THE ROLE OF FEDERALISM IN PROTECTING THE PUBLIC'S HEALTH

Canada-Wide Standards for Particulate Matter and Ground-level Ozone: A Shared Approach to Managing Air Quality in Canada

Karen Thomas

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INTRODUCTION

Air quality is a growing public health concern in Canada. An increasing number of smog days and rising levels of health-related incidents (e.g., asthma) has focused public attention on this issue. Impacts on vulnerable populations, such as children and the elderly, are of particular concern. That is why, in the 2001 Speech from the Throne, clean air was recognized as a priority for the Government of Canada. Of particular interest to public health has been the impact of particulate matter and ground-level ozone as these are the primary pollutants in smog. Protecting the environment and human health from these substances necessarily requires coordination of activities across orders of governments. Since air pollution does not respect political boundaries, failure to address air safety by one jurisdiction could necessarily undermine the efforts of adjacent jurisdictions which receive downstream air currents from neighbouring regions. The recent political turmoil over the proposed national Clean Air Act demonstrates both the rising public interest in this issue and the sensitivity and diverging interests surrounding air policy management in Canada. However, before the idea of a national act was introduced, there was recognition of the need to have a more integrated approach to dealing with air pollution and its impacts on public health.

The Canadian Council of Ministers of the Environment provides a forum for coordination of issues, such as air quality, which require interjurisdictional cooperation. The intent is to develop national guidelines and objectives to provide consistency across the country with regards to environmental quality. The Canada-Wide Standards are one mechanism developed through the Canadian Council of Ministers of the Environment

Methods

Drawing on the framework developed by Harvey Lazar and Tom McIntoch, this study conducted a descriptive and evaluative analysis of the intergovernmental relationship surrounding the development and implementation of the Canada-Wide Standards for particulate matter and ozone. British Columbia and New Brunswick were selected as provincial case studies as both of these areas were identified in a 1998 report on smog as having persistent air quality problems (Labelle, 1998). British Columbia historically has high levels of particulate matter and ozone, particularly in the Lower Fraser Valley Region. New Brunswick has been identified as an area where transboundary pollution from the United States is an issue. It is also an area where local geographic and weather conditions have a strong influence on air quality. As a policy initiative the Canada-Wide Standards have not been the focus of much external research and most materials available on the subject are comprised of government policy

effectiveness of the initiative, both for environmental quality and impacts to public health, will depend on combined efforts across the country.

AIR QUALITY AS A PUBLIC HEALTH ISSUE

In 2004, Pollution Watch released a report on pollution trends across Canada using data reported under the National Pollutant Release Inventory. The report found that of all chemicals generated at company sites in 2002, 71 percent ended up in the air - a total of 3,868,302,111 kilotonnes. Of this, 96 percent were suspected respiratory toxins (including particulate matter and precursors to ozone). Furthermore, that releases to the air increased by 11 percent from 1995-2002 (Pollution Watch, 2004).

Air quality and its impact on public health has been an increasing concern across Canada. It is a complicated issue since pollution to the air varies locally as a result of local emissions, topography, weather, and long-range transport. As well, a number of pollutants, alone or in combination with each other, can result in reduced air quality. The adverse human health effects of air pollution are principally to the body's respiratory and cardiovascular systems. Health Canada advises that health effects caused by air pollutants include difficulty breathing, coughing, and aggravation of existing respiratory and cardiac conditions (e.g., asthma). These effects result in increased medication use, increased doctor or emergency room visits, more hospital admissions, and premature death. A Health Canada study of eight cities across Canada estimated that 5900 deaths per year in these cities can be attributed to air pollution (Health Canada, 2004). In British Columbia, estimates of public health impacts related to poor air quality include 140 to 400 deaths, 700 to 2000 hospital admissions, and 900 to 2700 emergency room visits per year (British Columbia, 2004).

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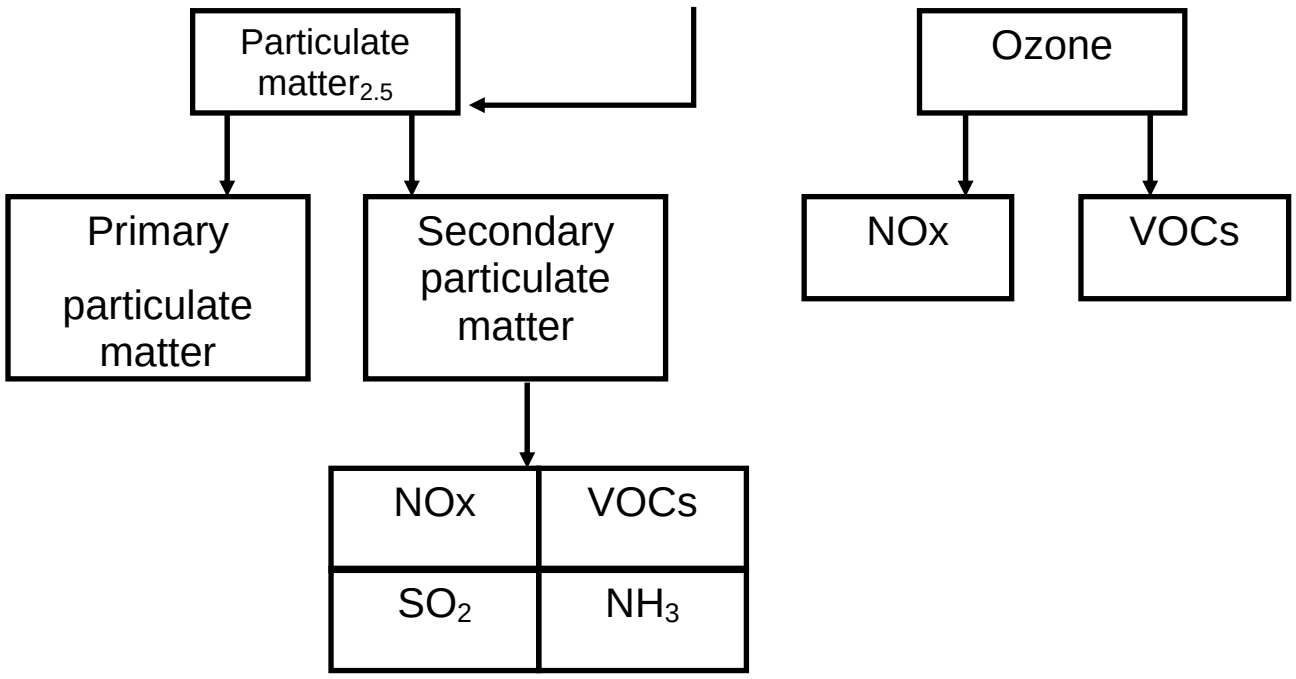
organic compounds are produced mainly from gas combustion and from the evaporation of liquid fuels and solvents. Particulate matter is a problem throughout all seasons and in all regions of the country, while ozone is mainly a summer regional problem; ozone levels are highly dependent on the weather, with the highest levels occurring in the warmer months. For example, ozone levels in the Lower Fraser Valley in British Columbia are mainly due to local emissions, while those in southern New Brunswick and Nova Scotia are largely due to long-range transport of pollutants, mainly from the United States.

Figure 1: Key Components of Smog



The main goal of the Standards is achievement of the numerical targets and timelines as illustrated in Table 2 below. Other key components of the Standards include a commitment to: "Continuous Improvement" and "Keeping Clean Areas Clean". What these provisions mean is that jurisdictions that meet the targets must still take actions and cannot simply sit back and allow levels to rise. For example, jurisdictions that meet the standards could implement pollution prevention strategies to ensure areas such as natural parks are maintained. The standards also include provisions to account for transboundary flow and high background levels of particulate matter and ozone through natural sources (e.g., forest fires) when tracking and calculating commitments. This allows jurisdictions to indicate that "best efforts" have been made to reduce particulate matter and ozone levels in cases where they are able to demonstrate that exceedances of the targets are due primarily to transboundary flow or natural background levels

Table 2: Canada-Wide Standards for Particulate Matter and Ozone: Numerical Targets and Timeframes

Substance	**Goals under the Canada-Wide Standard**
particulate matter$_{2.5}$x¤	

DEVELOPMENT OF THE CANADA-WIDE STANDARDS: INSTITUTIONAL FRAMEWORK

The Canada-Wide Standards are part of the larger framework of the Canadian Council of Ministers of the Environment. Due to the complex nature of environmental governance in Canada, the Canadian Council of Ministers of the Environment plays a key role in framing relations between the federal and provincial/territorial governments. Jurisdiction over air quality management is a joint federal-provincial responsibility; thus, the management of air issues in Canada is a complex process involving many levels of government with a plethora of legislative and policy guidelines. This is further complicated by the diverging interests of health, environment, and industry stakeholders.

The Canadian environmental policy regime has been described as federal in theory, but often provincial in nature. Deborah Van Nijnatten (1997) has noted that the decentralized nature encourages a high degree of vertical fragmentation as authority is split among a variety of departments and across several levels of government. The traditional policymaking environment has been characterized as closed, informal and consensual in nature, however, more recent studies have argued that the political culture is changing. For example, increases in environmental litigation, increased reliance on partnerships and cooperative or voluntary initiatives, and increased multi-stakeholder consultation indicate a move towards a more open and consultative approach (Hessing and Howlett, 1997; Parson, 2000; Howlett, 2000).

The Canadian Council of Ministers of the Environment is comprised of the 14 environment ministers from the federal, provincial, and territorial governments and was designed to promote intergovernmental cooperation and a coordinated approach to national environmental issues, without changing individual authorities of the participating

In 1989, the first ministers of the federal and provincial/territorial governments endorsed a Statement of Inter-jurisdictional Cooperation on Environmental Matters, providing an overall framework for joint environmental action between the two levels of government. In 1993, the federal and provincial/territorial governments approved a Comprehensive Air Quality Management Framework for Canada. This framework provided a formal basis for, and encouraged all jurisdictions to coordinate and cooperate in the management of air quality issues.

Currently, one of the key frameworks for the work of the Canadian Council of Ministers of the Environment is the Canada-Wide Accord on Environmental Harmonization. Signed in 1998 (with the exception of the province of Quebec), the Accord was designed to improve cooperation among the governments on several environmental issues (Canadian Council of Ministers of the Environment, 1998). The Accord included several sub-agreements, one of which was the Canada-Wide Environmental Standards Sub-Agreement.[3] The Standards Sub-agreement supports governments working together to address key environmental protection and health risk reduction issues that require common standards across the country (Canadian Council of Ministers of the Environment, 2006). There are several Canada-Wide Standards related to air quality; there are separate Standards processes for benzene, mercury, dioxins and furans, and particulate matter and ground-level ozone. The Canada-Wide Standards for particulate matter and Ozone were chosen for this study since, as described, these substances have been shown to have a strong connection to human health.

The Canadian Environmental Protection Act allows the federal government to set guidelines and objectives related to air quality. Under The Canadian Environmental

Figure 2: Development of National Ambient Air Quality Objectives or Canada-Wide Standards For Air Pollutants

Stage 1: Risk Assessment

Under The Canadian Environmental Protection Act by the Working Group on Air Quality Objectives and Guidelines			
Evaluation of Hazards	Assessment of Exposure	Dose-Response Evaluation	Risks of Various Ambient Levels
Peer review and public consultation			

Stage 2: Risk Management

Canada-wide Standards

Under Canada-Wide Standards by the Federal/Provincial/Territorial Environment and Health Representatives

National Ambient Air Quality Objectives

Under The Canadian Environmental Protection Act by the Working Group on Air Quality Objectives and Guidelines				
Development of Options for NAAQOS	Consideration of Social Significance and Acceptability, and Potential for Achievability	Recommendation to Federal Health and/or Environment Ministers	Approval by Federal Health and/or Environment Ministers	Jurisdictions to Use as they see fit
Public Consultation				

Source: Adapted from Health Canada, Regulations Related to Health and Air Quality, http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/reg_e.html#4

agencies. As noted, the Canada-Wide Standards for particulate matter and Ozone built

inequity between jurisdictions in their ability to participate in the development of the standard.

STRUCTURE AND LEGISLATIVE AUTHORITY FOR THE CANADA-WIDE STANDARDS

Since the *Constitution Act* does not specifically refer to the environment, the management of air pollution in Canada is necessarily a shared responsibility. According to the distribution of legislative powers, Section 91 of the Constitution provides the federal government with authority to cont

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Through The Canadian Environmental Protection Act, a number of emission sources fall under federal authority. These include marine vessels, aircraft, railways, and offroad engines. (Environment Canada, 2006). Some examples of recent legislative actions aimed at meeting the Canada-Wide Standards for particulate matter and Ozone include: The *On-Road Vehicle and Engine Emission Regulations*, adopted on January 1, 2003, prescribing more stringent emission standards for on-road vehicles and engines; the *Sulphur in Gasoline Regulation*, adopted July 2002 to limit the amount of sulphur in gasoline to an average of 150 and 30 parts per million in 2002 and 2005 respectively; and the *Sulphur in Diesel Fuel Regulation*, passed on July 31, 2002, which mandates that the limit of sulphur in diesel fuel will be reduced from 50 mg/kg to 15mg/kg in mid-2006 (Environment Canada 2001; 2003).

The federal government also has primary responsibility for international agreements. The 1991 *Canada-United States Air Quality Agreement* is the main mechanism governing air quality between the two countries (Environment Canada, 2004). The Ozone Annex was signed under the Agreement in 2000 and provides for joint action to reduce emissions of nitrogen oxides and volatile organic compounds in provinces and states within the Pollutant Emission Management Area (includes Ontario and Quebec in Canada). In 2004, a joint Canada-United States assessment report was produced to assess the need for a particulate matter annex pursuant to the Air Quality Agreement (Canada, 2004) and in April 2007, the governments of Canada and the United States announced the start of negotiations on this annex (US Environmental Protection Agency, 2007).

Additionally, a rising concern is emissions from large marine vessels while in harbour. International controls on air pollution from shipping are being developed by the federal government through the International Maritime Organization. The International Maritime Organization has introduced an international agreement[7] to limit sulphur content in marine fuels to 4.5 percent and to designate "special areas" (e.g., the Greater Vancouver Regional District) where sulphur limits would be restricted to 1.5 percent (Environment Canada, 2001).

Under the Constitution, the provinces/territories have jurisdiction over much onal agreem

British Columbia is fairly unique in that the Greater Vancouver Regional District has been delegated authority for air quality under the *Waste Management Act* (British Columbia, 2003).[10] Through the Waste Management Act (amended to the *Environmental Management Act* 2004), the Greater Vancouver Regional District is responsible for air quality management within its jurisdiction, including 21 cities and municipalities in the Greater Vancouver metropolitan area. The Air Quality Management Bylaw No. 937 defines control of industrial emissions, generally through a fee-based permitting system.

The *Environmental Management Act* also provides the basis for area-based planning in the province. Area-based plans take a bottom-up approach, with a high level of involvement by local communities. The plans also take into account regional growth strategies and community activities to ensure a balance between economic and population growth and air quality. The province has developed a *Guide to AirShed Planning in British Columbia* (2004) to provide a framework for the development of plans. However, the pervasiveness of airshed planning in BC is not as prominent in other parts of the country; limited examples include the Province of Alberta which has a management framework under the Clean Air Strategic Alliance and the City of Toronto which has developed a strategy based on an airshed approach.

Given their involvement in public transit and land-use planning, municipalities have a key role to play in improving local air quality. However, the relationship between provincial/territorial governments and local governments varies across the country, with a range of municipal involvement in air quality management apparent. On the one hand, local governments in British Columbia are developing airshed management plans to

structure planning in their regions. Further, the Greater Vancouver Regional District has been delegated provincial powers for air quality management in the region. On the other hand, municipalities in New Brunswick appear to play a minor role in managing air pollution.

It is important to note that the Canada-Wide Standards are a *standard*; it is not legally binding and has no enforcement capabilities on its own. Parties are able to withdraw from the agreement, with three months notice. This would change if the standards are specifically written into legislative initiatives such as into provincial

across Canada, implementation of activities to meet the principles for Continuous Improvement and Keeping Clean Areas Clean, and activities to reduce transboundary flow of particulate matter and ozone into Canada. To assist in the implementation of the Canada-Wide Standards for particulate matter and Ozone, a Joint Implementation Action Coordinating Committee was established with representatives from each jurisdiction.[11] As well, Ministers agreed upon a set of "joint initial actions" to reduce levels of particulate matter and ozone. These included activities related to emissions from transportation, residential wood burning appliances, and industry sectors, codes of practice for the construction and demolition sector, databases for ambient air quality, improving scientific knowledge, and the development of alternative energy models (Canadian Council of Ministers of the Environment, 2000).

Jurisdictions are required to develop implementation plans to achieve the Standards and report on progress. Comprehensive reports on progress are to be produced every five years, starting in 2006, with annual reports on achievements and maintenance of the standards starting in 2011. The requirements to report on achievement of the Canada-Wide Standards apply only to population centres over 100,000. In order to ensure consistency and comparability in reporting by jurisdictions, supporting documents have been developed; the *Guidance Document on Achievement Determination* includes methodologies, criteria, and procedures related to monitoring and reporting on achievements of the Standards (Canadian Council of Ministers of the Environment, 2002).

In 2001, the federal government announced a *10-Year Action Plan on Clean Air* which contained actions for reducing emissions from transportation and marine sources,

transboundary pollution, and industrial sources. This plan was broad in nature, making commitments to improve air quality in general. Specific activities related to the commitments under the Canada-Wide Standards for particulate matter and Ozone were first outlined in the *Interim Plan 2001 on Particulate Matter and Ozone*. An updated report was also provided in the *Clean Air in Canada: 2003 Progress Report on Particulate Matter and Ozone* which provides a summary of achievements of the federal government and progress on meeting the Standards. It does not appear that the provinces/territories have been as rigorous in their reporting, although some have provided status reports starting in 2006 (as per the Canada-Wide Standards commitments).

Each jurisdiction is responsible for implementation of mechanisms to achieve the Canada-Wide Standards for particulate matter and Ozone in their area, and the agreement provides them with the flexibility to do so in whatever manner they choose. Implementation activities correspond to the legislative authority for air quality and do not alter existing roles or responsibilities. For example, the federal government has passed several pieces of legislation within their constitutional authority to reduce levels of air pollutants (i.e., *On-Road Vehicle and Engine Emission Regulation, Sulphur in Gasoline Regulation, and the Sulphur in Diesel Fuel Regulation)*

particulate matter, and to expand the network to include more monitoring sites (Environment Canada 2001; 2003).

Jurisdictions may also use a variety of non-regulatory mechanisms. In British Columbia, the Motor Vehicle Emissions Inspection and Maintenance Program (aka "AirCare") has been operating since 1992.[12] The program was developed in partnership with the Ministry of Water, Land and Air Protection and the Greater Vancouver Regional District to address the deteriorating air quality of the Lower Fraser Valley. AirCare tests vehicles for several regulated air pollutants. British Columbia has also implemented the Alternate Fuel Tax Exemption to encourage the use of natural gas, propane, and high-level alcohol blends and the SCRAP Program which provides financial incentives to take older polluting vehicles off the road. (British Columbia, 2003).

The level of involvement at the municipal level varied between the two provinces examined in this study. In New Brunswick, it appeared that municipal governments are not playing a large role in the implementation of the Canada-Wide Standards for particulate matter and Ozone. Three larger municipalities were contacted, with none indicating an involvement in the Standards. In addition, limited use of by-laws related to reducing levels of air pollution was found. On the other hand, municipalities in British Columbia play a very strong role in air quality management. Nine municipalities (2005) have developed airshed management plans; these are community-based, led by local government and with a high level of stakeholder involvement. The plans also take into consideration regional growth strategies and community plans. The province's "Guide to Airshed Planning in British Columbia" provides guidance and tools to municipalities and ensure consistency across the province (British Columbia, 2004). The Greater

responsibilities, with some exceptions where a joint approach is required (e.g., monitoring networks). The goal of the Canada-Wide Standards is to achieve consistent standards across the country, through a partnership which respects the roles and responsibilities of the jurisdictions, aiming to ensure that each jurisdiction undertakes those activities to which they are best suited.

Thus far, the emphasis on cooperation and coordination of efforts appears to be working. The biggest problem has been in the fact that jurisdictions across Canada are not equal with regards to their level of financial and staff resources. Thus, not every province/territory was able to participate in the development of the standards to the same degree. The same provinces will have a more difficult time meeting the commitments of the Canada-Wide Standards.

Very soon however, the dynamics of federal-provincial-territori

Table 3: Allocation of Roles and Responsibilities for the Canada-Wide Standards for Particulate Matter and Ozone

Activity	Allocation of Responsibilities		
	Federal	**Provincial/Territorial**	**Local**
Setting the Agenda	X	X	X Limited role
Legislative Authority	X	X	X Limited role
Implementation	X	X	X Varies by Municipality
Funding	X	X (some cost-sharing for monitoring programs)	X

Note: Other stakeholders have also played a strong role in the development of the

laws. The airshed management planning process in British Columbia is a good starting point for such activities. However, placing such additional burdens on local government requires increased funding from the provinces/territories and the federal government.

Thus, the result is a somewhat disjointed framework with coordinated and complementary efforts needed across the country to improve air quality, involving activities at all levels of government as well as various agencies within each jurisdiction. However, this is a function of the nature of the issue (e.g., transboundary pollution) and the structure of the Canadian Constitution. Therefore, air quality management in Canada

jurisdiction can have impacts on neighbouring areas. A more hierarchical approach, or perhaps best defined as coerceive due to the constitutional overlap of responsibilities, could have been chosen by the federal government. This could have involved using legislative powers through The Canadian Environmental Protection Act to require provinces/territories to meet federal standards. Alternatively, the federal government could have cost-shared the implementation of air pollution control mechanisms in provinces in exchange for federal standards being met.

Table 4: Nature of Intergovernmental Relationship: Agenda Setting

Government Relationship	Nature of Intergovernmental Relationship: Agenda Setting of the Canada-Wide Standards		
	Hierarchical	**Interdependent**	**Form of Relationship**
Federal-Provincial	No	Yes	Collaborative **Strong Relationship through Canadian Council of Ministers of the Environment framework*
Provincial-Local **Exception: GVRD**	Yes No	Yes Yes	Unilateral Collaborative
Federal-Local	Yes	Yes	Unilateral **Limited Relationship*
Provincial-Provincial	No	High	Collaborative **Strong Relationship through Canadian Council of Ministers of the Environment framework*

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targets and guidelines across the country. In practice, however, the actual design and targets for the Standards are limited and could certainly be improved to provide for better protection of public health.

The use of a collaborative strategy resulting in the development of the Canada-Wide Standards for particulate matter and Ozone involved a high le

However, the data also suggests a general trend of increasing levels of pollutants, so actions will need to be taken to stop this upward trend (New Brunswick, 2004). A similar situation is apparent in British Columbia where only four areas meet the population threshold, with none exceeding the numerical targets. This raises the question of whether the standards were set low enough. This is also where the criterions of "continuous improvement" and "keeping clean areas clean" become important to ensure ongoing efforts are made to reduce levels of air pollution.

Further, transboundary pollution and background levels are exempt from the calculation of achievement; jurisdictions only have to account for emissions/levels of pollutants generated within their own jurisdictions. In New Brunswick, a large portion of air pollution originates from outside the region. Major weather systems bring pollutants from more industrialized and populated areas of central Canada a

fraction of particulate matter$_{10}$, seasonal or annual average targets, and assessing the adequacy of the targets for the protection of vegetation, visibility impairment, or material damage. Thus, it acknowledges the need for future changes to the targets and continuous improvements to the commitments. Future assessment and revisions to the Standards will be needed to positively impact public health in Canada.

IMPACT ON DEMOCRATIC PROCESSES

The development of the Standards involved a high level of public input and consultation with industry, municipal governments, environment, health, and First Nations. In fact, there was general consensus among those interviewed in this study that the development of the Canada-Wide Standards for particulate matter and Ozone was a very inclusive process.

Under the collaborative approach, a variety of consultation mechanisms were employed to support consultation, including: advisory groups; various stakeholder workshops; posting of information on the Canadian Council of Ministers of the Environment website; and an electronic listserv to notify interested stakeholders of new information. A Core Advisory Group made up of industry, First Nations, and environment and health organizations was a key component in the development of the Standards. The Core Advisory Group met with the Joint Action Implementation Coordinating Committee at least twice a year, and was involved in the science workshops and review of the science and policy documents. The group worked in an advisory capacity (i.e., sat at the side of the negotiating table) and was able to make recommendations, however the Joint Action Implementation Coordinating Committee had authority for final decisions. There was, however, an expectation that the Joint

Action Implementation Coordinating Committee would need to explain any actions or decisions which went against the advice of the Core Advisory Committee. Additionally, as figure 2 demonstrates, the formal process for the development of the National Ambient Air Quality Objectives (or Canada-Wide Standards) for air pollutants includes public consultation mechanisms.

In terms of opportunities for open forums, numerous workshops and consultations were held throughout the development and implementation stage of the Canada-Wide Standards for particulate matter and Ozone. Stakeholder consultations were held in 1998 and 1999 as part of the development of the standard. Multi-stakeholder workshops were also held in 2002 and 2003 to consult on options to reduce emissions from residential woodburning appliances and requirements for continuous improvement and keeping clean areas clean. A multi-stakeholder workshop on options for the development of a Guidance Document for Keeping Clean Areas Clean and Continuous Improvement was held in March 2003. A variety of stakeholders from industry, government, and environmental and health groups attended and provided feedback on guiding principles and the development of implemp ntation stage of tconsulta.w1 l.fbac0.79 003 w3yiTw[25 -2.3 TD0

understand. This limits the level of participation by non-experts and reduces the transparency of the process. Second, participation in the development and implementation of the Standards has mainly been by health and environment organizations and there is an inherent assumption that such groups represent the interests of the general public. Moreover, discussion with a First Nations organization in British Columbia indicated that some organizations were unable to participate as fully as they would have liked due to financial constraints. Funding support by the federal and/or provincial/territorial governments would lead to more equity in the ability of groups to participate in events.

Since the Canada-Wide Standards are a public commitment (i.e., do not include formal enforcement mechanisms), it will be up to the constituency in each jurisdiction to hold officials accountable for achieving their commitments under the standards. As a national initiative, however, the Canada-Wide Standards for particulate matter and Ozone are not well known among the general public; thus, there is a need to increase public education and awareness at two levels. First, education and awareness in conjunction with incentive programs could be used to reduce levels of particulate matter and ozone coming from human activity. For example, incentives to use public transit and rebate programs for fuel-efficient or low-emission cars. Second, constituencies need to be aware of the national and political commitments under the Standards and put pressure on government to ensure these are met.

Finally, due to the complicated institutional structure governing air quality in Canada broadly, and the Canada-Wide Standards for particulate matter and Ozone in particular, it is difficult to ascertain accountability through this collaborative structure.

Action plans are being developed by the federal government and individual provinces and territories, resulting in a large number of new regulations and activities. Understanding how these are integrated, as well as which level of government to hold accountable is confusing. The added institutional complexity of having multiple agencies involved at each level of government (e.g., environment, health, transportation) adds to the problems of transparency and accountability. Several government representatives noted that it is difficult for them to understand the intricacies of the various agencies involved and how different policies and regulations connect; imagine how c

Standards is for responsibilities to lie with the jurisdiction best situated to undertake actions. While the federal government could step in under the authority of The Canadian Environmental Protection Act, it is unlikely that the federal government will take action as long as the provinces are achieving the set goals. While The Canadian Environmental Protection Act does offer an avenue for a federal regulatory "stick" to ensure the targets are met, the general tone of intergovernmental relations in this initiative suggests that it is better to have the provinces/territories as willing partners, working in a collaborative manner. As noted previously, it is also in the best interest of the provinces/territories to cooperate so as to ensure that they are involved in the decision-making processes, rather than having policy dictated from above.

The biggest problem of the collaborative approach, both in terms of the development of the Standards and implementation activities, is an inequity among jurisdictions with respect to staff and financial resources. The federal government has played a larger role in the Canada-Wide Standards, mainly because they have more staff, technical expertise, and resources to contribute. However, inequities between the provinces/territories have resulted in divergent abilities to participate in the research and development of the standards. Often, political commitments do not take into consideration the level of work and resources required to meet the obligations and, thus, some regions may have a more difficult time meeting their commitments under the standards.

	Summary
	since the Standards do not include formal enforcement mechanisms. • Complexity of agencies involved and lack of integration between activities results in poor transparency and accountability.
Federalism	• Collaborative approach in the Canada-Wide Standards for particulate matter and Ozone respects jurisdictional sovereignty. • The transboundary nature of air pollution and the delegation of authorities under the Constitution necessitates coordinated actions between jurisdictions. • More vertical and horizontal linkages is needed as there are many agencies and levels of government involved in air management in Canada. • Municipalities have a key role to play and additional funding is needed to improve their involvement. • Some inequity in ability of jurisdictions to participate in the development of the Standards and meet their commitments (i.e., burden on "have-not" provinces).

CONCLUSION AND RECOMMENDATIONS

The transboundary nature of air pollution issues necessitates cooperation among jurisdictions, nationally and internationally. Activities cannot be dictated by political boundaries and the future of public health and the environment in Canada depends on interdependencies among the jurisdictions. Thus, due to the decentralized structure of air

Given the current political climate and focus on air policy in Canada, these circumstances may change. If a national Clean Air Act is passed, it will have significant impact on intergovernmental relations and the legislative authorities for managing impacts of air pollutants on the environment and public health. To reduce smog and improve air quality, we need to reduce levels of the various contributing pollutants. Canada needs a comprehensive approach that addresses all the precursors and integrates the various initiatives for related air issues, such as acid rain and climate change. Governments must seek to develop a comprehensive air management strategy that provides an integrated approach and more coordinated action among linked air issues. Linkages can be pursued between issues, across initiatives, and between jurisdictions.

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Through the *Air Quality Regulation*, conditions are attached to a facility's

