

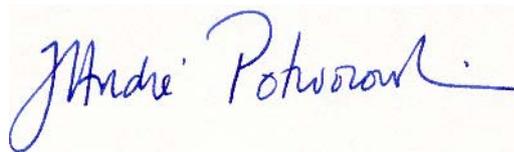
July 12, 2010
The Honourable Jim Prentice
Minister of the Environment
Les Terrasses de la Chaudière
10 Wellington Street, 28th Floor
Gatineau, Quebec
K1A 0H3

Dear Minister,

We are pleased to respond to your invitation of March 2010 of providing a response to the Federal Sustainable Development Strategy Consultation Paper. We have chosen to do this as a student project in fulfilment of the MBA program at the Telfer School of Management of the University of Ottawa. It is our belief that such an exercise by future leaders of Canadian business will help increase their awareness of some of the complexities of government decision-making and challenges of public policy.

In examining this paper, we have taken a perspective of management best practices illustrated with practical examples of how some of the challenges identified in the strategy could be best addressed.

I hope that you and your officials will find these observations and recommendations helpful and practical. If you feel it would be beneficial, we would be happy to meet with you to clarify any of our points.



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A response to the proposed Federal Sustainable Development Strategy Consultation Paper.

Prepared for Environment Canada

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Table of Contents

Introduction	2
<i>General Observations</i>	2
The structure of the FSDS.....	2
Economic and job benefits of the FSDS.....	2
Targets, Metrics and Indicators: tracking success.....	3
Climate change and air quality	4
<i>Climate Change</i>	4
<i>Air Quality</i>	6
Other Observations	7
Water quality and availability	8
Other Observations	9
Reducing the environmental footprint of Government	9
Conclusions and recommendations.....	11

Introduction

In reviewing the Federal Sustainable Development Strategy (FSDS) consultation paper, we have taken an MBA perspective and examined it using best management practices as applied to strategies and strategic planning.

We asked ourselves three questions: whether the document and its appendix are likely to deliver the stated objectives as outlined in the ministerial cover letter, whether the resources to achieve these are properly identified, and finally whether there are appropriate indicators and metrics to track progress.

In other words, we have asked whether the strategy paper is consistent with the definition of strategic planning as articulated by one of the great management gurus, Peter F. Drucker.

Strategic planning is the continuous process of making present entrepreneurial (risk-taking) decisions systematically and with the greatest knowledge of their futurity; organizing systematically the efforts needed to carry out these decisions; and measuring the results of these decisions against the expectations through organized, systematic feedback¹.

In so doing, we are mindful that the environment and climate change have been at various points in the last several years at the forefront of public attention, and that there may be different political priorities accorded to sustainability across the country.

General Observations

The structure of the FSDS

In general terms, it was not clear to us whether this Consultation paper was a statement of desired goals to be pursued by your government, or a *bona fide* strategy with targets, resources allocated to achieve them, and timelines and tracking indicators, according to the Drucker definition.

Another weakness we observed was the weak linkage between the approximately 50 different programs and initiatives listed in Annex 1, and the stated goals and objectives in the front part and in the ministerial letter. Many of the resources listed in the Annex appear to be existing programs that the government has been delivering for a number of years. Some initiatives appear to be new or proposed. Others, like the ecoEnergy program, have been referenced a number of times in the appendix, but it was announced a few of months ago that this program (or major components of it) has been cancelled. We believe it would help the implementation of the strategy if a much clearer linkage were made between these 50 initiatives and how they contribute to the overall objectives and purpose of the FSDS.

Economic and job benefits of the FSDS

We also found no mention of the specific and positive impact on jobs and the economy that a FSDS would have. For example, the UK Stern report² highlights the

¹ "Management: tasks, responsibilities, practices", Peter F. Drucker, Harper & Row, 1974, page 125

² <http://news.bbc.co.uk/2/hi/business/6098362.stm>

costs of climate change and how making small changes can be economically significant. It says that extreme weather could reduce global gross domestic product (GDP) by up to 1%. If temperatures rise by five degrees Celsius, up to 10% of global output could be lost. The poorest countries would lose more than 10% of their output.

If emissions were to be stabilized in the next 20 years and fall between 1% and 3% after that, this would cost only 1% of GDP. Stern points out that the benefit of minimizing emissions outweighs the costs.

Another example of how sustainability contributes to the economy is the recycling industry. According to the United States Recycling Economic Information Study (2000), the recycling and reuse industry supported approximately 56,000 operations that employed over one million people, produced an annual payroll of nearly \$37 billion, and totaled over \$236 billion in annual revenues³. We were unable to find Canadian figures of this nature, however it is reasonable to assume that the gains would be significant.

One estimate⁴ claims that up to one million full-time employees would be required to retrofit to the highest energy standards all the Canadian residential stock. These are local jobs that cannot be outsourced to China

Lastly, we also have the example of the Ontario Government's Green Energy Act and other measures to promote a world-class green industry. We found no indication of how the FSDS would complement these initiatives in Ontario and other provinces, nor how it could be used to leverage the government's efforts to further stimulate economic growth. We believe that a stronger linkage between the initiatives proposed here and economic stimulation would significantly increase the political appeal of the FSDS.

Many departments are mentioned in the Appendix, but we found little or no references to Finance Canada, and its powerful fiscal instruments. The Pembina Institute has estimated that total tax subsidies through accelerated capital allowance to the tar sands industry amounts to \$2 billion a year. Could some of that leverage be redirected to promoting a sustainable Canada and green industries?

Targets, Metrics and Indicators: tracking success

While setting targets is a delicate balance of political will and stakeholder engagement -- an exercise that is not always easy in our Federal-provincial Confederacy -- collection of data and measurement is an area of activity in which the federal government has very clear powers. While the FSDS consultation paper repeatedly mentions the importance of setting targets, tracking and measuring process, it is our view that it does not fully exploit the very extensive range of powers available to the Federal government to achieve this.

For example, Statistics Canada has undisputable legal authority in collecting in some cases highly sensitive and confidential data from individuals and corporations. We

³ Callan & Thomas, 2006

⁴ See <http://makingithappen.ca>

recognize that at one point it was responsible for collecting GHG emissions data – although we don't know the reasons behind the transfer of this task to Environment Canada. We believe that statistics Canada would require only a small addition to its existing mandate, resources and survey instruments to collect with the same degree of reliability data on all key indicators related to a transition to sustainability.

The Federal government also has other powerful instruments at its disposal for developing standard measuring methodologies, legal metrology, and research facilities that could be tasked to improve our ability to measure and track progress towards a sustainable Canada. Some of these include Measurements Canada, NRC's Institute for National Measurements and Standards, and the Standards Council of Canada. Other federally sponsored activities include the International Joint Commission, and the GEMS/Water UNEP program, both excellent examples of bodies that coordinate the collection and dissemination of environmental performance indicators. We believe that there is a lot of potential to build on the success of these instruments, and to strengthen their scope and reach to help the transition to a Sustainable Canada.

We have tried to use the theme of measurement and tracking as a key element in our comments on the FSDS Consultation paper, because of our considered view of the critical importance to any strategy of being able to measure “the results of these decisions against the expectations through organized, systematic feedback” in the words of Peter Drucker. At the end of the day, we would like to see a set of indicators to sustainability as clear and transparent as the daily weather forecast, or the TSX index.

To illustrate our analysis, we have decided to focus on three dimensions of the strategy:

- Climate change and air quality
- Water quality and availability
- Reducing the environmental footprint of Government

Climate change and air quality

Air Quality and Climate change goals have an important impact not only socially but also economically. The FSDS Consultation paper presents various interesting initiatives aimed to monitor and control climate change and air quality, however, shortcomings exist. As we show in the following section, we were unable to see how the initiatives discussed in the FSDS followed the SMART (specific, measurable, achievable, relevant, time-based) method.

Climate Change

The Green House Gas Emissions Report, originally published by Statistics Canada but since 2009 prepared by Environment Canada, talks about the accurate tracking of greenhouse gas (GHG) emissions as an important part of Canada's overall environmental performance, by providing a more precise picture of the sources and amounts of Canada's GHG emissions⁵. We feel that measurement of these must be accurate enough to be significant in order for the FSDS to be a truly realizable

⁵ <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=5081&lang=en&db=imdb&adm=8&dis=2#a2>

strategy anchored on SMART goals. What we are trying to highlight is that the FSDS Strategy must demonstrate a cause-effect relationship that is clearly visible and understandable.

The Sustainability Reporting Program is an independent, non-partisan, not-for-profit organization⁶ that investigates the state of sustainability reporting. In this report it talks about the state of sustainability reporting in Canada. This report also highlights the initiatives that the FSDS is addressing and mentions its limitations. This comes close to what our paper aims to recommend.

In the Environment Canada Indicators site, it is stated that comparing different years of data is not recommended. Different facilities in a given type of industry may use different methods for estimating emissions.⁷ It is also clear from the FSDS that the government is aware of its limitations in reporting and achieving SMART goals.

According to the GHG report, emission data are only required from facilities that meet the reporting requirements. Not all industrial facilities in Canada are required to report their annual GHG emissions to Environment Canada. The Greenhouse Gas Emissions Reporting Program only requires facilities that emit the equivalent of 100 kt or more of CO₂ eq to report. If desired, facilities with emissions below the reporting threshold can still participate in the Greenhouse Gas Emissions Reporting Program and report their emissions annually. The threshold has been reduced to 50 kt for 2009 data to be reported in 2010.⁸ This still seems to be a high threshold value and we recommend that it be further reduced for accuracy and completeness. Most importantly however, all facilities should use similar methods of estimating emissions so that data can be transparent and comparable.

In a blog⁹ commenting on the Commissioner of the Environment and Sustainable Development report published in 2009, there is a discussion on the real emissions from Canada's residential sector. Households in Canada contribute anywhere from 10-50% of GHGs, depending on whether one only looks at the building itself, or the whole community. This is a significant enough figure to require accurate measurement and a better agreed-upon definition. We believe that we need to engage the key sectors to find better ways for tracking their own emissions, while households and business should be encouraged to measure their own progress.

According to the ScienceDaily article (1 July 2010)¹⁰ the emission of the greenhouse gases methane and nitrous oxide has been structurally underestimated, and a large proportion of global greenhouse gas emissions are actually these gases. The emission of methane and nitrous oxide is largely the result of agricultural activities; nitrous oxide from fertilizers and methane mostly from cows. Therefore more stringent measurement needs to be implemented across the spectrum of economic sectors. These two gases make a significant contribution to total greenhouse emissions, therefore it is important to chart their emission levels accurately. According to Kroon, however, there are considerable disadvantages to the emission measurement technique most commonly used for these gases, the so-called

⁶ <http://www.sustreport.org/background/srp.html>

⁷ <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=91B7DB55-1&offset=7&toc=show>

⁸ http://www.ec.gc.ca/pdb/ghg/onlinedata/downloadDb_e.cfm#sec1

⁹ <http://transitiontosustainability.blogspot.com/2009/05/overcoming-barriers-finding-innovative.html>

¹⁰ <http://www.sciencedaily.com/releases/2010/07/100701090330.htm>

'chamber measurement' method. The problem with this method is that methane and nitrous oxide emissions fluctuate strongly in time and space. "If you do the same measurements ten meters away, or ten days later, the results can be totally different. The result is a high uncertainty in the measured annual emission values: about 50%.¹¹

The previous paragraphs highlight the fact that the reliability of current measurement is questionable and that without consistent standards of measurement the results can be misleading. We believe that in order to reach timely goals these have to be accurately measured in order to truly capture an improvement around tight performance metrics. If these measures are 'loose' regarding method and time of measurement, then incremental improvements cannot be accurately captured. Moreover, any motivational effect of using GHG indicators as a tool for change will be lost.

Air Quality

The National Air Pollution Surveillance network (NAPS) measures air quality with tools of the provinces, territories and Environment Canada, and has 289 measurement stations across Canada. The Canadian Air Precipitation Monitoring Network (CAPMoN) measures air quality in rural settings and has 30 measurement stations. These two bodies collectively monitor air quality and they provide information for the Index of the Quality of Air (IQUA). Although extremely powerful, these tools do not follow the SMART method for a variety of reasons.

There are errors that occur when measuring air quality¹² and because there are not enough measurement stations across Canada, external measurement stations provide data in alternative forms resulting in inconsistent analysis. In order for Environment Canada to implement strategies aimed to reduce pollution, an accurate, standardized and reliable measurement system must be put in place.

Due to the data completeness criteria (standard practices followed by organizations including the World Health Organization and the U.S. Environmental Protection Agency, as well as expert opinion)¹³ much of the data on air pollution that is gathered is not used. This not only creates an unnecessary cost for the government, but also demonstrates that, perhaps, useful data is not incorporated into analyses used to develop strategic implementations. All data on air quality that is gathered should be used.

There are inconsistent definitions of the regions used for reporting (2007 to 2009 regions are not the same as those used in the 2006 and earlier releases). This causes a lost opportunity to analyse trends and spatial patterns¹⁴, a core requirement when measuring the effects of air pollution.

The current method used for trend analysis is conservative in terms of its ability to shed light on year-to-year comparison. A synthesis of the daily, weekly, monthly and seasonal cycles in pollution levels would enhance the breadth of the analysis. This would be useful for understanding how the indicators respond to temporal and

¹¹ <http://www.sustreport.org/background/srp.html>

¹² <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=DCC798B8-1&offset=7&toc=show>

¹³ <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=DCC798B8-1&offset=7&toc=show>

¹⁴ <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=DCC798B8-1&offset=7&toc=show>

meteorological factors (e.g. day of the week, temperature) compared with changes in sources of pollutants and related precursors.¹⁵

The Population Weighting method that is used assumes a uniform concentration of ground-level ozone and PM_{2.5} within subjectively defined zones. Winds and the location of major emission sources relative to monitoring stations could be modelled to provide a more accurate estimate of pollution levels across various population concentrations.¹⁶

Most air contaminants are not measured in the index, only sulphur dioxide, nitrogen dioxide, ozone, fine particulate matter and carbon monoxide are continuously monitored.¹⁷ Various other pervasive air contaminants exist, and should be measured in order to accurately depict air quality levels across Canada.

There is currently no fully-fledged network of stakeholders that emit pollutants into the environment, and there is no implementation plan that involves initiatives to bring these parties together to collaborate on a solution aimed to improve air quality. There is mention in section 2.1.1.2 of the document that a National Ambient Air Quality Standard will be developed, however, there is no mention as to when this will be established, the stakeholders involved, and how it will be managed. Doing so would be a first step towards achieving a solution.

The Federal government currently has inadequate control of air pollution and does not monitor the trans-boundary air pollution across the Canada-US border.¹⁸ This feature is discussed in the FSDS (section 2.1.4.1), and after further inspection on the Environment Canada website there is still no monitoring or measure of cross-border pollution.¹⁹ In order to take steps to improve air quality in Canada, Environment Canada must be able to predict and measure all sources of pollution.

The Air Quality Health Index (AQHI) was developed in 2008 and measures air quality in a limited number of major urban centres in Canada^{20, 21}. The AQHI does, however, address the health risks associated with the particular index reading of the time as well as provide health messages customized to particular categories of the population deemed to be “at risk.” The fact that the AQHI does not include all major metropolitan areas is addressed in the FSDS consultation paper, however, there is no mention as to which areas will be added to list as well as when they will be added.

Other Observations

We did not see any reference to a strategy element that would address reducing GHG emissions from industry, including the natural resources and oil industries sector.

¹⁵ <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=DCC798B8-1&offset=7&toc=show>

¹⁶ <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=DCC798B8-1&offset=7&toc=show>

¹⁷ <http://www.ec.gc.ca/cas-aqhi/default.asp?lang=En&n=065BE995-1#scale>

¹⁸ http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/great_lakes-grands_lacs-eng.php

¹⁹ <http://www.ec.gc.ca/air/default.asp?lang=En&xml=C70E206F-4AD7-4D24-9A33-0A4B892F9988>

²⁰ <http://www.ec.gc.ca/cas-aqhi/default.asp?lang=En&n=450C1129-1>

²¹ http://www.weatheroffice.gc.ca/airquality/pages/aqhi_locations_e.html

Water quality and availability

The average Canadian uses 343 litres²² of water every single day, whereas this average is 200 litres per day in Sweden and 150 litres per day in France²³. Over 2 billion²⁴ people in the world have no access to clean drinking water, leaving one child to die every 8 seconds from drinking dirty water²⁵. There is obviously room for improvement here.

In its own reports, Environment Canada readily recognizes that its current reporting and monitoring systems are insufficient and inadequate. We found it difficult to obtain information on the various Canadian bodies of water, in an easy to understand and meaningful form.

When searching for details on the Government of Canada website, we found out that at least two organizations that provide information of strategic value to Canada. The first is GEMS/water (Global Environment Monitoring System), which gathers data such as specific nutrients contained in water bodies in Canada and in 100 countries around the world. This data was recorded from 1990 to 2003, which suggests that it needs to be updated with more recent statistics. Environment Canada announced in 2009 a 5-year program to add data quality management activities into the GEMS/water application to address this issue.

As some predict that “the wars of the next century will be about water”²⁶ due to the shortage in drinking water, it becomes critical to know the current state of water resources around the world as accurately as possible. In that sense the GEMS water database is a very valuable tool to show trends on the evolution of pollutants and toxic elements found in specific water bodies.

We also looked at the International Joint Commission (IJC), which issues biannual reports based on data gathered by Canada and the US on water quality and availability. These reports are potentially powerful communications tools for the Government of Canada to inform Canadians on the environmental state of the bodies of water covered by the IJC.

Strengthening and expanding the GEMS/water database would make it an even more powerful tool due to the fact that 100 countries volunteer information on their water quality and availability and submit it to the database. This is important since it would enable the Federal government and all the involved nations to share the best practices mentioned in the introduction of the FSDS.

Despite these success stories, we find that information on Canadian water quality needs to be better centralized and more accessible to the ordinary citizen. We should be able to click on a river or a lake, and see readily whether the environmental

²² http://www.ec.gc.ca/water/en/e_quickfacts.htm

²³ http://www.ec.gc.ca/water/en/manage/use/e_facts.htm

²⁴ http://camillasenior.homestead.com/files/4_water_works_.pdf

²⁵ Barlow, Maude and Tony Clarke (2002). *Blue Gold: The Battle Against Corporate Theft of the World's Water*. Toronto: Stoddart Publishing Co Ltd

²⁶ Barlow & Clarke. *Blue Gold*.

health indicators necessary are improving or not. We need that level of simplicity and clarity if these environmental indicators are to be used to improve our change process to a greater level of sustainability.

Other Observations

Under the range of regulatory interventions to reduce mariner pollution, no mention has been made of the potential for innovation, or any initiative to promote the development of technologies that would reduce the amount of pollution generated on marine vessels, e.g. technologies to reduce the volume of bilge water on ocean vessels.

Reducing the environmental footprint of Government

The final section of the FSDS consultation paper outlines a plan for the Government to reduce its environmental footprint, thus setting the example for industry and other institutions to follow. This strategy ties in with the recommendations of the “Making it Happen” report generated by this university in September 2009. That report recommended three forms of leadership for the Federal government, all of which included the government taking a leading role (Leadership by example) in reducing its footprint.²⁷ The report identified such benefits of this course of action, including substantial financial savings due to energy reduction, and the elimination of administrative and regulatory barriers that will pave the way for other institutions to follow.²⁸

Unfortunately, we feel that this section lacks the specific targets included in the preceding sections. The Federal Government should have targets for its internal operations that are at least as aggressive as those proposed for the country as a whole. Furthermore, this document does not suggest any baseline data or performance metrics. It also fails to identify the potential incentives (financial or otherwise) to departments of meeting these objectives.

As a simple example, our research indicates that the average energy intensity of commercial and institutional buildings in Canada is 2.0 GJ/m²²⁹, while the University of Ottawa, through a consistent effort to reduce its footprint, operates at approximately 1.2 GJ/m².³⁰ If this 40% reduction was realized by the Federal Government, which owns and leases 6.9 million m² of building space³¹, a savings of approximately \$1 billion could be achieved in 20 years (assuming a typical energy cost of \$25/m²).

In order to meet the requirements of a SMART strategy, we propose the following 5-step methodology. This simple model can be applied to any of the proposed areas,

²⁷ <http://www.makingithappen.ca/>

²⁸ Ibid

²⁹ <http://oee.nrcan.gc.ca/commercial/getting-started/compare.cfm?attr=20>

³⁰ Presentation by Pierre de Gagné, University of Ottawa, Leveraging the Sustainability Advantage, 10 May 2010

³¹ <http://www.tpsgc-pwgsc.gc.ca/apropos-about/fi-fs/bi-rp-eng.html#portfolio>

including GHG emissions from buildings and vehicle fleets, water consumption, waste production, paper usage, and so on, using the following steps:

1. Determine an appropriate performance metric;
2. Determine baseline data (e.g. current square footage, and current energy consumption);
3. Determine a reasonable goal and assign responsibility to various departments;
4. Determine the incentive (economic or otherwise) available from meeting the stated goal; and
5. Provide direction on reporting requirements.

Using the implementation strategies outlined in the document, but by supplementing them with measurable targets and the metrics to be used to measure them, it is far more likely that government departments will actually achieve these goals.

Conclusions and recommendations

From our review of the FSDS consultation paper, we believe that the Federal Government has a good set of goals and programs, which will see Canada move forward in a sustainable manner. We nonetheless feel that in order to meet the requirements of a SMART strategy promised in the paper, some improvements could be made. Our primary recommendations can be summarized as follows:

- Strengthen existing tools, programs, and agencies dedicated to measurement and tracking of sustainable performance indicators, with the view of providing Canadians with indicators on the environment that are as clear, accessible and transparent as the *daily weather forecast, or the stock market reports*.
- Show a clearer link between the resources spent on the 50 programs and initiatives with the specific sustainability goals and objectives outlined in the strategy
- Report on the progress (milestones, degree of achievement, timelines, deliverables) in the 50 programs, initiatives and change implementation listed in the FSDS Appendix on a *yearly basis to parliament*.
- Build on the successes of the many powerful existing tools for providing environmental data and metrics such as the GEMS/ water databases and provide the necessary resources to expand them and improve their accessibility and relevance for Canadians.
- Issue more relevant and up to date performance data on the quality and availability of water in Canada, and where desirable provide trend analysis to enable the Government of Canada to compare our situation with other countries. If possible, use this comparison as the basis for an exchange of best practices between Canada and other countries.
- In the long run, ensure that all sources of pollution will be measured and monitored with accurate, standardized and reliable tools.
- Similarly, that all data gathered be used constructively to improve air quality in Canada, no data should be ignored.
- Require all stakeholders that pollute in Canada to measure and monitor their levels of pollution on a frequent basis and submit the report to Environment Canada/Statistics Canada to ensure an accurate and timely measure of Canada's environmental condition.
- Where long-term targets have been set, intermediate goals should be established to ensure that short-term progress is also made.
- The Federal government should adopt targets for its own operations that are at least as stringent and clear as those it has set for the country as a whole.
- All targets should be accompanied by specific measurement methods to ensure that all concerned parties are moving forward in unison

We believe that these recommendations will help to tie together a strong collection of goals, initiatives and programs, and will enable the government to better achieve its goals of creating a sustainable society.