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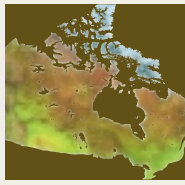

Responding to the Challenge:

The Climate Change Action Fund (CCAF)

1998-2001 Report

Canada

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Executive Summary

The Climate Change Action Fund (CCAF) was established in the 1998 federal budget, signaling the commitment by the Government of Canada to respond to the challenges of the climate change issue. The CCAF was allocated $150 million over three years to help develop a national implementation strategy on climate change and to support early action.

Responding to the Challenge: The Climate Change Action Fund 1998-2001 Report looks at progress and achievements under the first phase of CCAF. Results are grouped under the CCAF's four integrated components: Foundation Building; Technology Early Action Measures (TEAM); Science, Impacts and Adaptation (SIA); and Public Education and Outreach (PEO).

Foundation Building: This block supported policy development on climate change through an extensive stakeholder process, as well as the design of the $44.2 million House in Order Initiative that commits the Government of Canada to reduce greenhouse gas emissions from its own operations by 31 per cent by 2010, compared to 1990 levels. Other major accomplishments included the completion of an extensive Issue Tables process that served as a basis for policy development, the public release of the *Government of Canada Action Plan 2000 on Climate Change* and the public release of *Canada's First National Climate Change Business Plan* with over 300 initiatives from many jurisdictions.

Technology Early Action Measures (TEAM): This block has funded practical and visible demonstrations of climate change technologies while promoting sustainable economic development in Canada. The initial CCAF investment of $60 million in TEAM spurred investments of an additional $500 million from private sector partners, and $90 million from provincial, municipal and foreign governments. In the first phase, there were 50 domestic and 17 international initiatives ranging from oil sands to renewable fuels, and from fuel cells to manure management.

Science, Impacts and Adaptation (SIA): This block has funded cost-shared research to engage scientists and stakeholders on the science, impacts and adaptation aspects of climate change, significantly increasing the knowledge base about the function of key elements in the climate system. There were also significant contributions to the development of adaptation strategies, and case studies in several fields. There were 79 projects funded in climate system science and 76 in impacts and adaptation.

Public Education and Outreach (PEO): This block was successful in increasing Canadians' awareness and understanding of the climate change issue, and in working to promote action by Canadians to reduce greenhouse gas emissions in their communities. Funding was provided for 152 local and national projects covering sectors as diverse as transportation, energy efficiency and science outreach. Projects under this component reached more than two million people through exhibitions, helped over 2,700 people get involved in car sharing, created 200 greener schoolyards, assisted with planting 6,000 trees, and distributed 31,000 posters and 2.8 million brochures informing people about the government response to climate change issues, and what they can do to help address its challenges.

Building on this success, a new phase of the CCAF for the 2001-2004 period has been developed and is now underway.

Details on CCAF projects are available on the Government of Canada climate change Web site at www.climatechange.gc.ca .

Introduction to CCAF

CLIMATE CHANGE AND THE HISTORY OF CCAF

It is now widely recognized that the Earth's climate is changing. Within the current lifetime of many Canadians, there could be noticeable and lasting impacts from climate change on all parts of Canada. These impacts will be felt from coastal areas to the country's North, affecting natural habitats and altering the Canadian landscape.

In fact, in Northern Canada, sea ice is decreasing and people are reporting changes in the migration patterns of caribou and fish. Scientific models suggest that extreme weather events, such as violent storms, droughts, and major floods, could become more frequent.

The Government of Canada is working to reduce greenhouse gas emissions with provinces and territories, and with partners such as communities, businesses and environmental groups. This work is being carried out as part of Canada's commitments under the United Nations Framework Convention on Climate Change (UNFCCC,) and the potential obligations arising under a completed Kyoto Protocol.

To promote action and to lay the basis for future undertakings, the Government of Canada established the Climate Change Action Fund (CCAF) in the 1998 federal budget. Under the CCAF, $150 million was allocated over three years to help develop a national implementation strategy and to support early actions to respond to climate change. Accomplishing these goals involved building on existing programs, providing funding for early actions, and establishing partnerships on climate change with provinces, territories and stakeholders.

THE *1998-2001 REPORT*

With the first three year phase of CCAF complete and a new phase about to begin, this Report looks at progress and achievements that fall under the four distinct but integrated components of the Fund: Foundation Building; Technology Early Action Measures (TEAM); Science, Impacts and Adaptation (SIA); and Public Education and Outreach (PEO). Designed to give a representation of the diversity and reach of the CCAF, this Report provides details on a sampling of projects, and is not intended as a comprehensive listing. Many such details, however, are available on an easily searchable database on the Government of Canada climate change Web site at: www.climatechange.gc.ca .

The **Climate Change Action Fund** is a key part of the Government of Canada approach to climate change. In just three years, CCAF fostered the development of *Canada's National Implementation Strategy on Climate Change* and *Canada's First National Climate Change Business Plan,* while sponsoring significant early actions in technology and outreach, as well as advanced scientific research.

CCAF STRUCTURE

To deliver effectively and efficiently on its goals, the CCAF is divided into four main components, or blocks. These are:

- **Foundation Building.** Designed to support the sound analysis of options to meet Canada's commitments under the UNFCCC and develop the basis for possible future action under the Kyoto Protocol, the Foundation Building component provides the federal contribution to the national climate change process, contributes to federal domestic and international policy development and provides an inclusive consultation process.
- **Technology Early Action Measures (TEAM).** Designed to encourage the development and deployment of technologies that reduce greenhouse gas emissions that lead to climate change, TEAM also helps move technologies quickly to market.
- **Science, Impacts and Adaptation (SIA).** Designed to advance knowledge about the magnitude, rate and regional distribution of climate change and its impact on Canada, and our capacity to adapt, SIA provides information to better estimate the risks of climate change and provide advice on response options to address these risks.
- **Public Education and Outreach (PEO).** Designed to increase public awareness and understanding of climate change and to promote early action by Canadians to reduce greenhouse gas emissions in their communities, the Public Education and Outreach component has used a diverse range of approaches to reach out to Canadians across the country.

Further details on the objectives, structure, achievements and key results for each block are presented in the following sections.

CCAF Component: Foundation Building

Following the 1997 Kyoto negotiations, the first steps in Canada's response included developing an effective implementation strategy for action on climate change, and engaging partners from other levels of government and the private sector.

One of the key objectives of the Foundation Building component of the CCAF was to design *Canada's National Implementation Strategy on Climate Change* through a process that included provinces and territories, and stakeholders such as industry and non-governmental organizations. This process included:

- Support for the Issue Tables process that brought together 450 expert stakeholders from diverse backgrounds to analyze the issues and options associated with climate change in Canada in 16 different areas;
- Development of analysis and modeling tools for policy options;
- Examination of cross-cutting policy options;
- Analyzing the costs and benefits of implementing the Kyoto Protocol; and
- Developing ways of engaging partners in the public and private sector.

Foundation Building has supported policy development on climate change through an extensive stakeholder process and a federal, provincial and territorial analytical program. It has also fostered the design of the $44.2 million House in Order Initiative that addresses emissions reduction in the Government of Canada operations. Under this commitment, the Government of Canada has set 2010 as the year for reaching greenhouse gas emission reductions from its own operations by 31 per cent, compared to 1990 levels.

STRUCTURE

The establishment of the Climate Change Secretariat in February 1998 brought a central focus to management of the CCAF and the climate change issue. Environment Canada and Natural Resources Canada are the lead departments, and work with the Secretariat on implementation of CCAF and domestic policy development. There is significant involvement from other departments with a stake in the climate change issue, including Transport Canada, Agriculture and Agri-Food Canada, Health Canada, Industry Canada, the Department of Foreign Affairs and International Trade, Indian and Northern Affairs Canada and Fisheries and Oceans Canada.

GENERAL ACHIEVEMENTS

Among the achievements of the Foundation Building component in the first three years of the CCAF are:

- Support for the policy and analytic work of the federal-provincial-territorial National Air Issues Coordinating Committee on Climate Change (NAICC-CC), with responsibility for developing *Canada's National Implementation Strategy on Climate Change* and *Canada's First National Climate Change Business Plan*.
- Completion of a national climate change advisory process over the 1998 to 2000 period. This process, known as the Issue Tables, covered sectoral and horizontal climate change issues. Described as unique and highly successful, especially considering its scope and timeframes, the 16 Issues Tables and Working Groups involved 450 expert stakeholders from government, industry, academia and non-government organizations. Each Table carried out the consultation and analysis needed to produce a Foundation Paper and an Options Paper, all of which were used in the drafting of the *National Implementation Strategy*.
- Development of data analysis and modeling of potential options for reducing greenhouse gas emissions, as well as examining cross-cutting options that did not emerge from individual Issue Tables. This included work on domestic emissions trading.
- Development of an economic modeling framework to examine the impacts of alternatives proposed for meeting climate change commitments.
- Release of a final report from the Analysis and Modeling Group on sectoral and regional economic impacts of alternative options.
- Release of a report identifying key issues associated with Domestic Emissions Trading from the Tradeable Permits Working Group, along with areas identified for further work.
- Increasing public awareness on climate change and its implications for Canada, as well as increasing public engagement in developing solutions, through communications and consultations.

HIGHLIGHTS OF FOUNDATION BUILDING

- **Early 2000:** Completion of the extensive Issue Tables consultative process.
- **February 2000 and October 2000:** The development of integrated Government of Canada policy strategies and actions that resulted in commitments to federal funding of over $1.1 billion to address climate change ($625 million in Budget 2000 and a further $500 million in the October 2000 Economic Statement for *Action Plan 2000*).
- **October 2000:** The public release of the *Government of Canada's Action Plan 2000 on Climate Change* that outlines specific measures in key sectors to enable Canada to reach approximately one-third of its Kyoto target.
- **October 2000:** The public release of *Canada's National Implementation Strategy on Climate Change* and *Canada's First National Climate Change Business Plan* at the Joint Meeting of Ministers of Energy and Environment. The *Business Plan* includes over 300 initiatives under themes of reducing greenhouse gas emissions; understanding impacts; developing adaptation strategies and actions; increasing Canadians' understanding of the issue; developing the right information for effective decision making; and promoting technology development to help reduce greenhouse gas emissions.

The five-year ***Action Plan 2000*** targets key sectors that account for more than 90 per cent of Canada's greenhouse gas emissions, and includes projects in climate science and adaptation, transportation, energy (oil and gas production and electricity), industry, buildings, forestry and agriculture, technology, and projects overseas. When fully implemented, *Action Plan 2000* will take Canada one-third of the way to achieving its emission reduction target.

CCAF Component: Technology Early Action Measures (TEAM)

Taking early action on climate change includes supporting technologies that reduce greenhouse gas emissions, and is the primary goal of the Technology Early Action Measures (TEAM) component of the Climate Change Action Fund. At the same time, TEAM projects are designed to sustain economic and social development. Taking early action on climate change will also lead to fewer emissions in the medium-to-long term.

Recognizing that technological innovation is a big part of the climate change solution, and that such innovation puts strong environmental performance together with strong economic performance, TEAM was designed to bring climate change technologies to domestic and international markets as quickly as possible. Its success to date is largely because of strong partnerships to share risk and make the best use of investment dollars. These partnerships are with provinces/territories, municipalities, industry and others.

Technology Early Action Measures has funded practical and visible demonstrations of climate change technologies while promoting sustainable economic development in Canada. The initial CCAF investment spurred investments of an additional $500 million from private sector partners and $90 million from provincial, municipal and foreign governments.

STRUCTURE

TEAM is a highly coordinated interdepartmental effort. Natural Resources Canada has direct responsibility for the TEAM funds, and shares the management lead with Environment Canada and Industry Canada. Other government partners include Transport Canada, Agriculture and Agri-Food Canada, Department of Foreign Affairs and International Trade, the Canadian International Development Agency, the National Research Council Canada and Health Canada.

Projects have a broad scope relating to energy technologies such as renewable energy, alternative fuels, energy efficiency and fossil carbon management, biotechnologies, advanced materials and transportation.

Each TEAM project must result in, or lead directly to, greenhouse gas emission reductions within a specified time period. Projects must also get the greatest possible reduction per dollar invested. TEAM uses existing programs for program delivery.

GENERAL ACHIEVEMENTS

- Strong partnerships have been established through TEAM that include small, medium and large Canadian and international companies, as well as provincial/territorial, municipal and foreign government agencies.
- As of January 2001, $700 million in projects were approved that included 50 domestic and 17 international initiatives. Of that amount, more than $500 million came from the private sector and $90 million from provincial/territorial, municipal and foreign governments.
- TEAM technologies demonstrate that greenhouse gas emissions can be reduced in many different parts of the economy. The range is as diverse as oil sands, energy efficiency, renewable fuels, fuel cells and manure management.
- A unique set of international projects has been developed under TEAM that link Canadian companies' business strategies and technology capabilities with global business opportunities. There is also a clear link with Canada's international policy objectives to assist developing countries.
- TEAM has brought many Canadian companies to the Voluntary Challenge and Registry Inc. (VCR Inc.) program, supplementing the success of the program that now boasts more than 700 organizations developing, and reporting on, emissions reductions programs. This has served both to raise the profile of the VCR Inc. and its role in promoting voluntary emissions reductions.

The design and implementation of the **Technology Early Action Measures** decision-making process was recognized with the Head of the Public Service Award, Excellence in Policy Category, in December of 2000.

HIGHLIGHTS OF TECHNOLOGY EARLY ACTION MEASURES PROJECTS

- A cost-effective, enzyme-based process for producing fuel ethanol from a wide variety of cellulose biomass, including farm waste products such as straw, is being developed by **Iogen Corporation** in cooperation with **Petro-Canada**. With its enzyme technology expertise, Iogen intends to produce ethanol at a cost lower than wheat-based or corn-based varieties. It is anticipated that commercialization of the technology will lead to the widespread use in Canada of 10 per cent ethanol, blended with gasoline.

- Converting landfill gas into liquefied natural gas and marketable industrial grade carbon dioxide is being demonstrated at a pilot plant scale at the **Hartland Landfill**, near Victoria, B.C. The project is demonstrating the cost-effectiveness of using cryogenics developed in part at the University of Victoria. Converting landfill gas into liquefied natural gas will not only dispose of the methane and carbon dioxide, but the final products are a clean alternative fuel source and a usable form of carbon dioxide.
- The **Advanced Integrated Mechanical Systems (AIMS)** Project is a joint industry/ government initiative that will help manufacturers develop products and the market infrastructure for natural gas-fuelled appliances. These appliances put ventilation, space and hot water heating into a single system. The project has the potential to increase the availability and affordability of high-performance mechanical ventilation systems in Canada while leading to reductions in residential greenhouse gas emissions.
- **Stuart Energy Systems Inc.** is developing a hydrogen refueling appliance that consists of a water electrolyser to produce hydrogen for zero-emission fuel cell vehicles. The company is building two prototype hydrogen refueling appliances for testing and evaluation by Ford Motor Co. Ford is interested in the hydrogen refueling appliance to fuel its P2000 fuel cell vehicles (expected to be on the market in 2004).
- A project with **ATS Automation Tooling Systems Inc.** in Ontario is developing automated assembly lines to produce photovoltaic (PV) panels that convert solar energy into electricity and are ideally suited for use in remote areas not located on an electricity grid. ATS will be developing two production lines of varying degrees of automation. As part of the project, test sites will be set up in Canada and China, where fully functional PV systems will be installed and monitored.

Achievements under the **Technology Early Action Measures** component include significant partnership development between the public and private sector, as well as a wide array of innovative national and international technology demonstration projects.

CCAF Component: Science, Impacts and Adaptation (SIA)

The Science, Impacts and Adaptation (SIA) component of the CCAF has two main objectives. The first is under the Science category. The objective in this category is to increase knowledge about the magnitude of change in the climate, the rate at which it is changing now, the expected change in the future, and the way such changes would likely be distributed over Canada's regions. The second objective, under the Impacts and Adaptation category, is to determine the impact that changes will have on the health and safety of Canadians, their environment, economy and on the social fabric. It also looks at the processes for adapting to such changes.

The activities of SIA have resulted in more detailed estimates of the risks associated with climate change in Canada, and provided advice on ways to address these risks.

STRUCTURE

This component is co-chaired by Environment Canada and Natural Resources Canada. Environment Canada leads the climate science activities, while Natural Resources Canada leads the impacts and adaptation activities.

An Executive Policy Committee provides policy direction and approval of projects. Its representatives are from the federal departments and agencies of Agriculture and Agri-Food, Environment, Fisheries and Oceans, Industry, Health, Natural Resources, the National Research Council, the Natural Sciences and Engineering Research Council and the Canadian International Development Agency. A Technical Committee of science advisors from these federal departments and agencies provides recommendations on proposals and other technical advice.

Science, Impacts and Adaptation has funded cost-shared research proposals to engage scientists and stakeholders on the science, impacts and adaptation aspects of climate change. Its projects have helped increase the capacity and contributions of Canada's research community to the climate change issue.

GENERAL ACHIEVEMENTS

The knowledge base on sensitivities to climate change, and the way in which key elements in the climate system function, benefited significantly from the SIA component of the CCAF in its first three years. There were also contributions to the development of adaptation strategies and case studies in several fields. The SIA component was able to engage partners and build capacity inside and outside the Government of Canada to deliver results on the science, impacts and adaptation of climate change.

For example:

- There were 79 projects funded in climate system science. These were mainly delivered through a two-stage process: first, a series of national workshops to identify national research priorities on specific topics was held, followed by open and targeted calls for proposals.
- 76 impacts and adaptation projects were funded. The projects were aimed at addressing the most pressing gaps in knowledge, including the economic implications of a changing climate. Widely distributed across the country, they provided new insights into vulnerability to climate change in nine key areas, such as communities and water resources.
- Increased emphasis was placed on the involvement of stakeholders in Impacts and Adaptation research. The result was a higher level of engagement in the projects by industry, communities, resource managers and health agencies. The projects also produced more decision-relevant results. In addition, a number of pilot projects were funded to test new approaches and techniques resulting in the development of new tools and the use of new technologies.
- A national plan for climate system monitoring was developed to help address gaps in Canada's climate monitoring network, and a series of analytical studies was then funded to address issues such as monitoring network design and data management and archiving.
- The Science program supported the participation of some 30 Canadian scientists from universities and government in the work of the Intergovernmental Panel on Climate Change. Panel assessments and special reports provide the scientific and technological foundation used by policymakers and international negotiators.

- Research studies in climate model improvements focused on better representing the way some key components and processes are portrayed in computer-based models of the climate system. For instance, the studies examined the components and processes of sea ice, clouds and land surfaces. In addition, the focus of research involving terrestrial/biological sources and sinks of greenhouse gases was on forests and agricultural lands, as well as freshwater and wetlands.
- Projects under Arctic research and monitoring included assessments of present knowledge of the climate system; rescuing, protecting and making available vulnerable climate-related data sets; and assessments of climate model projections. There were also several projects dealing with climate scenarios (tailored climate model output) such as those related to forests, fish, and flooding in the Bay of Fundy. Research on extreme climate and weather events focused on observed data, proxy data, and modeling aspects.

More and more is being learned about the climate system through projects on systematic climate monitoring to detect climate change, activities that enhance the ability of climate models to look into the future, and projects that help improve our understanding of greenhouse gas sources and sinks.

HIGHLIGHTS OF SCIENCE, IMPACTS AND ADAPTATION PROJECTS:

- **Climate Change, Permafrost Degradation and Infrastructure Adaptation: Community Case Studies in the Mackenzie Valley:** Federal researchers worked with municipal and territorial partners to assess the sensitivity of the infrastructure of Norman Wells and Tuktoyaktuk to changes in permafrost conditions. The project results will assist local planners with incorporating climate change considerations into community development and engineering design. This case study also provided a template that could be used to assess the risks from permafrost thaw in other communities.
- **Adaptation Strategies to Reduce Health Risks from Summer Heat in Toronto:** This project examined the impacts of extreme summer heat on public health, and developed an effective Heat-Health Alert System. The result is that Toronto is able to prepare for future heat waves, and to become the only North American city to participate in a United Nations Showcase Project on state-of-the-art, heat-health systems. The project also examined how changes in building and road materials could reduce the urban heat island effect.
- **Sea Level Rise and Climate Change: Impacts and Adaptation Needs, Prince Edward Island:** This project examined the potential impacts of sea level rise and storm surges at two sensitive areas of the PEI coastline. The study found that there were risks to buildings and infrastructure in Charlottetown, and that 10 per cent of the current coastal property area could be lost in the next 20 years. The project also identified potential adaptation responses that could be used to reduce damage risk. As a result, a new storm surge model was developed that can be used to warn of severe impacts of present day storm/tide events.
- **State of the Arctic Cryosphere during the Extreme Warming of 1998:** The warmest year on record in Canada and globally, 1998 produced extensive summer warming over the Canadian Arctic. This collaborative project involves three federal government

departments, nine Canadian universities and the private sector. The effects of this unusual warmth included extremes in the extent of seasonal sea ice melt, the amount of glacial ice melt, and the depth of ground thaw penetration.

- **Carbon balance of boreal forest ecosystems**: Involving two Canadian universities as well as government scientists, this research focuses on creating a base of environmental information to feed models for producing reliable estimates of carbon sink/source strength for three representative boreal forest types in northern Saskatchewan (aspen, black spruce and jack pine). Year-to-year variations in temperature were found to cause significant differences in the carbon balance of some of the sites.
- **Synthesis of paleoclimate data from the Canadian Arctic**: As part of an overall strategy to understand how climate changes may influence the Canadian Arctic, fossil records can tell about natural climate variability during the past 10,000 years, and how that has affected arctic ecosystems. This study, conducted at the University of Ottawa, examined the characteristics of various natural media including glacial ice and lake sediments. In the period prior to the past 5,000 years, much of the Arctic was warmer. The result was a significant impact on vegetation in many areas. In the past 1000 years, various regions have had a variety of warm and cool periods. During the 20th century nearly all records indicate warming, and preliminary results suggest significant change in aquatic communities at some sites.

CCAF Component: Public Education and Outreach (PEO)

The Public Education and Outreach (PEO) component of the CCAF is designed to increase Canadians' awareness and understanding of the climate change issue, and to promote action by Canadians to reduce greenhouse gas emissions in their communities.
The main objectives are met by:

- Supporting national awareness activities, including public opinion research, publications and information kits, a climate change web site and print advertising with a supporting radio campaign.
- Funding for 152 local and national projects covering sectors as diverse as transportation, energy efficiency and science outreach as they relate to climate change.

STRUCTURE

The PEO funding component is housed at Environment Canada, but co-managed by the Director General, Office of Energy Efficiency, Natural Resources Canada and the Director General, Climate Change Bureau, Environment Canada. An interdepartmental Programs Management Committee reviews and recommends proposals for funding. Proposals from a diverse audience were submitted under seven funding phases throughout the three-year period.

Public Education and Outreach targeted climate change action by individual Canadians through national awareness and community based projects designed to influence changes in behaviour.

GENERAL ACHIEVEMENTS

- The PEO component has been able to target a number of different sectors across Canada through funding of a wide variety of projects varying in scope, involving many different approaches. Educational and academic institutions, community groups, municipal governments, youth and business and industry have been involved, as have environmental non-government organizations at the national, regional and local levels.
- Seven million copies of a four-page newspaper supplement on climate change were distributed through 127 daily and community newspapers. The supplement, entitled Our *Climate is Changing - It's Time to Act!*, provided information on the science of climate change, the Kyoto Protocol and the national implementation process. In addition, the publication profiled actions taken by governments, business and industry to reduce greenhouse gas emissions, and encouraged Canadians to take action at home, at work and on the road. The tabloid has become a core climate change publication, with distribution through the 1 800 O-CANADA telephone line, school programs, outreach project partners and climate change exhibits.
- The PEO component provided $18 million to 152 projects in its first three years of operation. This significantly increased the limited amount of public outreach activity on climate change that existed prior to the establishment of the CCAF.
- Because projects required at least 25 per cent of funding from other sponsors prior to approval from the CCAF, there has been a significant achievement in attracting investment from other partners. In fact, of the 152 projects funded, nearly two-thirds of total project budgets have come from additional sources, amounting to $51 million.
- Funded projects helped to develop new and effective working partnerships with other organizations, businesses and government departments that did not involve financial arrangements.

From door-to-door delivery to national media campaigns — from workshops to posters to Web sites — projects funded under the **Public Education and Outreach** component of CCAF have involved many different approaches to deliver climate change messages and information to Canadians. There were more than two million people reached through exhibitions, 2,750 involved in car sharing, 200 greener schoolyards were created and 6,000 trees were planted, 31,000 posters and 3.8 million brochures were distributed and 150 public service announcements were produced.

HIGHLIGHTS OF PUBLIC EDUCATION AND OUTREACH PROJECTS:

- The **Sustainable Living Bus** is a mobile education centre that helps people learn about climate change. Designed and delivered by the Sierra Club of British Columbia, the bus is powered by alternative energy sources and travels throughout B.C. to schools and communities. Visitors to the bus learn how they affect the environment and how to reduce the size of their environmental footprint. The bus visited 31 communities and conducted programs in 33 schools, reaching 12,000 students and visitors to community events. To date, 350 students have returned postcards to the bus saying how they live in a more sustainable fashion. Each student is taking an average of four actions.

- The **Union québécoise pour la conservation de la nature** worked with environmental partners in six major urban areas of Quebec in June of 1999 to raise awareness of the health impacts of air pollution and climate change as part of the "Mois d'action pour un atmosphère en santé" campaign. Individuals were encouraged to reduce their emissions, particularly through the use of public transport, carpooling and bicycling.
- Seventy grade seven students from three coastal communities in New Brunswick participated in **Jeunes visionnaires**, studying signs, causes, and impacts of climate change in their environment from the perspective of meteorologists, biologists, urban designers, chemists, and medical doctors. They participated in a conference, took preventive measures, and produced an educational CD-ROM for other communities. Before their involvement, more than 70 per cent of the students did not know anything about climate change; after, more than 60 per cent had an excellent knowledge of the issue.
- The **Task Force on Churches and Social Responsibility** is helping people in church communities around Canada learn more about climate change and the things they can do to reduce greenhouse gas emissions. The information is presented in the context that consumption, simplicity, and respect for the Earth are part of a spiritual and ethical lifestyle. The Task Force is promoting organizations in communities across Canada that conduct home energy audits, and organizing a series of workshops to help churches do their own energy efficient retrofits.
- The **Federation of Saskatchewan Indian Nations** is helping First Nations staff learn more about climate change by developing an outreach package for schools, groups of leaders, and Elders of Saskatchewan First Nations communities. Feedback is being used to develop recommendations for creating a model aimed at communicating climate change to First Nations and other interested groups across Canada.
- **Sila Alangotok**, a video produced by the International Institute for Sustainable Development, demonstrates the impact that climate change is having on the traditional lifestyles of the Inuit living on Banks Island in the Beaufort Sea. The video explores the traditional knowledge of the Inuit regarding past changes in climate and their adaptation in response to those changes. It also looks at whether such adaptation is still possible today, given current social, economic, and political considerations. (Sila Alangotok is an Inuvialuit expression meaning "the weather is changing"). The project generated significant media coverage, both in Canada and internationally, during both the production period and its launch at the 6th Conference of Parties in November 2000 in The Hague, Netherlands.
- Youth-driven eco-teams are delivering thousands of **Home Green Up** and **EnerGuide for Houses** evaluations across Newfoundland and Labrador, through the program, **Climate Change Action: The Job Begins at Home**, sponsored by Conservation Corps Newfoundland and Labrador. The home visits show residents how to reduce greenhouse gas emissions by better managing energy and water use, diverting waste, and "greening up" transportation and home renovation practices. This is just one of several CCAF-funded projects delivering home energy audits throughout the country.

Looking Forward

The first three years of the CCAF have resulted in greater national cooperation and federal-provincial and territorial partnerships to address climate change. The results also show that experts and decision makers are involved from all economic and environmental sectors, and that individual Canadians are starting to take action. Building on this success, a new phase of the CCAF for the 2001-2004 period has been developed and is now underway.

A fifth block has been added to the CCAF to bring focus to the international aspects of the climate change issue. At the same time, the Foundation Building block has been renamed, recognizing a different emphasis in second-phase activities. Looking forward, the five blocks are:

Building for the Future, continuing to build an inclusive and collaborative response to climate change that involves all orders of government, industry, environmental groups, communities, individuals and other stakeholders. Through continued federal coordination on program delivery and policy development, this component will include further consultations as part of the national process, work to reinforce partnerships with various orders of government, and support public awareness through communications. In addition, more work on policy, modeling and analysis will inform decisions on future measures to reduce emissions and enable Canada to continue meeting its international reporting obligations through enhanced data gathering and analytical capabilities.

The **Technology Early Action Measures** component will continue implementation of cost-effective emission reduction technology projects both in Canada and around the world, building on the successful first phase. Further involvement by the private sector will be encouraged, as will that of provinces/territories and local governments.

The **Science, Impacts and Adaptation** component will continue work on key areas to contribute to the national implementation strategy. The **Science** category will focus on understanding key climate system processes important to Canada; improving global climate modeling; developing climate scenarios for impacts and adaptation researchers; and assessment, evaluation coordination and communication of climate system science. The **Impacts and Adaptation** category will focus on coordination, capacity building and research so that Canada's vulnerabilities to climate change are better defined and opportunities are identified. This will include contributing to adaptation strategy development in regions and sectors where impacts from climate change are already being felt, along with areas where there could be long-term impacts from policy and management decisions that are made now.

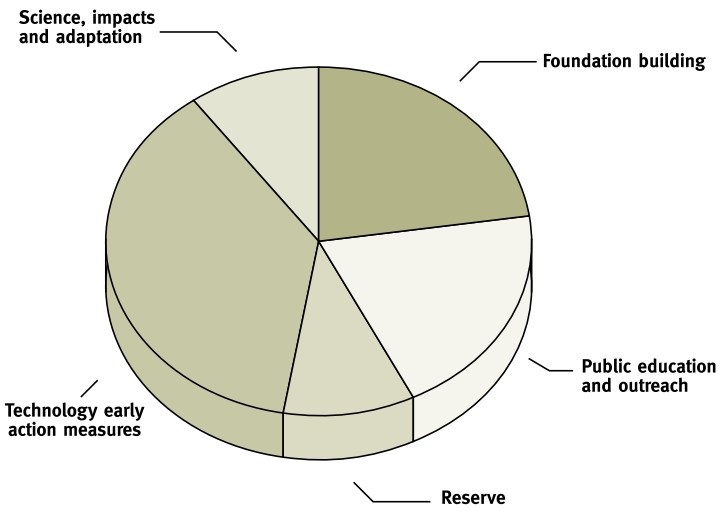
The **Public Education and Outreach** component will continue to support projects that raise awareness among Canadians about the climate change issue and encourage them to take individual and collective actions to reduce greenhouse gas emissions. It will also continue to support Government of Canada outreach activities that will achieve the same goals, through a climate change Web site, 1 800 O-CANADA information material, exhibits and information materials, and targeted advertising. Finally, the renewed component will support the establishment of third-party public education and outreach hubs or centres as pilot projects, to coordinate PEO effectively at the provincial/regional level.

Activities to support the **International Policy and Related Activities** component will include more work on emissions inventory methods, monitoring and reporting to assist Canada in meeting its international reporting obligations on greenhouse gas emissions inventories.

Appendix

Budget Allocation of CCAF

CCAF COMPONENT ($ MILLIONS)	98-99	99-00	00-01	TOTAL
Foundation building	15.0	11.0	8.0	**34.0**
Public education and outreach	10.0	10.0	10.0	**30.0**
Science, impacts and adaptation	5.0	5.0	5.0	**15.0**
Technology early action measures	15.0	19.0	22.0	**56.0**
Reserve	5.0	5.0	5.0	**15.0**
Total	**50.0**	**50.0**	**50.0**	**150.0**



For Further Information

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