

4th E Practice Guide

Integrating Environmental Considerations in Performance Audit Work

Revised May 2011



Office of the Auditor General of Canada
Bureau du vérificateur général du Canada

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Preface

The Office of the Auditor General of Canada is committed to ensuring that our auditors systematically consider environmental risks when they prepare their long-term audit plans (one-pass plans) and carry out their survey work for individual performance audits. All teams engaged in performance audit work are required to apply the tools in this guide.

The 4th E Practice Guide was designed for our audit staff. However, we also wish to share it with others in the audit community and the general public. Important information about federal environmental and sustainable development policies, guidelines, and authorities is presented in the appendices as well as links to key documents. Note that some of the online resources may not be accessible outside the Office or the Government of Canada.

“Our office has an important role to play in helping to ensure that the federal government’s policies, programs and activities foster sustainable development . . .

We audit most areas of the Government of Canada. We are thus in a good position to inform parliamentarians and Canadians about whether departments and agencies are considering the environmental consequences of their activities appropriately. We also make recommendations for improvement. This is where we can make the biggest difference for Canada’s sustainable development prospects.”

Message from the Auditor General
Sustainable Development Strategy of the Auditor General of Canada 2003-06

Introduction

Background

At the Office of the Auditor General of Canada (OAG), we audit significant issues and report what we find to Parliament. In our audits, we include cases where the government has failed to give due regard to the environmental impact of its policies and activities.

Our mandate requires us to routinely and consistently assess the environmental risks associated with the entities we audit. At the OAG, we refer to the environment as the 4th E.

The “4th E”

Economy, efficiency, and effectiveness have always been known as the three Es of performance auditing.

In 1995, amendments to the *Auditor General Act* added a fourth E: The environment.

When conducting an audit, the auditor may ask the following questions:

- Has money been spent with due regard to economy?
- Has money been spent with due regard to efficiency?
- Are procedures in place to measure and report on the effectiveness of programs?
- **Has money been spent with due regard to the effects on the environment?**

During the preparation of long-term audit plans (one-pass plans) and during the survey phase of performance audits that do not focus on environmental issues, we are required to apply the 4th E Practice Guide. In our 2007–2009 Sustainable Development Strategy, we made a public commitment to do so and to report on our progress in our annual performance report.

Purpose

The purpose of this guide is to help auditors with little or no environmental expertise to identify and assess environmental risks that could be associated with the programs and activities of entities they audit.

The guide is organized as follows:

- **Section 1** helps auditors identify environmental risks during one-pass planning.
- **Section 2** helps auditors determine whether there are any environmental issues related to their audit topic during the survey phase of a performance audit.
- **Appendices 1 and 2** include resource information and links to key documents and resources.
- **Appendix 3** provides information on the OAG’s mandate for sustainable development matters.

Introduction

The Office's Internal Specialist—Environment and Sustainable Development is available to support teams when they use the guide. Auditors are expected to be familiar with the Office's Quality Management Framework, which includes audit policies and practice requirements.

While not specifically designed for special examinations or annual attest work, this guide could help auditors identify environmental risks and liabilities for Crown corporations. In addition, The Canadian Institute of Chartered Accountants (CICA) offers guidance for addressing environmental liabilities in financial attest audits.

Section 1—One-Pass Planning: Identifying Environmental Risks

Assessing an entity’s major risks is where effective long-term audit planning (one-pass planning) begins. During one-pass planning, auditors consider environmental risks along with other business risks.

A systematic approach to performing high level assessments of entities’ environmental risks includes

- identifying strategic outcomes and related key activities, policies, programs, and operations;
- identifying potential associated environmental effects; and
- assessing the risks to determine whether they are significant.

Teams complete the [Environmental Risk Profile for One-Pass Planning](#). If any significant environmental risks are identified, they are incorporated into the overall risk profile for the one-pass plan.

Note: Some teams find it useful to review the [Environmental Risk Screening Tool for Performance Audit](#) when they analyze environmental risks for their one-pass plans.

Completing the Environmental Risk Profile for One-Pass Planning

Step 1: Review key documents and resources

To become familiar with environmental issues and authorities that may be relevant for an entity, the following should be considered:

- the entity’s sustainable development strategy;
- physical infrastructure projects;
- facilities and other aspects of government operations;
- policy, plan, or program proposals that require the approval of a minister or Cabinet;
- funding and other financial assistance activities;
- international environmental commitments;
- environmental petitions submitted to the OAG by Canadian residents; and
- potential impact of specific activities on the environment.

Note: [Appendix 1](#) includes more information on these topics and helpful links to key documents and electronic resources. Guidance on human activities and their potential impact on the environment is included in [Appendix 2](#).

Step 2: Summarize strategic outcomes and related program activities and sub-activities

- Enter the entity’s strategic outcome and related program activities in column 1 of the Environmental Risk Profile. Use as many rows as required.

- Enter related program sub-activities in column 2.
- Summarize key related policies, programs, projects, or operations for each program sub-activity. Focus only on major initiatives, and describe them very briefly in column 3.

Note: If there is more than one strategic outcome, consider using a separate sheet for each of them.

Step 3: Identify potential environmental effects

Determine which environmental effects may result from the programs and related projects, activities, and operations. Review columns 4 to 10 of the risk profile and mark those that could be relevant with an “x” or checkmark.

In general, human activities may have an impact on the environment in the following ways:

- releasing substances into the environment (e.g. emissions, discharges, and waste production);
- changing and degrading water, land, and habitats; or
- using and depleting resources.

The federal government may affect the environment directly (through its own operations and activities) or indirectly (through the control or influence it has on others through its policies and programs).

Note: These are not necessarily negative effects. Some government activities, such as pollution prevention, may benefit the environment. For more information about human activities and their potential impact on the environment, see [Appendix 2](#), and for a list of environmental issues associated with government operations, see Part 2(c) of the [Environmental Risk Screening Tool for Performance Audit](#).

Environmental effects covered in the risk profile

- **Effects on air, water, and land.** These kinds of effects could result from releases into the environment (e.g. pollution) or physical changes (e.g. erosion from forestry activities).
 - **Air effects** include climate change and other air quality issues such as ozone layer depletion, smog, and acid rain. See column 4.
 - **Water effects** cover freshwater and the marine/coastal environments. They include changes to water quality and quantity, as well as effects on aquatic animals and plants (biodiversity), or their habitats. See column 5.
 - **Land effects** include changes to soil, habitats, and biodiversity as well as contaminated sites. See column 6.
- **Generation, handling, or discharge of hazardous materials.** Such actions are known to have harmful effects on human health and the environment. See column 7.
- **Environmental emergencies.** These include accidents that may cause releases into aquatic or terrestrial ecosystems. Some occur on land (e.g. at rail or nuclear facilities) and others on water (e.g. shipping accidents). See column 8.

- **Depletion or degradation of natural resources.** See column 9. Examples include
 - consumption and use of natural resources and their derivatives;
 - degradation and other changes resulting from the harvesting, extraction, or processing of these resources; and
 - the generation of waste.

Note: There may be other environmental issues that are not covered in the risk profile. If so, check off column 10 and describe them in the comments section.

Step 4: Analyze the level of risk to determine significance

To assess risk, we look at the likelihood of occurrence and the severity of the resulting effects (consequences). We also take management controls into consideration. If some are in place, they might affect the level of risk.

For effects identified in the environmental risk profile, proceed as follows:

- Estimate the seriousness or severity of the environmental effect (taking any controls into account) and enter the rating (Low, Medium, or High). See column 11.
- Estimate the likelihood of occurrence (taking any controls into account) and enter the rating (Low, Medium, or High). See column 12.
- Consider these two factors together to determine if the risk is significant (check Yes or No). See column 13.

Refer to the section on [Assessing the Significance of Environmental Risks](#) to determine the appropriate ratings.

If different kinds of major environmental effects have been identified for a program sub-activity (for example, climate change and environmental emergencies), it may be necessary to assess their level of risk separately.

Note: For the purposes of one-pass planning, risks are considered significant if they could result in a serious threat to human health and well-being, the environment, or natural resources.

Step 5: Determine the degree of entity influence

Identify how much influence or control the entity has over the program outcome or activity using Exhibit 1. Enter the result in the environmental risk profile. See column 14.

Exhibit 1: Degree of entity control or influence

Level	Description
Low	The entity has limited responsibility
Medium	The entity is involved but shares responsibility
High	The entity is directly responsible

Step 6: Provide comments

In the comments section, explain how you arrived at your conclusions about the risk ratings. In addition, include any connections to an entity's sustainable development strategy or any other information that was important to your analysis. Attach additional sheets with comments if necessary.

Step 7: Request Internal Specialist review and sign off

Provide a copy of the completed environmental risk profile to the Internal Specialist and arrange a meeting to discuss your assessment and risk ratings.

Contact the Internal Specialist at any point to obtain advice on completing the environmental risk profile.

Note: Sign-off by the Internal Specialist is required.

Determining next steps

It is possible that no significant environmental risks will be identified for your entity or functional area. When significant environmental risks are identified, they are assessed in conjunction with other business risks identified during one-pass planning.

The following are possible options for reflecting important environmental issues in a One-Pass Plan:

- a full performance audit of an environmental issue,
- an environmental line of enquiry (LOE) within a performance audit,
- a horizontal audit that focuses on one or more environmental issue, or
- an environmental line of enquiry within a horizontal audit.

Assessing the significance of environmental risks

To assess risk, we consider the likelihood of a risk event occurring and the severity of any effects that may result. The overall risk rating is a product of these two factors.

If management controls are in place, we should also consider how they would mitigate or reduce the level of risk.

Estimate the severity of the environmental effect

Factors to consider when assessing the severity of an environmental effect include

- the magnitude (ranging from little effect to loss of function);
- the location or proximity (e.g. beside important fish habitat, in a sensitive ecosystem);
- the size or scale of effect (e.g. total area, percentage of animal population affected, size of population);
- the timing (e.g. during migration, spawning, nesting season);
- the duration (e.g. short-term or long-term; reversible or irreversible); and

- the socio-economic and health implications.

Use the descriptions in Exhibit 2 to determine the severity of an effect. Consider whether there are any management controls in place. If there are, consider whether they reduce or mitigate the extent of the environmental effect, and take them into account when assigning the rating.

Exhibit 2: Severity of environmental effect

Level	Description
Low	<ul style="list-style-type: none"> • Limited or no environmental effect
Medium	<ul style="list-style-type: none"> • Moderate effect but not affecting ecosystem functions • Impact over the medium-term
High	<ul style="list-style-type: none"> • Serious environmental effects or impairment of ecosystem functions • Potentially widespread or long-term impact on the environment

Estimate likelihood of occurrence

Use the definitions in Exhibit 3 to determine the likelihood of the risk event occurring. If management controls are in place that could reduce the likelihood that the risk event will materialize, they should be taken into consideration when assigning the rating.

Exhibit 3: Likelihood that a risk event will occur

Level	Description
Low	May occur but only under exceptional circumstances
Medium	Likely to occur at some time
High	Occurring or imminent

Rate overall risk to determine significance

The overall risk rating is the product of severity and likelihood. Plot the intersection of these ratings on the risk assessment chart (Exhibit 4). Any effect that yields a risk rating in the darkest boxes of the table is considered to pose a significant environmental risk, and warrants further consideration and analysis.

Exhibit 4: Risk assessment chart

		Likelihood of occurrence		
		Low	Medium	High
Severity of Effect	Low	L/L	L/M	L/H
	Medium	M/L20	M/M	M/H
	High	H/L	H/M	H/H

Section 2—Performance Audit: Identifying Environmental Issues Related to the Audit Topic During the Survey Phase

This section of the guide is intended to help teams determine if there are any environmental issues related to their audit topic and, if so, to evaluate whether they are significant and should be included in the audit scope. Teams identify and assess environmental risks during the survey phase, by completing the [Environmental Risk Screening Tool for Performance Audit](#) and consulting with the Internal Specialist.

The screening tool prompts teams to consider the following:

- sustainable development strategies that are prepared by departments and agencies;
- physical infrastructure projects (which may be subject to the *Canadian Environmental Assessment Act*);
- facilities and other aspects of government operations;
- funding or other financial assistance activities;
- policy, plan, or program proposals requiring approval by a minister or Cabinet;
- international environmental commitments;
- environmental petitions submitted to the OAG by Canadian residents; and
- potential impact of specific activities on the environment.

For more information on these topics and helpful links to documents and electronic resources, see [Appendix 1](#), and for a list of activities and their potential impact on the environment, see [Appendix 2](#).

***Note:** It is a good practice to review the screening tool and other guidance when the team is starting to plan its survey work. Teams should fill out the tool after they have gained a good understanding of the audit topic.*

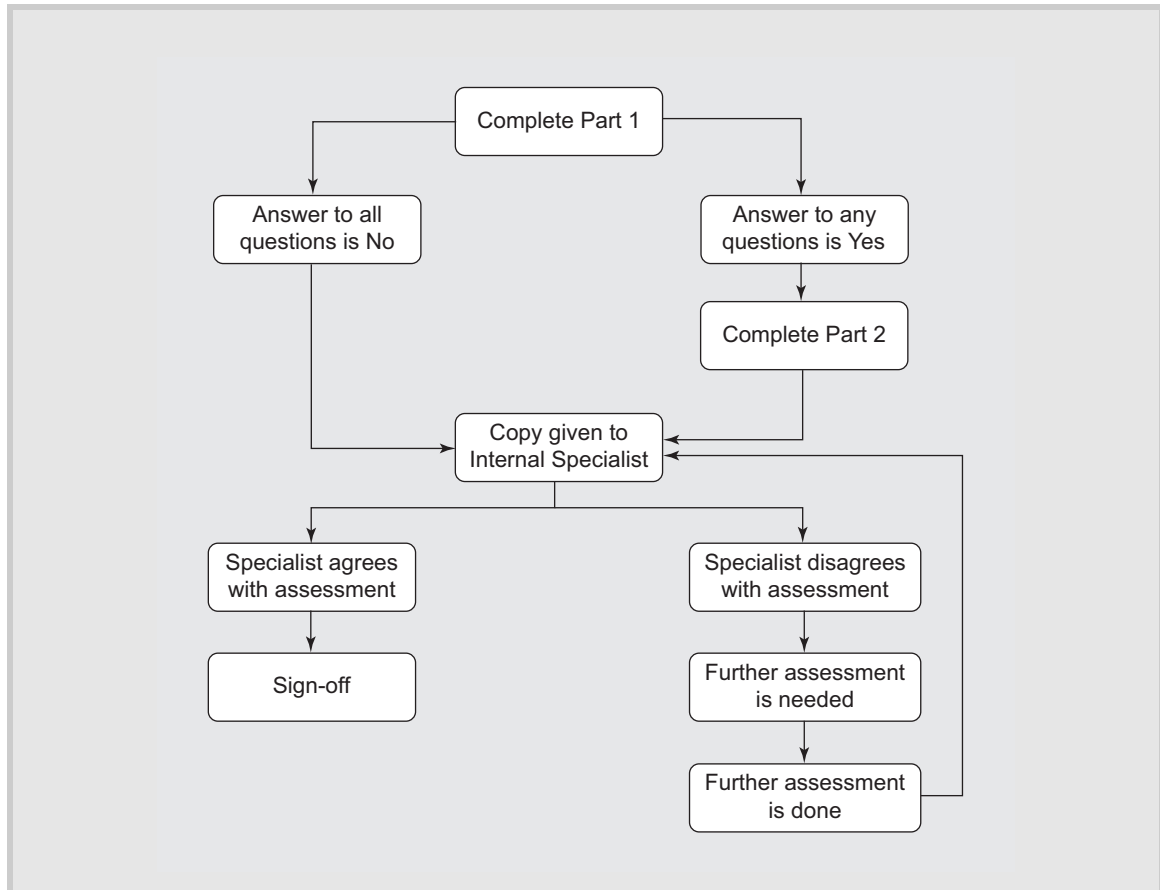
*The screening tool must be completed and sent to the Internal Specialist **before** the team starts to define the audit scope.*

Completing the Environmental Risk Screening Tool for Performance Audit

There are two parts to the screening tool. All teams complete Part 1. If all of the responses to Part 1 are “no,” there may be no significant environmental issues or risks associated with the audit topic. If some answers are “yes,” complete Part 2.

Follow the steps in Exhibit 5 to complete the [Environmental Risk Screening Tool for Performance Audit](#) and obtain the required sign-off from the Internal Specialist. The team’s signed-off environmental risk screening tool should be attached to the survey report.

Exhibit 5: Process for completing the Environmental Risk Screening Tool for Performance Audit



If potentially significant environmental issues are identified by using this guide, more survey work may be necessary to determine whether they should be included in the audit scope. The Internal Specialist can provide advice on additional survey work, audit objectives, lines of enquiry, and criteria.

For example, National Defence is the custodian of over 18,000 square kilometres of land dedicated to military training and testing. Using the environmental risk screening tool, auditors might identify some of the following issues:

- potential contamination of soil and groundwater from repeated firing of munitions and other related activities,
- soil erosion and destruction of habitat from road construction or vehicle manoeuvres,
- environmental assessment requirements for construction of new buildings and other structures, and
- deforestation from land clearing.

Auditors might also find

- goals and targets in the department’s sustainable development strategy (e.g. to improve environmental stewardship and land management of military training areas),
- environmental petitions that have been submitted to the OAG by Canadians, and
- National Defence responses to petitions.

For more information on environmental issues associated with military training and test areas, refer to the [Auditor General’s April 2003 Report, Chapter 7](http://www.oag-bvg.gc.ca/internet/docs/20030407ce.pdf) (<http://www.oag-bvg.gc.ca/internet/docs/20030407ce.pdf>).

Appendix 1—Key Resources

The background information on environmental issues and authorities as well as the electronic links will help you identify and assess environmental risks for your one-pass plan or performance audit topic.

Topics covered in the appendix include

- sustainable development strategies, which are prepared by departments and agencies;
- physical infrastructure and other projects, which may be subject to the *Canadian Environmental Assessment Act*;
- facilities and other aspects of government operations;
- funding or other financial assistance activities;
- policy, plan, or program proposals that require approval from a minister or Cabinet (strategic environmental assessment);
- international environmental agreements and commitments;
- environmental petitions, which are submitted to the OAG by Canadian residents; and
- environmental management systems.

For more information on any of these topics, please consult the Internal Specialist.

Note: For detailed information on human activities and their potential impact on the environment, see [Appendix 2](#).

a) Sustainable development strategies

Most federal departments and agencies are required to table a sustainable development strategy in Parliament once every three years.

By reviewing an entity's sustainable development strategy, we can learn about a department's activities and the opportunities it has identified to further sustainable development under its mandate. The strategies outline its sustainable development goals and objectives and the way it intends to achieve them (specific targets and commitments). The strategies are intended to

- make departments and agencies systematically take environmental, economic, and social considerations into account in their decision making;
- lead to changes in policies, programs, and operations that further sustainable development; and
- provide the benchmarks against which departments can measure their progress.

In most cases, department profiles and issue scans were undertaken by entities when they prepared their first and second strategies (SDS I and SDS II).

The new [Federal Sustainable Development Act](http://laws-lois.justice.gc.ca/PDF/F-8.6.pdf) (<http://laws-lois.justice.gc.ca/PDF/F-8.6.pdf>) calls for the development of a Federal Sustainable Development Strategy. The government tabled the first [federal strategy](http://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=E19EE696-1) (<http://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=E19EE696-1>) in the House of Commons in October 2010. In future, strategies that are prepared by

departments and agencies will be required to comply with the federal strategy and contribute to the attainment of its objectives.

Exhibit 6: Entity sustainable development strategies

Departments/agencies required to prepare sustainable development strategies and respond to environmental petitions				
Departments and agencies	SDS I (1997-2000)	SDS II (2000-2003)	SDS III (2003-2006)	SDS IV (2007-2009)
Agriculture and Agri-Food Canada	I	II	III	IV
Atlantic Canada Opportunities Agency	I	II	III	IV
Canada Border Services Agency	N/A	N/A	N/A	IV
Canada Economic Development for Quebec Regions	I	II	III	IV
Canada Revenue Agency * Revenue Canada ** Canada Customs and Revenue Agency	I *	II **	III	IV
Canadian Heritage	I	II	III	IV
Canadian International Development Agency	I	II	III	IV
Citizenship and Immigration Canada	I	II	III	IV
Environment Canada	I	II	III	IV
Finance Canada, Department of	I	II	III	IV
Fisheries and Oceans Canada	I	II	III	IV
Foreign Affairs and International Trade Canada	I	II	III	IV
Health Canada	I	II	III	IV
Human Resources and Skills Development Canada * Human Resources Development Canada ** Human Resources and Social Development Canada	I *	II *	III *	IV **
Indian and Northern Affairs Canada	I	II	III	IV
Industry Canada	I	II	III	IV
Justice Canada, Department of	I	II	III	IV
National Defence	I	II	III	IV
Natural Resources Canada	I	II	III	IV
Parks Canada	N/A	II	III	IV
Public Health Agency of Canada	N/A	N/A	N/A	IV

Exhibit 6: Entity sustainable development strategies (Continued)

Departments/agencies required to prepare sustainable development strategies and respond to environmental petitions				
Departments and agencies	SDS I (1997-2000)	SDS II (2000-2003)	SDS III (2003-2006)	SDS IV (2007-2009)
Public Safety Canada * Solicitor General Canada ** Public Safety and Emergency Preparedness Canada	I *	II *	III **	IV
* Public Service Human Resources Management Agency of Canada (the new Office of the Chief Human Resources Officer (part of the Treasury board of Canada Secretariat) has assumed responsibility for the agency's functions)	N/A	N/A	N/A	IV *
Public Works and Government Services Canada	I	II	III	IV
Transport Canada	I	II	III	IV
Treasury Board of Canada Secretariat	I	II	III	IV
Veterans Affairs Canada	I	II	III	IV
Western Economic Diversification Canada	I	II	III	IV
Federal organizations that voluntarily prepare strategies				
Canadian Environmental Assessment Agency	I	II	III	IV
Correctional Service Canada	I	II	III	IV
Office of the Auditor General of Canada	I	II	III	IV
Royal Canadian Mounted Police	I	II	III	IV

b) Physical infrastructure and other projects: the *Canadian Environmental Assessment Act*

The construction, modification, and demolition or decommissioning of physical infrastructure (e.g. roads, buildings, and harbours) can pose a variety of environmental risks. Under the [Canadian Environmental Assessment Act](http://laws.justice.gc.ca/PDF/C-15.2.pdf) (<http://laws.justice.gc.ca/PDF/C-15.2.pdf>), environmental assessments may be required for certain proposed projects, such as those that are undertaken or supported by federal departments and agencies and Crown corporations. This assessment process is intended to ensure that potential environmental effects are identified and considered in decision-making before a project proceeds.

An environmental assessment may be required for a proposed project if a federal department or agency is the proponent of a project or is in a position to enable a project to proceed by

- providing financial assistance;
- selling, leasing, or otherwise transferring control or administration of land; or
- providing certain licenses, permits, or approvals.

Regulations under the Act specify the applicable licenses, permits, or approvals that would trigger the environmental assessment of a proposed project ([Law List Regulations](http://laws-lois.justice.gc.ca/PDF/SOR-94-636.pdf) (<http://laws-lois.justice.gc.ca/PDF/SOR-94-636.pdf>)).

Certain other proposed activities aside from physical works or other infrastructure may pose inherent risks to the environment (such as dredging or drilling). They may also trigger the need for an environmental assessment. These activities are described in the [Inclusion List Regulations](http://laws.justice.gc.ca/PDF/SOR-94-637.pdf) (<http://laws.justice.gc.ca/PDF/SOR-94-637.pdf>). Certain exclusions apply (such as small-scale projects and routine maintenance) and are listed in the [Exclusion List Regulations](http://laws-lois.justice.gc.ca/PDF/SOR-2007-108.pdf) (<http://laws-lois.justice.gc.ca/PDF/SOR-2007-108.pdf>).

Note: Projects being undertaken in the territories may be subject to different requirements.

Consult with the Internal Specialist if you require further information on the application of the Act.

c) Government operations

As the single largest enterprise in Canada, the federal government has a significant environmental footprint in its own right. For example, when the federal government purchases goods and services, leases and operates buildings and facilities, and operates its fleet of vehicles, the following may occur:

- natural resources, energy, and water are consumed;
- emissions are released;
- waste is generated; and
- hazardous substances need to be managed.

The [Office of Greening Government Operations \(OGGO\)](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/index-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/index-eng.html>) was created within Public Works and Government Services Canada in 2005. Its mandate is to accelerate the greening of the government's operations by working closely with other federal departments, particularly the Treasury Board of Canada Secretariat and Environment Canada.

The following three priority areas for greening of government operations were identified in 2006:

- building energy (energy efficiency and reductions in emissions of greenhouse gases and other emissions),
- vehicle fleet, and
- green procurement (the government's [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>) was released in 2006).

The following are some key environmental issues related to government operations:

- **Greenhouse gases.** The following 11 departments and agencies account for roughly 95 percent of federal emissions:
 - Agriculture and Agri-Food Canada,

- Correctional Service Canada,
 - Environment Canada,
 - Fisheries and Oceans Canada,
 - National Defence,
 - National Research Council Canada,
 - Natural Resources Canada,
 - Parks Canada,
 - Public Works and Government Services Canada,
 - Royal Canadian Mounted Police, and
 - Transport Canada.
- **Contaminated sites.** Over 17,000 federal contaminated sites have been identified across the country. Various policies, guidelines, and funding programs are in place to support departments and agencies as they assess, remediate, or manage these sites. Improper fuel storage accounts for approximately 65 percent of all federal contaminated sites in Canada. These sites are listed in the Treasury Board's [Federal Contaminated Sites Inventory](http://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil.aspx?Language=EN&sid=wu72911368280) (<http://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil.aspx?Language=EN&sid=wu72911368280>).

Other environmental issues associated with government operations are listed in the [Environmental Risk Screening Tool for Performance Audit](#) (Part 2(c)).

d) Funding or other financial arrangements or support

Federal entities can indirectly cause environmental effects by providing others with funding, loans, or other forms of financial assistance. The activities or initiatives that benefit from these arrangements may have environmental consequences.

e) Policy, plan, and program proposals: The Cabinet Directive on Strategic Environmental Assessment

Integrating environmental considerations in the decision-making process for policies, plans, and programs is the subject of a Cabinet directive. According to the [Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals](http://www.ceaa.gc.ca/default.asp?lang=En&n=B3186435-1) (<http://www.ceaa.gc.ca/default.asp?lang=En&n=B3186435-1>), a strategic environmental assessment should be performed for a policy, plan, or program proposal when the following two conditions are met:

- A proposal is submitted to an individual minister or to Cabinet for approval (e.g. memoranda to Cabinet or Treasury Board submissions).
- The implementation of the proposal may result in important environmental effects, either positive or negative.

In order to determine whether a strategic environmental assessment has to be performed, a preliminary environmental assessment (scan) has to be conducted for every proposal.

f) International Environmental Commitments

Canada is a party to over 130 international agreements that address environmental and sustainable development issues. Obligations assumed through these legally binding agreements must be met domestically, and the federal government has responsibility for matters under federal jurisdiction. The OAG developed an electronic database, the [Database of Canada's International Environmental Commitments](http://pubx.dfait-maeci.gc.ca/A_Branch/AES/Env_commitments.nsf/VEWelcome/Homepage) (http://pubx.dfait-maeci.gc.ca/A_Branch/AES/Env_commitments.nsf/VEWelcome/Homepage), which lists most key agreements and commitments as well as the departments responsible for meeting those commitments. The database, which is currently managed by Foreign Affairs and International Trade Canada (DFAIT), has not been updated since late 2002. Nonetheless, it contains useful information on almost 100 binding environmental agreements. By clicking on the link above you can also access DFAIT's Canada Treaty Information service.

g) Environmental petitions from Canadian individuals, groups, and other organizations

Under the provisions of the [Auditor General Act](http://laws-lois.justice.gc.ca/PDF/A-17.pdf) (<http://laws-lois.justice.gc.ca/PDF/A-17.pdf>), Canadians can submit environmental petitions to the OAG. Federal departments and agencies are responsible for responding to these petitions within a set time frame. Petitions address a wide range of environmental and sustainable development issues that are the responsibility of the federal government. Petitions and responses are listed in the [Petitions Catalogue](http://www.oag-bvg.gc.ca/internet/English/pet_fs_e_929.html) (http://www.oag-bvg.gc.ca/internet/English/pet_fs_e_929.html).

h) Environmental management systems

Some federal departments have environmental management systems to address the environmental effects of their operations and to meet their sustainable development commitments. When they develop their environmental management system, they start by preparing an environmental risk profile—an important source of information about operational risks.

Appendix 2—Potential Impact of Human Activities on the Environment

Within the context of your audit topic or One-Pass Plan, examine the information on activities that have an impact on the environment. Think about how your entity's policies, programs, projects, and activities may affect the environment, directly (through its own operations) or indirectly (through the control or influence that the entity exerts on the activities of others).

In general, human activities may have an impact on the environment by

- releasing substances into the environment (e.g. emissions, discharges, and waste production);
- changing and degrading water, land and habitats; and
- using and depleting resources.

These are not necessarily negative effects. Some activities, such as pollution prevention, may benefit the environment. Consider ways that entities could avoid or minimize their impact on the environment.

a) Overview of activities

The following is an overview of activities that have an impact on the environment:

- Energy—exploration, development, distribution, processing, management, consumption, or use (oil, gas, nuclear, other)
- Natural resources—development, management, harvesting, or consumption (e.g. fisheries, aquaculture, forestry, hunting and trapping, mining)
- Agriculture/food production—land cultivation, animal husbandry, food processing and distribution
- Physical infrastructure—creation or use of infrastructure, such as roads, housing, bridges, ports, buildings, railways, sewage, or waterworks
- Transportation of people and goods—road, marine, rail or air transportation, and all related activities and infrastructure
- Toxic or hazardous substances and materials—generation, manufacture, use, management, transportation, or disposal (e.g. toxics and pesticides)
- New substances and organisms—development, deployment, and regulation (e.g. new chemicals, genetically modified organisms)
- New products and technologies—development and deployment
- Industrial activity—e.g. resource processing and manufacturing
- Urban development
- Military activities—training, equipment, materials, natural disasters and other emergencies (e.g. preparation and response)
- Waste generation or management (including hazardous waste)

- International trade (export and import)
- Occupational or workplace hazards
- Cleanup or remediation of contaminated sites
- Procurement and consumption of goods

Note: For detailed examples of activities that have an impact on the environment and the potential impact of these activities, refer to Exhibit 7.

b) Opportunities to minimize the impact on the environment

Examples of ways to help avoid or minimize negative environmental effects include the following:

- consider environmental issues in the early stages of decision making (e.g. when planning new projects, policies, and programs and developing products);
- reduce energy consumption and/or increase use of renewable energy sources through increased efficiency (e.g. enhanced fuel efficiency for vehicles, reduced electricity consumption by household appliances) and green building design (new buildings) or retrofitting;
- advance, develop, and employ green technologies;
- reduce consumption of resources;
- increase reuse and recycling, which will reduce resource consumption and waste production and disposal;
- improve eco-efficiency;
- promote green procurement—purchasing more environmentally friendly goods and services;
- prevent pollution by avoiding the use of hazardous/toxic materials and by using cleaner fuels, clean emissions technologies for engines, and using cleaner or zero emission energy sources (e.g. solar and wind power);
- improve emergency response and preparation;
- use environmental management systems (EMS); and
- develop environmental training programs.

Exhibit 7: Human activities and examples of potential impact on the environment

Examples of activities				
Air	Surface water (e.g. lakes, rivers)	Groundwater	Coastal areas/marine	Land
<ul style="list-style-type: none"> • Transportation (all modes) • Energy (production, refining, and distribution) • Generation of electricity (e.g. burning of coal, natural gas) • Use of refrigerants and coolants (ozone-depleting substances) • Metal smelting and other industrial activities (e.g. pulp and paper, chemical manufacturing, and other heavy industries) • Mining of aggregates • Application of pesticides • Waste incineration • Use of various volatile chemicals • Heating (e.g. with wood, oil) 	<ul style="list-style-type: none"> • Removal of shoreline vegetation • Forestry and mining • Collection, storage, and disposal of agricultural wastes • Application of pesticides • Sewage discharges • Industrial and other discharges (e.g. pulp and paper, mining, chemical, food processing) • Manure management • Spills and accidental releases of pollutants • Boating and shipping (e.g. discharges of fuel, ballast water) • Waste disposal • Fuel storage, distribution, refuelling • Draining and removal of wetlands • Development of infrastructure (e.g. dams and bridges) 	<ul style="list-style-type: none"> • Provision of water for drinking and household uses • Water for industrial activities • Irrigation • Manure management (e.g. collection, storage, disposal, or spreading) • Fuel storage, distribution, and refuelling • Waste disposal • Urban development (removal of vegetation, increase in hard surfaces) • Fires and explosions 	<ul style="list-style-type: none"> • Discharges of sewage or wastewater • Energy (exploration, production, distribution) • Commercial fisheries • Dredging • Ocean dumping • Boating and shipping (e.g. discharge of fuel, ballast water) • Aquaculture • Urban development (removal of coastal vegetation, including wetlands) • Spills and accidental releases 	<ul style="list-style-type: none"> • Transportation infrastructure (roads, highways, bridges) • Forestry and mining activities • Agriculture (e.g. soil tilling, livestock grazing, fertilizers and pesticides) • Spreading of manure and sewage sludge • Storage and distribution of fuels and other hazardous materials (e.g. storage tanks) • Landfilling of waste • Spills and accidental releases • Military training and testing (use of training areas) • Fires and explosions
Examples of potential impact				
Air	Surface water (e.g. lakes, rivers)	Groundwater	Coastal areas/marine	Land
<ul style="list-style-type: none"> • Releases of carbon dioxide and other greenhouse gases which contribute to global warming • Depletion of the ozone layer • Impairment of air quality • Smog (including particulates, ground-level ozone) • Effects on human and wildlife health (e.g. upper respiratory problems and higher rates of hospitalization) • Acidification of lakes and rivers (acid rain) • Deposition of air pollutants on land 	<ul style="list-style-type: none"> • Reduction in quality of habitat for fish and other aquatic organisms • Increased runoff and erosion • Depletion of fish populations • Impairment of water quality (pollutants, pathogens, bacteria, nutrients) • Need for increased water treatment • Increased algal growth/blooms • Decreased biodiversity • Introduction of exotic, invasive species (e.g. zebra mussels) 	<ul style="list-style-type: none"> • Reduced groundwater quality (e.g. from pollutants, toxins, hydrocarbons, pathogens, bacteria) • Impairment of drinking water quality • Need for increased water treatment • Reduced groundwater quantity • Surface water effects (reductions in quality and quantity) 	<ul style="list-style-type: none"> • Alteration or degradation of quality of fish and other marine habitat • Depletion of fish populations • Increased disease and pathogens affecting fish • Impairment of water quality—e.g. pollutants, including petroleum products, pathogens, bacteria, nutrients • Introduction of exotic, invasive species • Reduction of tourism activity 	<ul style="list-style-type: none"> • Depletion of renewable and non-renewable resources • Soil and groundwater contamination • Erosion or desertification • Reduction or removal of wildlife habitat • Reduction or removal of wetlands • Reduction in biodiversity (soil organisms, plants, wildlife) • Increased surface water runoff or storm water runoff • Mining waste • Opening of remote areas

Appendix 3—Sustainable Development and the Office of the Auditor General of Canada

a) Amendments to the *Auditor General Act*

The Office of the Auditor General of Canada has a specific environment and sustainable development mandate. It was established through amendments to the [Auditor General Act](http://laws-lois.justice.gc.ca/PDF/A-17.pdf) (<http://laws-lois.justice.gc.ca/PDF/A-17.pdf>), which took effect in 1995, and included

- creating the position of Commissioner of the Environment and Sustainable Development within the OAG. The Commissioner heads a group of auditors dedicated to the auditing of environmental and sustainable development issues;
- adding environmental effects to what the Auditor General takes into account when determining what to report to Parliament (the 4th E); and
- creating the environmental petitions process, which provides an avenue for Canadians to raise concerns about environment and sustainable development issues under federal jurisdiction. The OAG receives petitions and ministers are required to respond to them.

The Commissioner also monitors and reports on the extent to which departments and agencies have met the objectives and implemented the action plans set out in their sustainable development strategies. The Commissioner will also be monitoring the extent to which entities have contributed to meeting the targets set out in a new Federal Sustainable Development Strategy, which will be completed in 2010 and renewed every three years. See [Appendix 1](#) for more information on sustainable development strategies.

b) Sustainable development as defined in the *Auditor General Act*

Section 2 of the [Auditor General Act](http://laws-lois.justice.gc.ca/PDF/A-17.pdf) (<http://laws-lois.justice.gc.ca/PDF/A-17.pdf>) includes the classic definition of sustainable development from the 1987 report of the World Commission on the Environment and Sustainable Development, *Our Common Future*, also known as the Brundtland Report:

Sustainable development means development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Section 2 of the Act)

Section 21.1 of the Act expands on this definition:

Sustainable development . . . is a continually evolving concept based on the integration of social, economic and environmental concerns, and which may be achieved by, among other things,

- the integration of the environment and the economy,
- protecting the health of Canadians,
- protecting ecosystems,
- meeting international obligations,

- promoting equity,
- an integrated approach to planning and making decisions that takes into account the environmental and natural resource costs of different economic options and the economic costs of different environmental and natural resource options,
- preventing pollution, and
- respect for nature and the needs of future generations.

Improving quality of life and well-being, integrated decision making, and equity are three of the foundations of sustainable development.