such as when environmental groups attempt to redefine the image of an issue like waste disposal from a technical issue to a public health or property rights one susceptible to lawsuits and recourse to the courts.[25] Not all policy issues are susceptible, or as susceptible, to re-framing or image manipulation, and not all political systems contain any, or as many, alternate policy venues. However, Baumgartner and Jones argue that actors outside of formal policy processes, especially, will attempt to alter existing policy images in the hope that an alternative venue can be successfully located in which their issues and concerns will be accorded a favorable reception.

Policy learning refers to the third change-enhancing process described by policy scholars. It refers to the manner in which, as Hugh Heclo has noted, a relatively enduring alteration in policy results from policy-makers and participants learning from their own and others' experience with similar policies.[26] What is learned is often the experiences of other jurisdictions, but can also involve reflection on experiences originating within the confines of the subsystems' existing boundaries.[27] This behaviour can result in a variety of feedback-like policy learning processes.[28] These include instances ranging from those in which policy actors in one country investigate and report on activities in another, to situations in which administrators attempt to emulate "best practices" in service delivery. While some types of learning are limited to reflections on existing practices, other types are much more far-reaching and can affect a wide range of policy elements.[29] All involve the development and diffusion of new ideas into existing policy processes. These different conceptions of learning and its role in public policy formation are used by many analysts to describe a commonly described tendency for policies to change as the result of alterations in policy ideas as knowledge of past experiences influences judgments as to feasibility or desirability of certain present courses of action.

Finally, *subsystem spill-overs* refers to the most recently described change process, one which occurs in situations in which activities in otherwise distinct subsystems transcend old policy boundaries and affect the structure or behaviour of other subsystems.[30] Instances such as those which have occurred as internet-based computing collided with existing telecommunications regimes, or when long-established natural resource policy actors find it necessary to deal with Aboriginal land claims issues, are examples of this phenomenon. Although this particular process of policy change has just begun to be examined, it would appear that spill-overs can occur on specific issues without any permanent change in subsystem membership - subsystem intersection - or they can be more long-term in nature - subsystem convergence.[31] This general process, like systemic perturbations, affects policy processes largely through the introduction of new actors into otherwise stable subsystems. Unlike systemic perturbations, however, the new actors tend to be policy specialists and interested parties, rather than simply members of the aroused public.

2.1.2. Policy Stability: Four Processes

The question of policy stability and resistance to change has also been addressed in the policy literature over the course of the past 30 years. This literature, built up from numerous case studies, has highlighted the manner in which ideological and institutional factors insulate policy issues from the change processes outlined above.

Policy-making is about both making, and failing to make, decisions on policy issues. *Non-Decisions* was a term used in the 1960s to describe situations in which policy debates remained mired in the *status quo* because alternatives were simply not considered or debated.[32] Examples of such instances range from the failure to deal with issues important to the urban poor

to similar inaction on a wide-range of women's issues. Non-decision making has been the subject of many inquiries and studies, beginning with the community power debates in political science in the early 1960s and 1970s[33] and extending into contemporary discourse analysis which reflect the manner in which ideologies operate to filter and colour the types of options put forward in the policy-making process.[34] All of these studies point to the significance of policy "frames", or relatively stable sets of overarching policy ideas which serve to filter out alternative visions of public policy. [35]

　　　Hard Issues is a term coined more recently to describe the oft-noted phenomenon in which the nature of a particular policy issue can insulate it from external change processes. [36] As students of the public policy process in the 1970s like Cobb, Ross and Ross had noted, issues follow different routes onto government agendas with a significant difference in policy processes being related to whether the issue involved significant elite or public mobilization.[37] More recently May and Pollock, Lilie and Vittes have argued certain issues either fail to ignite popular interest, or if they do, fail to deliver a popular consensus on what kinds of change are required. [38] They argue that some issues like toxic regulation or utility rate-setting are "hard" in that they are technical, legalistic, means-oriented or, simply, unfamiliar to most members of the public. Such issues are more likely to involve smaller sets of specialized policy actors than issues such as traffic safety or health, which are more likely to generate public attention and discussion. Hard issues, therefore, are more likely to involve only a very limited number of specialized policy actors and serve as a barrier to entry of new actors into existing subsystems.[39]

　　　Path Dependence is another recent term for an older observation, one which refers to the manner in which current policy decisions are influenced by the institutional and behavioural legacies of past ones.[40] Policy legacies affect current policy-making due to factors such as sunk costs, or institutional routines and procedures which can force decision-making in particular directions - either by eliminating or distorting the range of options available to governments.[41] Hence, for example, a decision to alter an existing nuclear energy program in which billions may already have been invested, is a much more difficult decision to make than if a program had not yet been started. As Weir, and March and Olsen, and others have argued, stability is expected to occur when an issue is routinized or institutionalized.[42]

　　　Closed Networks refer to a more recently identified source of policy stability, which is based simply on the ability of existing key policy actors to prevent new members from entering into policy debates and discourses. This can occur, for example, when governments refuse to place prominent environmentalists on environmental advisory boards or regulatory tribunals, when funding is not provided for intervenors at environmental assessments, when the creation of such boards and procedures is resisted, or due to the behaviour of interest groups in pursuing specialized issue niches.[43] Rhodes, and Schaap and van Twist, and many others have argued that all subsystems tend to construct "policy monopolies" in which the interpretation and general approach to a subject is more or less fixed.[44] Only when this monopoly is broken and new members emerge into these subsystems, would a policy be expected to change in any significant sense of the term.

2.2. Key Variables and Measures of Policy Change

　　　This brief outline of the major processes of policy change and stability found in the policy literature highlights the commonalities found in the central variables affected by and involved in these policy dynamics. At first glance the central variables are the nature of the actors; institutions, issues, and ideas found in a policy sector. However, as Figure I suggests, the eight processes identified above in fact share only two central variables. That is, these processes underline the significance of the entrance of (1) new actors, be they the public or policy "elites",

and (2) new ideas, be it specific new knowledge or more general image frames, as the major factors affecting both policy change and policy stability.

Figure I- Key Variables involved in Policy Change and Stability Processes

	Change Process	*Stability Process*	*Variation Causing (Stability)/Change*
Change Variable			
Actors	*Sub-System Spill-Overs*	*Closed Networks*	*(Lack of) Entrance of New Actors into Subsystem*
	Systemic Perturbations	*Hard Issues*	*(Lack of) Mobilization of Public Around Issue*
Ideas	*Policy Learning*	*Non-Decisions*	*(Lack of) Entrance of New Ideas into Subsystem*
	Venue/Image Change	*Path Dependency*	*(Lack of) Change in Institutional Discourses*

Actors, of course, come in different types and occupy different locations in the policy-making process. Generally-speaking, they can be usefully thought of as existing in the general public or *policy universe;* in the set of attentive actors within the policy universe which have some knowledge of affairs in the policy area in question, or the *policy community*; or in the set of those actors which have some interest in a particular area which lead them to routinely interact with other interested actors in more restricted *policy networks.*[45] "New" actors in this context can refer either to the movement of actors from the policy universe into a policy communities or network, or the movement of actors from a policy community to a network.

Ideas, similarly, come in different shapes and sizes. They exist both at the cognitive and normative levels and can play a significant role in affecting either the foreground propositions or background assumptions of policy debate.[46] Each type of idea - programmatic principles and discursive frames in the case of the foregrounded ideas of policy experts and the public, or paradigmatic idea-sets and attitudinal values in the case of background assumptions of either group - can have significant policy-implications. New ideas of any of these types can result in policy change, although the extent of change will vary directly with the generality of the types of ideas involved. That is, a shift in public sentiments and attitudes, for example, can be expected to have a broad, but diffuse, impact on policy content. On the other hand, the introduction of a new programmatic idea by a policy elite would be expected to have a much more specific and concentrated impact.

3. A Vector Theory of Policy Change: A Taxonomy and Analytical Model

Specifying the basic variables involved in policy change and stability begs the question of how these two latter sets of processes are related to each other. Here it is not unreasonable to suggest that the nature and type of policy change which occurs in a specific sector is linked to the manner in which policy processes enhancing stability or encouraging change are linked together.[47] That is, a policy process promoting change can be impeded by another process encouraging

stability, resulting in only a gradual change from the *status quo*. Or a situation can exist where two or more change processes can be underway, without any countervailing stability process, hence promoting more rapid or fundamental change. On the other hand, in the opposite situation, a change process can be limited or negated by the existence of multiple stability processes.[48]

In this regard, it should be noted that several of the change and stability processes are very closely linked to each other. For example, extensive path dependency implies a fairly costly effort is required to alter the *status quo*. This is likely only to come about rapidly if a systemic crisis occurs which undermined the *status quo* to such an extent that it is cheaper to alter policy than retain it. Similarly, a process such as policy spillover can serve to undermine a closed network. Estimating exactly what the typical relationship is between forces of change and stability, however, requires further elaboration of the nature of patterns of policy change and how they are linked to the two basic change variables - ideas and actors - described above.

3.1. Typical Patterns of Policy Change

It is important to note that many observers have remarked upon the fact that most policies made by governments are, for the most part and most of the time, in some way a continuation of past policies and practices. Even what are often portrayed as "new" policy initiatives are often simply variations on existing practices.[49] In normal circumstances a policy problem or issue will be dealt with by reference to an existing practice, or in what has been described by many as an "incremental" fashion.[50] This pattern of piecemeal policy change is the stuff of "normal" policy-making.

A second pattern of policy change is more dramatic, though infrequent, and represents a major re-conceptualization and re-structuring of policy. This type of policy change is often described as "paradigmatic".[51] The primary differences between the two relate to the fact that incremental change involves non-innovative changes at the margin of existing policies utilizing existing policy processes, institutions, and regimes. Non-incremental, "paradigmatic", change involves new policies which represent a sharp break from how policies were developed, conceived, and implemented in the past.[52] Frequently cited examples of such changes include shifts in fiscal and monetary policy in most western countries from a balanced-budget orthodoxy to Keynesian principles and practices in the 1930s and 1940s and a subsequent shift away from Keynesianism to forms of monetarism in the 1970s and 1980s;[53] and similar shifts in resource policy from pure exploitation to conservation in the 19th century and then from conservation to sustainable management in the 20th.[54] While incremental change is usually thought of as a process of more-or-less linear evolutionary change, paradigmatic change is usually seen as involving periods of stability and incremental adaptations interspersed by periods of revolutionary upheaval or what has often been referred to as a "punctuated equilibrium" pattern of policy change.[55]

A useful way to look at these different typical patterns of policy change has been suggested by Durrant and Diehl.[56] Analogizing from work in paleobiology, they have argued that policy change has two components. Policies can vary not only in terms of the mode of change - between the normal pattern of piecemeal incremental change and the pattern of paradigmatic chance mentioned above - but also in terms of the tempo or speed of change (see Figure II).

Figure II- Basic Patterns of Policy Change

		Speed of Change	

		Fast	*Slow*
	Paradigmatic	Rapid Paradigmatic	Gradual Paradigmatic
Mode of Change			
	Normal or Intra-Paradigmatic	Rapid Incremental	Gradual Incremental

Source: Adapted from Robert F. Durrant and Paul F. Diehl, "Agendas, Alternatives and Public Policy: Lessons From the U.S. Foreign Policy Arena" in Journal of Public Policy 9(2) pp. 179-205.

As this model demonstrates, paradigmatic change, although infrequent, can be either rapid or slow. This is somewhat different from the usual conception of paradigmatic change cited in the literature, which has emphasized its often rapid nature. However, empirical evidence of such gradual processes has been generated in diverse areas such as fiscal policy, agricultural policy, aboriginal policy and forestry policy, among others. [57] The same is true for the more common pattern of incremental change which can occur at either tempo, despite the fact that the literature has tended to focus on the gradual nature of many incremental policy processes.[58]

Linking these typical patterns of change to the central variables identified in the previous section is a critical first step in any effort to understand, and manage, a sectoral, or any other, policy process. That is, the previous section identified the presence or absence of new actors and new ideas as crucial variables related to the presence or absence of specific change and stability processes identified in the policy literature. Figure III outlines the central relationship expected to apply between the major patterns of policy change discussed above and the central variables affecting change outlined in the previous section.

Figure III- The Effects of Changes in Actors and Ideas on Policy Change

		Introduction of New Actors	
		Yes	*No*
	Yes	Rapid Paradigmatic	Slow Paradigmatic
Introduction of New Ideas			
	No	Rapid Incremental	Slow Incremental

Source: Adapted from Howlett, Michael and M. Ramesh. "Policy Subsystem Configurations and Policy Change: Operationalizing the Postpositivist Analysis of the Politics of the Policy Process." Policy Studies Journal. 26, no. 3 (1998): 466-482."

This analysis suggests that there can be no paradigmatic change without the introduction of new ideas, but that even with the introduction of such ideas the speed of change will be affected by whether the ideas are generated by new or old actors. This, in turn, suggests that certain change

and stability processes can be linked with certain typical patterns of policy change (see Figure IV below). That is, since both the typical general patterns of policy change and the specific processes outlined in the previous section involved a different emphasis on the presence or absence of new policy actors and policy ideas, it follows that the different change and stability processes combine to result in a propensity towards a typical general pattern of change.

Figure IV- Stability and Change Processes and Associated Patterns of Policy Change

		Involves Presence of New Actors	
		Yes *Subsystem Spillovers* *Systemic Perturbations*	*No* *Closed Subsystems* *Hard Issues*
	Yes *Policy Learning* *Venue Change*	Rapid Paradigmatic	Gradual Paradigmatic
Involves Presence of New Ideas			
	No *Non-Decisions* *Path Dependency*	Rapid Incremental	Gradual Incremental

Each of the change and stability processes fundamentally involves the introduction, or the prevention of the introduction, of either new actors or new ideas into a policy process. Each, however, can be involved with other processes which also affect the central variables. Thus, for example, while policy learning and venue change are primarily about the introduction of new ideas, they can be combined with processes such as subsystem spill-overs or systemic perturbations which can introduce new actors into the policy system or subsystem. Understanding the relationships between the two change central variables, and the eight specific change and stability processes they affect, is an essential part of the identification and analysis of a typical patterns of policy change. Such an understanding, therefore, is a basic requirement for the analysis of future trends in specific policy sectors, and for the design of effective governmental responses to such trends.[59] In the following section, the ability of governmental procedural policy tools to facilitate or impede policy change through the manipulation of the introduction of new ideas and actors into policy processes will be discussed.

4. Managing Policy Change: Tools for Complex Network Management

As will be apparent from the above discussion, some of the policy processes which promote or facilitate policy change or stability can be subjected to manipulation by governments, such as venue shifting, policy learning and non-decision making, among others. Others, such as systemic perturbations, cannot be directly manipulated, although governments can prepare themselves for their occurrence. A variety of tools can be used by governments to promote, or prevent, specific types of change *by altering the distribution of new ideas and actors involved in the policy process* and hence altering the propensity for specific types of policy change. That is, policy effects can be designed into policy processes by contemporary governments which can influence these patterns through various kinds of network management activities.[60] This can be done for a variety of reasons and general policy aims, such as "getting out in front of an issue" in order to retain some steering capacity in the face of change, or attempting to restrain the impact of change in order to minimize turbulence and any resulting policy instability.[61]

Although a complete discussion of the possible means for enhancing policy change is beyond the scope of this paper,[62] it should be noted that Bressers and Klok, Schneider and Ingram, and others, have identified a number of policy instruments which can be used to alter the ideas and actors involved in policy subsystems.[63] These include education, training, institution creation, the provision of information, "labeling", propaganda, exhortation, formal evaluations, hearings and institutional reform.[64]

Research into the tools and mechanisms used in intergovernmental regulatory and government organizational design has also identified several others instruments such as "treaties" and a variety of "political agreements" which can affect target group recognition of government intentions and vice versa.[65] Other research into interest group behaviour and activities has highlighted the existence of tools related to group creation and manipulation, including the role played by private or public sector patrons in aiding the formation and activities of such groups,[66] and their selective representation on government advisory bodies.[67]

Still other research into contemporary policy-making has highlighted the use of techniques such as focus groups;[68] research funding for, and access to, investigative hearings and tribunals;[69] and the awarding of various powers to inquiries and hearings such as the ability to subpoena witnesses or enforce orders.[70] Finally, some researchers have also emphasized the manner in which tools can be used to negatively affect interest groups and other actors' behaviour. Such "negative" procedural instruments include suppression of information, misleading the public, withholding information, or deception, obfuscation, and other forms of administrative delay.[71]

This latter point emphasizes the fact that procedural tools can be used in a variety of ways to enhance or diminish change and stability processes.[72] As Figure V shows, in the abstract, tools can be used to promote either incremental or paradigmatic change, or to increase the speed or tempo of either mode of change.

Figure V - Policy Tools for Managing Policy Change

General Aim	General Strategy	Specific Mechanisms	Examples of Relevant Policy Tools
Promote Gradual Incremental Change	Enhance: Stability Processes	Encourage: *Non-Decisions* *Hard Issues* *Path Dependency* *Closed Networks*	• Eliminate public debate and participation • Bureaucratize processes and administration • Restrict membership in advisory bodies •Lock-in programs
	Discourage: Change Processes	Discourage: *Policy Learning* *Venue Change* *Systemic Perturbations* *Sub-System Spill-Overs*	• Censorship • Restrictions on judicial review • Build absorptive capacity • Isolate policy sectors
Promote Rapid Incremental Change	Enhance: Idea-Based Stability and Actor-Based Change Processes	Encourage: *Non-Decisions* *Path Dependency* *Systemic Perturbations* *Sub-system Spill-overs*	• Re-organize administration • Create technical advisory groups • Lock-in Programs
	Discourage: Actor-Based Stability and Idea-Based Change Processes	Discourage: *Closed Networks* *Hard Issues* *Policy Learning* *Venue Change*	• Disseminate Information to Public • Discourage judicial or administrative reviews
Promote Gradual Paradigmatic Change	Enhance: Actor-Based Stability and Idea-Based Change Processes	Encourage: *Closed Networks* *Hard Issues* *Policy Learning* *Venue Change*	• Public Participation • Facilitate judicial or administrative reviews • Encourage international linkages
	Discourage: Idea-Based Stability and Actor-Based Change Processes	Discourage: *Non-Decisions* *Path Dependency* *Systemic Perturbations* *Sub-system Spill-overs*	• Enhance technical or legal capacity of administration • Create Multi-sectoral Advisory Committees • Sunset Clauses
Promote Rapid Paradigmatic	Enhance: Change Processes	Encourage: *Policy Learning*	• Fund interest groups

Change		*Venue Change*	• Create royal Commissions
		Systemic Perturbations	• Provide new program funds
		Sub-System Spill-Overs	• Enhance Judicial Review
	Discourage:	Discourage:	• Enhance public participation
	Stability Processes	*Non-Decisions*	• Provide public information
		Hard Issues	campaigns and advertising
		Path Dependency	• Sunset Clauses
		Closed Networks	• Create cross-sectoral
			advisory committees

While the effects of the use of such tools should not be exaggerated, neither should their impact be discounted. Although these instruments remain for the most part indirect, limited in scope, often largely invisible or only partially visible, they are an important, and increasingly significant, element of the toolkit of government in the contemporary period.[73]

5. Environmental Trends and Their Likely Effect on Canadian Policy Outcomes With and Without Government Action

Utilizing the concepts, variables and relationships set out above, this section examines the most likely consequences of several currently identifiable political, economic, socio-cultural and ecological trends for Canadian environmental policy. There are numerous such trends apparent in the contemporary era and only several of the most significant of these will be examined below in terms of their likely effect on Canadian policy-making. In this subsection, the impact of those trends on policy-making in the absence of the concerted use of procedural policy tools will be assessed. The manner in which such tools can be used to mediate the impact of these trends will be discussed in the following subsection.

5.1. General Environmental Trends and Canadian Government Environmental Policy

Among the most significant trends affecting the contours and contents of Canadian environmental policy-making are the political consequences of internationalization of environmental issues; continued geo-physical and ecological problems related to resource depletion and environmental degradation; and a range of economic problems related to shifts in economic activity away from resource-intensive development and towards service and less resource-intensive manufacturing processes.[74] In addition, the propensity for spill-overs from on-going policy development in other areas, such as the continuing struggle to expand human and aboriginal rights, and demands for enhanced public participation by increasingly well educated and informed citizens in larger numbers of democratically organized polities, promises to affect environmental policy-making in Canada and elsewhere.[75]

5.1.1. Internationalization

Several key trends relate to the internationalization of environmental politics. The spread of environmental politics beyond national borders is partially related to the scale and trans-boundary nature of many environmental issues.[76] However, it is also closely linked to the improvements in transportation and communications technologies which have facilitated

international and trans-national contacts among activists, exports, officials and others involved in a variety of policy areas, including the environment.[77] The development of stable and effective international ENGOs such as Greenpeace and many other less well known organizations, is a manifestation of this process, [78] as is the more frequent and closely integrated meetings of experts and politicians on environmental subjects,[79] and the establishment of many new international treaties and conventions on environmental subjects. [80]

All of these developments affect Canadian policy-making as internationalization, (1) undermines existing policy networks with a virtually exclusive domestic base,[81] (2) facilitates cross-national learning and policy transfer,[82] and (3) provides alternate venues for policy actors blocked at the domestic level in pursuing their interests.[83]

A variety of non-environmentally specific trends are also associated with internationalization which can have, and have had, spill-over affects on activities and development in this sector. For example, fiscal issues related to international investment flows have affected the government's capacity to deal with environmental issues. This occurred when budget cuts occasioned by government deficit concerns in an era of mobile capital have cut into the resources and capacities of environmental protection agencies.[84]

Hence internationalization is a potent trends favoring policy change. Three of the change enhancing processes identified above are influenced by the trend. Moreover, while augmenting the potential for venue-shifting, spill-overs and policy learning, internationalization also affects path dependence, closed networks and non-decisions by undermining the established institutions, actors and ideas present in this sector.

5.1.2. Ecological Crises

Probably the most highly publicized trend, of course, relates to an apparent increase in the various environmental crises which occur from time to time.[85] It is important to note, however, that these crises are of different types and have different effects on policy-making. That is, crises vary according to their duration and geographical specificity. At one extreme are crises which have specific spatial and temporal effects such as oil or toxic spills and accidents. At the other extreme are those which are more general and long-term in nature such as those related to alterations in weather patterns and pollution-related disasters such as global warming or acid precipitation. In between fall a variety of other crises of varying duration and coverage, such as a short-term but widespread decline in a fish stock or the localized but long-term problems associated with the commissioning and de-commissioning of nuclear generating facilities.

While all of these crises can be classified as potential systemic perturbations, upsetting various routines and procedures common to policy systems, the potential for such crises to effect policy change varies directly with the type of crisis which occurs. That is, localized, short-term accidents can act as "focussing events" and open windows for policy reform, but are unlikely in themselves to result in policy change unless accompanied by substantial pre-existing support for change.[86] More wide-spread, short-term, crises can reveal gaps and inconsistencies in planning and policy systems and affect limited types of procedural policy change.[87] However, longer-term problems, be they local or more general in nature, can lead to the creation of interest groups and more organized forms of public involvement which can open-up previously closed policy networks and re-frame hard issues into less technical ones relating to, for example, community, public or individual health and safety.[88]

Canada, of course, has had its share of all different types such crises, and there is no reason to expect their number to diminish. In fact, as human beings continue to put pressure on ecological systems in numerous different ways and as public information media continue to

expand and develop, it is likely that an increase in the number and prominence of both short and long-term crises will occur. Hence, although with different potential effects, the number of systemic perturbations in this sector is likely to increase.

5.1.3. Post Staples Economic Adjustment

A third major trend with significant potential impacts on environmental policy-making in Canada is socio-economic in nature. This involved the continual progression of most of Canada towards a 'post-staples' economy in which the country's historical emphasis and reliance on natural resource-based economic activity is lessened by a shift towards service sector and other less resource-intensive forms of economic activity. Although it is important not to exaggerate this trend, since many regions of Canada may still be characterized as "resource dependent", there is little doubt that the economy as a whole is more diffused and diversified than in the past.[89] The development of significant new non-resource based information and other technologies [90] has accompanied severe pressures on critical resource sectors such as the fishery and the forest base and has involved substantial changes in much of Canada's social, cultural and demographic landscape.

Rapid sectoral shifts in the structure of the Canadian economy, including a shift to services, rapid tertiarisation, and significant industrial expansion in regional centres has led to an internal 'reconfiguration' of growth and development, with a significant increase in metropolitan shares of population and employment, the emergence of regional economic centres, and the decline of smaller resource-dependent communities.[91] Among the ecological aspects of these changes have been a shift from resource intensive production process to more environmentally benign ones - even in resource-based industries, such as eco-tourism.[92]

Economic restructuring of Canada's political economy in a post-staples direction has been associated with changes in the movements of capital, global competition, and technological innovation in the resource sector, all of which have resulted in the "downsizing" of the resource-based workforce and extensive job loss in rural areas. The loss of existing jobs, and the inadequate creation of new jobs in the sector has become increasingly problematic in many regions which face decline and depopulation. The growth of the tertiary sector, on the other hand, is largely urban-based and involves the creation of more jobs with proportionally less direct resource reliance and negative impact.[93]

The combined effects of changes in industrial structure and labour markets has effected the level of popular support and interest in environmental issues among the Canadian public. In resource-based rural areas support for basic values such as wilderness protection has dropped as these are seen as contributing to the decline of the traditional resource industries. In urban areas on the other hand, there is less opposition to activities such as park creation, although individuals are less likely to rank environmental issues as high in terms of political salience.[94]

This means that economic res-structuring and associated population movements and settlements patterns in Canada have had a somewhat paradoxical impact on public opinion and activism in the environmental sector. That is, overall, given the general decline of rural areas and the increase in urban populations over the past decades, general support for environmental issues has increased at the same time that opposition to specific projects and proposals in non-urban areas has intensified.

In terms of the change and stability processes outlined above, this means that post-staples economic adjustment has raised the potential for spill-overs from a variety of economic activities into environmental policy-making and has enhanced the number of venues available to activists through, for example, the institutionalization of various kinds of regional development and land use boards and agencies. More significantly, however, re-structuring undermines an important stability process - path dependency - by altering the value and significance of traditional resource

industries, thereby altering the cost implications of alterations in traditional land and resource use patterns of activity.

5.1.4. Political and Cultural Change

Environmental policy-making is also affected by the general trends visible in the enhanced democratization and fragmentation of Canadian civil society. Although the exact parameters of these changes are somewhat unclear, the mobilization of a previously deferential portions of the population to embrace various forms of political action and involvement - including that regarding the environment[95] - has potent implications for environmental policy-making.

Although Canada has so far eschewed the development of an exhaustively litigious form of citizen-led policy-making,[96] there has been a manifest increase in the willingness of individual companies and citizens to redefine many conflicts and rights-related and to challenge government regulatory actions through judicial and quasi-judicial venues.[97] While the direct impact of this movement on the environment has been limited,[98] in many areas courts have created new sets of rights and entitlements which have spilled over into environmental areas. This is especially the case with First Nations in Canada which have benefited from a series of Supreme Court rulings which have created new land use and land management rights which have forced the inclusion of aboriginal groups in resource and environmental policy-making both on treaty and non-treaty lands.[99] It is also the case with
Litigation and activism surrounding the free trade agreements, which has resulted in the establishment of new forms of investment rights which have undermined government latitude in regulatory matters.[100]

This trend, therefore, has augmented the potential for environmentally-relevant policy-spill-overs and has provided new venues for policy deliberations through the promotion of a loosely-defined but justiciable "rights" agenda.

5.2 The Likely Effects of Unmediated Environmental Trends on Canadian Government Environmental Policy

The analysis of three major international, ecological and socio-political trends suggests that taken together they have undermined all of the major stability processes and augmented the potential of all the change-oriented ones. That is, stability processes such as non-decisions are being overcome by the introduction of ideas from the international and trans-national sphere such as bio-diversity and bio-regionalism which help to alter the frames of policy discourse in the sector. Although these ideas have been in circulation for some time, they have only recently begun to emerge as the guiding principles behind environmental treaties and resource management efforts.[101] Similarly, stability-enhancing factors such as hard issues and closed networks are being undermined by the emergence of new policy actors such as international ENGOs and the redefinition of environmental issues in terms of frames related to community health and individual or group rights. Finally, the nature of path dependencies in this sector is also being altered as new institutions are created in the new international environmental order and the political economy of Canada re-structures.

Policy change processes are also being enhanced. The number and type of systemic perturbations is likely to increase in frequency as populations place increasing pressure on eco-systems and existing infrastructure ages, promoting the likelihood of the occurrence of various types of ecological crises. Similarly, the emergence of new international institutions and the development of a more activist Canadian judiciary enhances the number of judicial and other administrative and public venues for policy deliberations. Globalization and increasing international integration, generally, increase the potential for policy learning. Finally developments in Canadian social and political culture which promote individual activism and linkage of various subsystems in areas such as health and aboriginal affairs, to name only two, re-define "hard issues" into more publicly digestible forms.

Overall, following the model of policy change set out in Figure IV above, this analysis suggests that the likely impact of unmediated environmental trends on Canadian environmental policy is towards *rapid paradigmatic change*. That is, even the limited number of trends identified above all point in the direction of enhanced policy change processes and reduced policy stability processes.[102] This suggests that both new actors and new ideas will be present in this policy sector, a situation likely to lead not only to significant changes in the mode of policy-making, but also to its tempo. These general observations are set out in Figure VI below.

Figure VI - Effects of Unmanaged Environmental Trends on Change and Stability Processes in Canadian Environmental Policy-Making

	Environmental Trend	Direction of Effect
Change Processes		
Learning	Internationalization	• Encourages cross-national transfers, through elite networking
Venue Change	Internationalization/ Political/Social and Cultural Change	• Provides alternate policy venues
Spill-over	Environmental Complexity/Economic Re-structuring/Political/Social and Cultural Change	• Crosses traditional sectoral and geographic policy boundaries
Systemic Perturbations	Ecological Crises	• Introduces new actors, undermines existing institutions and policy processes
Stability Process		

Hard Issues	Ecological Crises/Economic Adjustment/Socio-Political Change	• Redefines issues from the technological to the public realms
Non-Decisions	Internationalization	• Discouraged by rapid dissemination of ideas
Closed Subsystems	Internationalization/Socio-Political Change	• Adds multiple new domestic and international actors to existing policy subsystems
Path Dependency	Internationalization /Economic Restructuring	• Creates new institutional structures and treaties and undermines resource dependence of the economy and sunk costs

5.3. The Potential for Procedural Policy Tools to Mediate the Impact of Environmental Trends on Canadian Government Environmental Policies.

Some of the effects of these processes can already be seen in the shifts which have been occurring in Canada away from the old implementation style of regulation by bilateral negotiation towards more open, and less predictable, multi-stakeholder policy processes, many of which were forced upon recalcitrant Canadian governments by new policy actors.[103] However, while rapid paradigmatic change is one possible outcome of current environmental trends, it is by no means certain that this will occur.

As was suggested above, this is due to the fact that contemporary governments have a wide range of procedural tools at their disposal which can serve to either speed-up or slow-down the tempo of policy change, or alter its general nature.[104] In order to enhance the potential for learning, for example, Canadian governments could undertake a variety of capacity-building activities.[105] Activities related to the dissemination of information, the provision of funding and access for subsystem members, and the inclusion of network members in formal policy deliberations could be incorporated into policy design in order to encourage learning and prepare governments to deal with the results of the change processes outlined above.[106] Alternatively, governments could attempt to slow or prevent change from occurring through, for example, the withdrawal of funding from interest groups or the elimination of advisory groups. [107]

However, while the effects and impact of future environmental crises remain somewhat unpredictable, it is highly unlikely that the process of the internationalization of policy-making or the re-structuring of the Canadian economy will be reversed and Canada adopt a more autarchous form of socio-economic, political, and cultural development.[108] Similarly, it is difficult to imagine Canadian society moving in a less democratic direction than has been the case over the past decade.

As a result, the continued presence and positive reception provided to new ideas in this sector, again following the elements of the model set out in Figure IV, preclude the return to any form of incremental policy-making. Rather, *the choice before Canadian policy-makers in the environmental sector is largely restricted to altering or attempting to alter the tempo of policy change, rather than its fundamental nature*. Figure VII below sets out the general situation and potential for procedural instrument use by Canadian governments to slow down the process or non-incremental, or paradigmatic, policy change which is likely to occur in this sector.

Figure VII - Policy Tools for Managing Paradigmatic Environmental Policy Change in Canada

General Options	Change Factor	General Prognosis	General Strategy	Specific Tactics	Examples of Policy Tools
Promote Gradual Incremental Change	Undermined by New Ideas	Unlikely to be attained due to impact of Internationalization and economic re-structuring			
Promote Rapid Incremental Change	Undermined by New Ideas	Unlikely to be attained due to impact of internationalization			
Promote Gradual Paradigmatic Change	Likely due to presence of New Ideas but undermined by presence of New Actors	Can be attained by restricting entrance of new actors into policy processes	Enhance Actor-Based Stability and Discourage Actor-Based Change Processes	Encourage: *Closed Networks Hard Issues* Discourage: *Systemic Perturbations Sub-system Spill-overs*	• Discourage Public Participation • Restrict judicial or administrative reviews • Enhance technical or legal capacity of administration • Restrict Multi-sectoral Advisory Committees
Promote Rapid Paradigmatic Change	Enhanced by presence of New Ideas and New Actors	Default Position			

That is, given the configuration of change and stability factors outlined in this chapter, it is likely that some form of non-incremental or paradigmatic change will occur in the Canadian environmental sector. That is, since firm government action to prevent the flow of new ideas, resulting largely from closer international integration, is highly unlikely, some form of paradigmatic change is the most likely change outcome over the near future. The central question, then, is whether this change will occur at a rapid pace (the default position) or whether Canadian governments will act to slow down the tempo of change by implementing various forms of network management activities aimed at promoting a shift towards gradual rather than rapid paradigmatic change.

While it would be difficult to attempt to block change entirely given the strength of the change processes underway (and especially the propensity for somewhat unpredictable systemic perturbations), the speed or tempo of change could be reduced through enhancement of actor-based stability processes and the reduction of the potential for actor-based policy change. This would allow existing actors to deal with new ideas, limiting the speed of paradigmatic change.

6. Conclusion: Consequences of Environmental Trends for Canadian Governance

This discussion has shown that different patterns of policy change exist and can be linked to different change and stability processes centering on the presence or absence of new actors and new ideas in sectoral policy processes. A critical question for anyone concerned with future trends in policy-making is whether and how these processes can be affected or otherwise manipulated by governments. As this paper has argued, governments can manipulate both change and stability processes, through the use of policy tools which can affect the range of ideas and actors present in policy deliberations. Although the extent to which either process can be manipulated will vary according to the exact specification of the change and stability processes involved, several conclusions can be reached in the case of Canadian environmental policy. These are:

1.   As in all other policy areas, both sets of policy change forces and processes exist in the environmental area - i.e. both policy change and stability enhancing and processes are present.

2.   Current environmental trends such as internationalization, ecological crises, economic re-structuring, and social, cultural and political change are enhancing change processes in this sector and undermining stability processes.

3.   Left unmediated by the use of government procedural policy tools, the conjuncture or vector of such forces is leading in the direction of rapid paradigmatic change as new actors and new ideas are introduced into this sector.

4.   Any attempt to shift environmental policy change to an incremental basis would require Canadian government actions to curtail the flow of knowledge and new ideas circulating in to the policy process. This is something which would appear to be very difficult to achieve given current trends towards internationalization, even if a Canadian government would actually wish to do so.

5.   While restricting the entrance of new policy ideas in this sector would be extremely difficult in present circumstances, governments in Canada could use specific policy tools to offset the introduction of new actors into the policy process, hence slowing down the process of paradigmatic policy change.

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[1] I would like to thank Harry Swain, Tsuyoshi Kawasaki, Jeremy Rayner, George Hoberg, Ben Cashore, Allen Sutherland, and Edward Parson for comments on earlier drafts of this paper.

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[10] See   Gudmund Hernes, "Structural Change in Social Processes," *American Journal of Sociology* 82, no. 3 (1976): 513-547.

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[49]Nelson W. Polsby, ed., *Political Innovation in America: The Politics of Policy Initiation.* (New haven: Yale University Press, 1984).

[50] See   Charles E. Lindblom, "The Science of Muddling Through," *Public Administration Review,* 19, no. 2 (1959): 79-88. More generally see Michael T. Hayes, *Incrementalism and Public Policy.* (New York: Longmans, 1992).

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[105] See Chapter 4 of James G. March and Johan P. Olsen, *Rediscovering Institutions: The Organizational Basis of Politics* (New York: The Free Press, 1989); Vernon W. Ruttan, "Designing Institutions for Sustainability," in Edna Tusak Loehman and D. Marc Kilgour (ed.),*Designing Institutions for Environmental and Resource Management*, (Cheltenham: Edward Elgar, 1998), pp. 142-164.

[106] See   M. Janicke and H. Weidner, *National Environmental Policies: A Comparative Study of Capacity Building* (Berlin: Springer, 1997);   Martin Janicke and Helge Jorgens, *National Environmental Policy Plans and Long-Term Sustainable Development Strategies: Learning from International Experiences* (Berlin: Freie Universitate Berlin Forschungsstelle fur Umweltpolitik Paper 96-5, 1997) and Marin Janicke et al., "Structural Change and Environmental Impact," *Intereconomics, ,* no. January/February (1989): 24-35. See also Peter Glasbergen, "Learning to Manage the Environment," in William M. Lafferty and James Meadowcroft (ed.),*Democracy and the Environment: Problems and Prospects*, (Cheltenham: Edward Elgar, 1996), pp. 175-193.

[107] Susan D. Phillips, "How Ottawa Blends: Shifting Government Relationships With Interest Groups," in Frances Abele (ed.),*How Ottawa Spends 1991-92: The Politics of Fragmentation*, (Ottawa: Carleton University Press, 1991), pp. 183-228 and Michael M. Atkinson and Cassandra W. Pervin, "Sector Councils and Sectoral Corporatism: Viable? Desirable?," in Morley Gunderson and Andrew Sharpe (ed.),*Forging Business-Labour Partnerships: The Emergence of Sector Councils in Canada*, (Toronto: University of

Toronto Press, 1998), pp. 271-294. See also Leslie A. Pal, *Interests of State: The Politics of Language, Multiculturalism, and Feminism in Canada* (Montreal: McGill-Queen's University Press, 1993).
[108] See   G.B. Doern, L. Pal, and B.W. Tomlin, eds., *Border Crossings: The Internationalization of Canadian Public Policy* (Toronto: Oxford University Press, 1996) and Andrew Johnson and Andrew Stritch, eds., *Canadian Public Policy: Globalization and Political Parties* (Toronto: Copp Clark, 1997). More generally see Allen Hammond, *Which World? Scenarios for the 21st Century* (Washington D.C.: Island Press, 1998).