CANADA

Third National Report

CONTENTS

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Information on the preparation of the report

Box I.

Please provide information on the preparation of this report, including information on stakeholders involved and material used as a basis for the report.
Preparation of this report was coordinated by the Biodiversity Convention Office (BCO) of Environment Canada. The report was developed in three phases. **Phase 1** - involved the provision of input by federal subject matter leads who could bring a national perspective to their particular area of interest (eg. agriculture, forestry, marine & coastal). Each federal lead was invited to consult as appropriate within their constituency on proposed responses. A literature and web search were also used to provide examples and illustrations as well as to substantiate responses. A bibliography of relevant publications is attached to this report. Some internet references are also provided in relevant sections.

A first draft of the report was then circulated to the federal Interdepartmental Committee on Biodiversity in order to seek comments, suggested revisions or additions from the broader federal community.

Phase 2 - involved soliciting comments/input from provincial and territorial governments.

Phase 3 - involved soliciting comments/input from non-government stakeholders (eg. private sector, non-government organisations, etc).

The final report will be posted on the Biodiversity Convention Office (BCO) web site and will also be available in hard copy from the BCO.

B. PRIORITY SETTING, TARGETS AND OBSTACLES

Box II.

Please provide an overview of the status and trends of various components of biological diversity in your country based on the information and data available.

An understanding of Canada's political complexity and geography is critical to understanding the answers to the questions in this report.

In Canada, responsibility for the environment and biodiversity is shared by the federal government, ten provincial governments, three territorial governments, and local governments. Aboriginal communities have a great interest in the environment and biodiversity issues, and in some instances aboriginal governments may exercise jurisdiction or authority over aspects of these matters pursuant to self-government arrangements. Private citizens and industry also have a large interest in biodiversity issues, with about 10% of Canada's land-base being privately owned.

The size of the country, including extreme regional variations, also makes it difficult to access information on all biodiversity related programs, policies and initiatives across Canada.

These circumstances create a challenge when asked to answer questions from a comprehensive "national" perspective. Therefore, responses are sometimes weighted towards a federal perspective. However, the input and activities of other levels of government and other interested stakeholders have also been incorporated as much as possible, to provide the most complete picture of Canada's progress on implementing the Convention on Biodiversity.

Priority Setting

1. Please indicate, by marking an "**X**" in the appropriate column below, the level of priority your country accords to the implementation of various articles, provisions and relevant programmes of the work of the Convention.

Article/Provision/Programme of Work	Level of Priority		
	High	Medium	Low
a) Article 5 – Cooperation	X		
b) Article 6 - General measures for conservation and sustainable use	X		
c) Article 7 - Identification and monitoring	X		
d) Article 8 – *In-situ* conservation	X		
e) Article 8(h) - Alien species	X		
f) Article 8(j) - Traditional knowledge and related provisions	X		
g) Article 9 – *Ex-situ* conservation		X	
h) Article 10 – Sustainable use of components of biological diversity	X		
i) Article 11 - Incentive measures	X		
j) Article 12 - Research and training		X	
k) Article 13 - Public education and awareness	X		
l) Article 14 - Impact assessment and minimizing adverse impacts		X	
m) Article 15 - Access to genetic resources	X		
n) Article 16 - Access to and transfer of technology		X	
o) Article 17 - Exchange of information		X	
p) Article 18 – Scientific and technical cooperation		X	
q) Article 19 - Handling of biotechnology and distribution of its benefits		X	
r) Article 20 - Financial resources	X		
s) Article 21 - Financial mechanism	X		
t) Agricultural biodiversity	X		

u) Forest biodiversity	X		
v) Inland water biodiversity		X	
w) Marine and coastal biodiversity	X		
x) Dryland and subhumid land biodiversity		X	
y) Mountain biodiversity		X	

Challenges and Obstacles to Implementation

2. Please use the scale indicated below to reflect the level of challenges faced by your country in implementing the provisions of the Articles of the Convention (5, 6,7, 8, 8h, 8j, 9, 10, 11,12, 13, 14, 15,16, 17, 18, 19 and 20)

3 = High Challenge	1 = Low Challenge
2 = Medium Challenge	0 = Challenge has been successfully overcome
N/A = Not applicable	

Challenges	Articles																	
	5	6	7	8	8h	8j	9	10	11	12	13	14	15	16	17	18	19	20
a) Lack of political will and support	1	2	2	2	1	2	1	2	2	2	2	2	2	1	1	2	2	2
b) Limited public participation and stakeholder involvement	N/A	2	1	2	2	2	1	2	2	1	2	2	2	1	1	1	2	1
c) Lack of mainstreaming and integration of biodiversity issues into other sectors	N/A	2	N/A	2	2	1	1	2	2	1	2	2	1	2	1	1	2	1
d) Lack of precautionary and proactive measures	N/A	2	N/A	3	2	1	1	2	2	1	2	3	1	1	1	1	2	1
e) Inadequate capacity to act, caused by institutional weakness	1	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
f) Lack of transfer of technology and expertise	2	N/A	N/A	N/A	N/A	N/A	1	N/A	2	2	N/A	2	N/A	2	2	2	1	1
g) Loss of traditional knowledge	N/A	N/A	N/A	2	1	3	1	2	N/A	N/A	1	1	2	1	1	1	1	1

h) Lack of adequate scientific research capacities to support all the objectives	2	3	2	2	3	2	1	2	3	2	2	2	2	1	2	2	1	N/A
i) Lack of accessible knowledge and information	2	3	3	2	3	2	2	2	3	1	2	3	2	1	2	2	1	N/A
j) Lack of public education and awareness at all levels	N/A	2	N/A	2	3	2	2	2	2	1	2	2	3	1	2	1	2	N/A
k) Existing scientific and traditional knowledge not fully utilized	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	N/A
l) Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented	2	3	3	3	2	2	1	2	3	1	2	3	3	1	1	1	1	N/A
m)Lack of financial, human, technical resources	2	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2
n) Lack of economic incentive measures	N/A	3	N/A	2	2	1	1	2	3	N/A	1	N/A	2	2	N/A	N/A	1	N/A
o) Lack of benefit-sharing	2	2	N/A	N/A	N/A	2	1	2	2	N/A	N/A	N/A	3	N/A	N/A	N/A	1	N/A
p) Lack of synergies at national and international levels	3	2	1	1	2	2	N/A	2	2	1	2	1	2	1	2	2	1	2
q) Lack of horizontal cooperation among stakeholders	2	2	2	2	2	2	N/A	2	2	1	2	1	2	1	2	2	1	1
r) Lack of effective partnerships	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	2	1	1
s) Lack of engagement of scientific community	2	2	1	1	2	1	1	1	2	2	2	2	2	2	2	1	1	N/A
t) Lack of appropriate policies and	N/A	1	N/A	1	2	1	1	1	2	1	1	1	3	1	1	1	3	N/A

laws																			
u) Poverty	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2
v) Population pressure	3	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2
w) Unsustainable consumption and production patterns	2	1	N/A	2	2	1	N/A	3	2	N/A	2	1	N/A	1	1	1	1	1	
x) Lack of capacities for local communities	2	1	N/A	1	1	1	1	3	2	N/A	2	1	2	1	1	1	1	2	
y) Lack of knowledge and practice of ecosystem-based approaches to management	2	2	2	2	2	2	N/A	2	2	1	2	2	1	1	1	1	1	N/A	
z) Weak law enforcement capacity	N/A	N/A	N/A	2	2	2	N/A	1	N/A	N/A	N/A	1	1	1	1	1	3	N/A	
aa) Natural disasters and environmental change	1	N/A	N/A	1	1	1	N/A	1	N/A	N/A	N/A	N/A	1	1	1	1	1	2	
bb) Others (please specify)																			

Ecosystem Approach

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. At its second meeting, the Conference of the Parties has affirmed that the ecosystem approach is the primary framework for action under the Convention (decision II/8). The Conference of the Parties, at its fifth meeting, endorsed the description of the ecosystem approach and operational guidance and recommended the application of the principles and other guidance on the ecosystem approach. The seventh meeting of the Conference of the Parties agreed that the priority at this time should be facilitating implementation of the ecosystem approach. Please provide relevant information by responding to the following questions.

3. ? [1] Is your country applying the ecosystem approach, taking into account the principles and guidance contained in the annex to decision V/6? (decision V/6)	
a) No	
b) No, but application is under consideration	
c) Yes, some aspects are being applied	X
d) Yes, substantially implemented	

4. ? Is your country developing practical expressions of the ecosystem approach for national policies and legislation and for implementation activities, with adaptation to local, national, and regional conditions? (decision V/6)	
a) No	
b) No, but development is under consideration	X
c) Yes, practical expressions have been developed for applying some principles of the ecosystem approach	X
d) Yes, practical expressions have been developed for applying most principles of the ecosystem approach	

5. Is your country strengthening capacities for the application of the ecosystem approach, and providing technical and financial support for capacity-building to apply the ecosystem approach? (decision V/6)	
a) No	
b) Yes, within the country	X
c) Yes, including providing support to other Parties	

[1] Please note that all the questions marked with ? have been previously covered in the second national reports and some thematic reports.

6. ? Has your country promoted regional cooperation in applying the ecosystem approach across national borders? (decision V/6)	
a) No	
b) Yes, informal cooperation (please provide details below)	
c) Yes, formal cooperation (please provide details below)	X

Further comments on regional cooperation in applying the ecosystem approach across national borders.

Canada recognizes that an ecosystem approach is fundamental to the management of marine and terrestrial ecosystems. Canada has come a long way in establishing the partnerships required for an ecosystem approach – cooperation has been essential in such a vast country where responsibility for the environment is shared by several levels of government. Decisions concerning the environment and the management of land resources are being made on a broader and more inclusive basis than in the past. There has also been a transition over the years to cooperative management as communities and non-governmental organizations become more involved.

However, while progress is being made in implementing an ecosystem approach, we still have a long way to go. Moving further toward an ecosystem approach to resource management will require additional shifts in values and commitment on the part of Canadian society. Progress will need to be built strategically upon the wide range of existing activities and programs to conserve, protect, and restore ecosystems.

In 2000, Canada published a document entitled *Learning from Nature: Canada – The Ecosystem Approach and Integrated Land Management.* This document represented the Canadian contribution to the land use dialogue to the 8th Session of the United Nations Commission on Sustainable Development (2000). The document outlines some of the major Canadian initiatives and successes in implementing the ecosystem approach. Some examples of this are as follows:

Ecosystem Initiatives

Ecosystem Initiatives (http://www.ec.gc.ca/ecosyst/backgrounder.html) began as a co-operative effort between the United States and Canada to address pollution in the Great Lakes, with a mandate for implementing an ecosystem approach established by the Canada-US Great Lakes Water Quality Agreement. There are now six ecosystem initiatives that have been established by Environment Canada based on the Great Lakes model – the Georgia Basin Ecosystem Initiative, the Northern Rivers Ecosystem Initiative, Great Lakes 2000, St. Lawrence Action Plan Vision 2000, the Atlantic Coastal Action Program, and the Northern Ecosystem Initiative.

While initiatives vary in scope, scale and participation, there are several common characteristics. They are managed through an ecosystem approach involving the consideration of all components of the ecosystem – land, air, water, and living things. The initiatives also recognize the interrelationships and interdependency of social, economic and environmental issues. Decisions are based on science, combined with local and traditional knowledge. The initiatives reflect partnerships among governments, the private sector, non-government and the local community.

As the Environment Canada Ecosystem Initiatives continue to grow (e.g. completion of the Fraser River Action Plan in 1998), regional ecosystem-based initiatives that exist outside of the larger projects also continue to evolve. Examples include the Oldman River Basin Water Quality Initiative (Alberta), Partners for the Saskatchewan River Basin (Prairie Provinces), and the Environmental Information Partnership of the Moose River Basin (Ontario).

Parks and Protected Areas

In the case of protected areas, the application of the ecosystem approach has required viewing and managing protected areas as part of the broader ecosystem. For example, the federal government is putting an ecosystem approach into practice by establishing integrated and collaborative management agreements and programs for protected areas that include such activities as monitoring and working with adjacent landowners and land management agencies.

The Northwest Territories Protected Areas Strategy promotes the community-based development of a system of protected areas.

Canada also has twelve UNESCO designated Man and the Biosphere reserves (http://www.unesco.org/mab/brlistEur.htm), where communities work towards the conservation of ecosystems, sustainable use of natural resources, and research, education, and monitoring related to ecosystems.

Global Efforts

Canada is working with other countries to develop solutions and share best practices so that ecosystems of local and global importance are protected, conserved and rehabilitated through joint actions. Some of these initiatives (e.g. Arctic Council, North Atlantic Fisheries Organization, North American Commission for Environmental Cooperation) focus on shared ecosystems.

7. Is your country facilitating the exchange of experiences, capacity building, technology transfer and awareness raising to assist with the implementation of the ecosystem approach? (decisions VI/12 and VII/11)

a) No	
b) No, some programmes are under development	
c) Yes, some programmes are being implemented (please provide details below)	X
d) Yes, comprehensive programmes are being implemented (please provide details below)	

Further comments on facilitating the exchange of experiences, capacity building, technology transfer and awareness raising to assist with the implementation of the ecosystem approach.

The concept of landscape management is arising more frequently in Canada as the federal government and jurisdictional governments deal with the trade-offs of sustainable development. Many sources of external advice to government are referring to it, most notably the 2003 National Round Table on the Environment and the Economy report on Nature Conservation, which has been the subject of significant academic and industry interest.

In April 2003, Environment Canada co-sponsored a workshop on landscape management and the ecosystem approach, the report of which calls strongly for expanding and accelerating implementation of the concept across Canada. The key players at this workshop formed, in October 2003, a coalition of common interests called the Landscape Management Coalition with a mission "to advance and accelerate Landscape Management in Canada by influencing key decision makers in the development of appropriate policies, practices and tools." Membership includes Environment Canada, Alberta Environment, Wildlife Habitat Canada, the Forest Products Association of Canada, the Prospectors and Developers Association, the University of Alberta, the Canadian Institute of Resource Law and the Ontario Federation of Anglers and Hunters. The Coalition will be enlarged to other key interests, including more provinces, aboriginal, oil and gas industry and environmental non-government organizations. Its programme of activity encompasses such topics as

communications, science and decision processes with a view to developing messages for key audiences, identifying champions in different sectors, seeking good examples and identifying early opportunities for partnerships and advocacy.

An ecosystem-based management (EBM) handbook was developed in British Columbia in 1994 to implement three coast and land use plans. The handbook is part of an EBM Framework developed by the Coast Information Team (CIT). The EBM Framework identifies principles, goals, objectives, and key elements of EBM as they have been developed by the CIT, and defines EBM as: …an adaptive approach to managing human activities that seeks to ensure the coexistence of healthy, fully functioning ecosystems and human communities. The intent is to maintain those spatial and temporal characteristics of ecosystems such that component species and ecological processes can be sustained, and human well-being supported and improved.

The purpose of the Handbook is to provide guidance on implementing this definition of EBM across multiple scales – from First Nations territories or other planning sub-regions such as the Central and North Coast of British Columbia, through landscapes and watersheds to individual sites. The challenge is not easy. The planning region is characterized by globally significant old growth temperate rainforests and rare wildlife species, unique First Nations cultures, sparse population, small communities, long distances to markets, a recent history of fisheries over-exploitation and general economic decline, and unresolved legal issues. Maintaining ecological integrity and promoting human well-being in this context will require new approaches and arrangements. To address this, the approach to EBM described in this Handbook involves:

• Having a key objective to establish a system of protected areas and reserves at multiple scales that seeks to protect endangered, rare and representative examples of regional ecosystems; sustain sufficient habitat to support viable populations of all native species; and protect important cultural heritage values.
• Using traditional, local, and scientific knowledge of natural ecological patterns and processes and their historic variability to develop ecosystem-specific management targets. Risk assessment using local and expert knowledge informs the establishment of targets that guide management to varying levels of risk at different scales, the goal being to ensure a high probability that ecological integrity is being maintained overall.
• Recognizing and accommodating First Nations Rights and Title and interests. Federal and provincial governments have not reached treaty agreements with First Nations in the region. Interim and protocol agreements between First Nations, governments, tenure holders, and interested groups and organizations can establish working arrangements for resource access, stewardship and economic development.
• Engaging local community representatives and stakeholders explicitly in developing locally relevant goals and objectives, in making land and resource decisions, and in formulating and implementing strategies and plans that seek to improve family and local community well-being and economic health.
• Establishment of new arrangements among First Nations, governments, and stakeholders that provide for improved information sharing and cooperation, equitable access to resources and development benefits, economic stability, and coordinated management and monitoring.
• Exploration of new policy instruments and management arrangements that seek to achieve the most effective and efficient ways to implement EBM while creating an enabling environment for community economic development and entrepreneurial business activity.

8. Is your country creating an enabling environment for the implementation of the ecosystem approach, including through development of appropriate institutional frameworks? (decision VII/11)	
a) No	
b) No, but relevant policies and programmes are under development	
c) Yes, some policies and programmes are in place (please provide details below)	X
d) Yes, comprehensive policies and programmes are in place (please provide details below)	

Further comments on the creation of an enabling environment for the implementation of the ecosystem approach.

Management of natural resources according to the ecosystem approach calls for increased communication and cooperation across government ministries and levels of government. This might be promoted through, for example, the formation of inter-ministerial bodies or the creation of networks for sharing information and experience. In 2001, the Federal-Provincial-Territorial Biodiversity Working Group charged with implementing Canada's national biodiversity strategy developed a document called *Working Together: Priorities for Collaborative Action to Implement the Canadian Biodiversity Strategy, 2001-2006*. Progress on agreed priorities has been advanced through an ad-hoc inter-ministerial council, and more formal governance mechanisms are under consideration.

C. ARTICLES OF THE CONVENTION

Article 5 – Cooperation

9. ? Is your country actively cooperating with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biological diversity?	
a) No	
b) Yes, bilateral cooperation (please give details below)	X
c) Yes, multilateral cooperation (please give details below)	X
d) Yes, regional and/or subregional cooperation (please give details below)	X
e) Yes, other forms of cooperation (please give details below)	

Further comments on cooperation with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biodiversity.

Canada shares a number of watersheds with the United States, its neighbour to the south. Canada also shares migratory species such as the monarch butterfly and many neo-tropical birds which breed in Canada and winter in the U.S., Mexico, South America, Central America and Caribbean countries. Co-operation among Canada, the United States and Mexico in particular is important to conservation efforts of species in North America. Canada also places high emphasis on co-operation with arctic nations and is a contracting party to a number of multilateral environmental agreements.

Canada is an active participant in a number of international environmental and trade agreements whose goals relate to the conservation and sustainable use of biological resources. In addition, biodiversity considerations are a

key element to participating in the development of new protocols or sub-agreements under existing agreements or conventions. These agreements include, but are not limited to: UN Convention to Combat Desertification; Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Ramsar Convention on Wetlands of International Importance; Convention on the Protection of Migratory Birds in Canada and the United States; and the soon to be ratified UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks.

Cooperation activities also include regional and international partnerships to improve scientific understanding of regional biodiversity issues and to take action on its conservation. For example, cooperation on understanding regional biodiversity is coordinated through the North American Agreement on Environmental Cooperation (see below), the North American Working Group on Environmental Enforcement, and the North American Waterfowl Management Plan (NAWMP).

Some further examples of specific cooperative initiatives are outlined below.

International Joint Commission (IJC)

The International Joint Commission (www.ijc.org) has been working with the governments of both Canada and the United States since 1909, to assist in managing waters along the border. In addition to the Great Lakes-St. Lawrence River system, the Commission has continuing responsibilities in several areas (Kootenay, Osoyoos, and Columbia rivers in the west; St. Mary, Milk and Souris River across the prairies; and St. Croix River and Rainy Lake system in the east). Work of the IJC includes assisting governments in achieving their goals of improving water quality, including concerns for biodiversity and the recent release of a report on alien invasive species in the Great Lakes basin. The IJC also coordinates the Great Lakes Water Quality Agreement for Canada and the United States.

Great Lakes Water Quality Agreement

The Agreement, first signed in 1972 and renewed in 1978, expresses the commitment of each country to restore and maintain the chemical, physical and biological integrity of the Great Lakes Basin Ecosystem and includes a number of objectives and guidelines to achieve these goals. It reaffirms the rights and obligation of Canada and the United States under the Boundary Waters Treaty of 1909 and has become a major focus of Commission activity.

North American Commission for Environmental Cooperation (CEC)

The Commission for Environmental Cooperation (www.cec.org) is an international organization created by Canada, Mexico and the United States under the North American Agreement on Environmental Cooperation (NAAEC) (http://www.cec.org/pubs_info_resources/law_treat_agree/naaec/index.cfm?varlan=english). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law. CEC supports several projects under the Conservation of Biodiversity program area – activities include assisting in the development and implementation of the Strategic Plan for North American Cooperation in the Conservation of Biodiversity. The Strategic Plan provides the CEC Secretariat with a clear sense of direction, a long-term agenda, and the manner in which to catalyze cooperative conservation actions at the continental level, and will serve as a guide for the Council, the Biodiversity Working Group, and the CEC Secretariat in their work with stakeholders in cooperatively defining and coordinating mutually beneficial biodiversity conservation in North America. The Strategic Plan will: foster an integrated continental perspective for cooperative conservation and sustainable use of biological resources; contribute to the maintenance of the ecological integrity of North American

ecoregions; and promote biodiversity conservation capacity and cooperative cross-sectoral activities in the three countries that will contribute to the reduction and mitigation of threats to North American shared species and ecosystems.

Arctic Council and the Arctic Environmental Protection Strategy (AEPS)

In 1997, the Arctic Council was established as a high-level consensus organization founded on the principles of circumpolar cooperation, coordination and interaction to address the issues of sustainable development, including environmental protection, of common concern to Arctic states and northerners (www.arctic-council.org). The Council has integrated the former programs of the AEPS, the purpose of which was to support the Convention on Biodiversity. The objectives of the Arctic Environmental Protection Strategy were:

- to protect the Arctic ecosystems, including humans;
- to provide for the protection, enhancement and restoration of environmental quality and sustainable utilization of natural resources, including their use by local populations and indigenous peoples in the Arctic;
- to recognize and, to the extent possible, seek to accommodate the traditional and cultural needs, values and practices of indigenous peoples as determined by themselves, related to the protection of the Arctic environment;
- to review regularly the state of the Arctic environment;
- to identify, reduce and, as a final goal, eliminate pollution.

Four programmes, established under the AEPS and continued under the Arctic Council, support arctic environmental protection and conservation through: monitoring and assessment, conservation of flora and fauna, environmental emergency preparedness, and marine protection. The governments of the Arctic have agreed to cooperate to ensure protection of the Arctic environment and sustainable use of its biological resources.

Five working groups support the Council, including a working group which addresses the Conservation of Arctic Flora and Fauna (CAFF). CAFF has undertaken a wide-range of biodiversity initiatives, including preparing an International Murre Conservation Strategy and Action Plan, a Circumpolar Eider Conservation Strategy and Action Plan, an Arctic biodiversity strategy, as well as reports on protected areas, incidental take of seabirds resulting from commercial fishing, wildlife habitat mapping, circumpolar Arctic vegetation map project, threats to Arctic biodiversity, and human disturbance at Arctic seabird colonies.

The broad goals developed to guide the work of CAFF, and the Goals and Objectives in the Co-operative Biodiversity Strategy, provide a framework for the eight Arctic countries to identify priority activities for collaborative action. The Strategy provides a regional approach to implementing the Convention on Biological Diversity. Seven of the eight Arctic countries are Parties to this international treaty. The Protected Areas Strategy provides three excellent goals in terms of biodiversity conservation, and includes within the Strategy detailed action for each Arctic country.

International Model Forest Network

The International Model Forest Network (www.idrc.ca/imfn/) was created in 1994 as an outgrowth of the successful Canadian Model Forest Network (http://www.modelforest.net), started two years earlier to strengthen the sustainable management of Canadian forests. International model forests sites have been established or are under development in 17 countries, including Canada, Mexico, Russia, Sweden, Chile, Argentina, Japan and the Philippines.

The Network's vision is to foster cooperation and collaboration in the advancement of management, conservation and sustainable development of forest resources, through a world-wide network of working model forests.

International Peace Parks (IPP)

The first Canada-US IPP was established on the Canada-US border in 1932, from two previously existing national parks. There are now five IPPs being managed by Canada and the US as shared ecosystems. For example, cooperation within the Waterton/Glacier IPP area is reflected in wildlife and vegetation management, with stewardship efforts being shared between governments.

US-Canada Framework for Cooperation

In 1997, the US and Canadian governments signed the *Framework for Cooperation Between the US Department of the Interior and Environment Canada in the Protection and Recovery of Wild Species at Risk* (http://www.speciesatrisk.gc.ca/publications/cbs/default_e.cfm). The goal of the Framework is to prevent populations of wild species shared by the US and Canada from becoming extinct as a consequence of human activity, through the conservation of wildlife populations and the ecosystems on which they depend.

North American Bird Conservation Initiative (NABCI)

Canada has a long history of cooperation throughout North America for the conservation of migratory bird species (e.g. *Migratory Birds Convention Act*). The NABCI, established in 1998 and supported by the Commission for Environmental Cooperation, is a coordinated effort among Canada, the US and Mexico with a goal to maintain the diversity and abundance of all North American birds and to improve the conservation of birds and their habitats in North America. This goal will be reached through integration of existing initiatives for bird conservation. Important habitat and land-use issues will be addressed through joint venture partnerships in each Bird Conservation Region (BCR), similar to those already undertaken under the North American Waterfowl Management Plan (NAWMP). In Canada, improved coordination will be reached through integration of the conservation efforts currently underway for: Waterfowl, Landbirds, Shorebirds and Waterbirds.This initiative should create a significant increase in the level of cooperation across North America. More information on NABCI can be obtained at www.bsc-eoc.org/nabci.html.

10. Is your country working with other Parties to develop regional, subregional or bioregional mechanisms and networks to support implementation of the Convention? (decision VI/27 A)	
a) No	
b) No, but consultations are under way	
c) Yes, some mechanisms and networks have been established (please provide details below)	X
d) Yes, existing mechanisms have been strengthened (please provide details below)	

Further comments on development of regional, subregional or bioregional mechanisms and networks to support implementation of the Convention.

Canada has, for example, held a number of workshops that have enhanced awareness of the Bonn Guidelines and issues associated with the implementation of ABS systems, including a joint Canada-Mexico International Experts Workshop on Access and Benefit-Sharing (Cuernavaca, Mexico, October 24-27, 2004).

11. Is your country taking steps to harmonize national policies and programmes, with a view to optimizing policy coherence, synergies and efficiency in the implementation of various multilateral environment agreements (MEAs) and relevant regional initiatives at the national level? (decision VI/20)

a) No	
b) No, but steps are under consideration	
c) Yes, some steps are being taken (please specify below)	X
d) Yes, comprehensive steps are being taken (please specify below)	

Further comments on the harmonization of policies and programmes at the national level.

The Commission for Environmental Cooperation supports projects under its Conservation of Biodiversity program area, including “Closing the Pathways of Aquatic Invasive Species across North America”. This project seeks to protect North America’s marine and aquatic ecosystems from the effects of aquatic invasive species. The initiative will assist the development of a North American approach to prevention and control aimed at eliminating pathways for the introduction of invasive species among the coastal and fresh waters of Canada, Mexico and the United States.

Nationally, Environment Canada has assumed a co-ordinating role on the issue of invasive alien species, working closely with other federal departments and agencies including Fisheries and Oceans Canada, Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency, Natural Resources Canada, Transport Canada and the Parks Canada Agency, as well as with provincial and territorial governments and stakeholders, to address this threat. Development of a national plan to address invasive alien species began in 2001. *An Invasive Alien Species Strategy for Canada*, approved in 2004, represents the collective efforts of federal government departments and agencies as well as numerous provinces. The Strategy seeks to establish a framework to address invasive alien species by meeting four strategic challenges, including:

• Integrating environmental considerations into decision-making with economic and social factors;
• Enhancing co-ordination and co-operation to respond more rapidly to new invasions and pathways of invasion;
•Strengthening programs to protect natural resources under pressure from increased global trade and travel; and
• Maximizing collaboration between ad hoc and regional/issue specific efforts to ensure the limited resources are used on highest priority issues

Action Plans will be completed by fall 2005 and will articulate the actions required to address the agreed-upon priorities and established objectives/results. The plans will also identify the timelines and those agencies/jurisdictions with a responsibility in successfully achieving the results.

On access and benefit sharing of genetic resources, Canada has established a national focal point within the Biodiversity Convention Office of Environment Canada.

Box XLI.

Please elaborate below on the implementation of this strategy specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 6 - General measures for conservation and sustainable use

12. Has your country put in place effective national strategies, plans and programmes to provide a national framework for implementing the three objectives of the Convention? (Goal 3.1 of the Strategic Plan)

a) No	
b) No, but relevant strategies, plans and programmes are under development	
c) Yes, some strategies, plans and programmes are in place (please provide details below)	
d) Yes, comprehensive strategies, plans and programmes are in place (please provide details below)	X

Further comments on the strategies, plans and programmes for implementing the three objectives of the Convention.

Following ratification of the CBD by Canada, Ministers tasked a Federal-Provincial-Territorial Work Group on Biodiversity with the development of a Canadian Biodiversity Strategy. The Strategy was developed over a three-year period with input from a wide range of stakeholders, including the private sector, indigenous groups, conservation organisations and academia, and was endorsed by all jurisdictions in April 1996. Each jurisdiction committed to reporting on how it was implementing or planned to implement the Strategy.

To date, the federal government and a number of provincial governments have produced implementation reports and/or action plans. Some resource industries have also developed biodiversity action plans or strategies, including for forestry, wildlife, stewardship, land use, sustainable development, agriculture, fisheries, mining, etc.

13. Has your country set measurable targets within its national strategies and action plans? (decisions II/7 and III/9)	
a) No	
b) No, measurable targets are still in early stages of development	X
c) No, but measurable targets are in advanced stages of development	
d) Yes, relevant targets are in place (please provide details below)	
e) Yes, reports on implementation of relevant targets available (please provide details below)	

Further comments on targets set within national biodiversity strategies and action plans.

The Canadian Biodiversity Strategy (CBS) is comprehensive in its coverage, creating the need for priority setting both within jurisdictions and at the national level stops. However, the CBS stops short of identifying measurable outcomes against which Canada can report progress. Although it calls for strengthened linkages at the ministerial level to oversee implementation and regular progress reports, including reporting to Canadians on the status of Canada's biodiversity, it does not provide a formal mechanism or timetable for doing so.

Thus, in 2004, Deputy Ministers of Wildlife, Forestry and Fisheries and Aquaculture held initial discussions on considering the value and nature of a biodiversity outcomes framework as an implementation and reporting companion/accountability mechanism to the CBS, as a means of engaging and influencing key partners on the landscape, and as a way to create synergies with the economic, social and environmental priorities of governments. Work was initiated on a biodiversity outcomes framework as an implementation and reporting companion to the CBS. The first draft of the framework will be available for ministerial review in September 2006.

14. Has your country identified priority actions in its national biodiversity strategy and action plan? (decision VI/27 A)	
a) No	
b) No, but priority actions are being identified	
c) Yes, priority actions identified (please provide details below)	X

Further comments on priority actions identified in the national biodiversity strategy and action plan.

At a meeting in September 2001, federal, provincial and territorial Wildlife, Forests, and Fisheries and Aquaculture Ministers agreed to collaborate on five implementation priorities for biodiversity issues of Canada-wide concern outlined in the jointly prepared report, *Working Together: Priorities for Collaborative Action to Implement the Canadian Biodiversity Strategy 2001-2006*. The priorities are: to develop a biodiversity science agenda and coordinate biological information management; enhance capacity to report on status and trends; deal with invasive alien species; and engage Canadians by promoting stewardship.

In September 2002 and September 2003, these same Ministers recommitted to the Canadian Biodiversity Strategy, and to plans for advancing work on the four implementation priorities (see http://www.bco.ec.gc.ca/en/activities/ProjectsDomestCBS.cfm for more information). Endorsement of these plans set the stage for continued inter-jurisdictional collaboration and consultation and for the implementation of programs of work in support of each priority. Such programs of work build on, and link, the significant body of work that is already taking place within

and among jurisdictions and sectors.

15. Has your country integrated the conservation and sustainable use of biodiversity as well as benefit sharing into relevant sectoral or cross-sectoral plans, programmes and policies? (decision VI/27 A)

a) No	
b) Yes, in some sectors (please provide details below)	
c) Yes, in major sectors (please provide details below)	X
d) Yes, in all sectors (please provide details below)	

Further information on integration of the conservation and sustainable use of biodiversity and benefit-sharing into relevant sectoral or cross-sectoral plans, programmes and policies.

Oceans

Under *Canada's Ocean Strategy*, Understanding and Protecting the Marine Environment has been identified as one of three policy objectives or outcomes for the advancement of oceans management activities. Successful oceans management depends on understanding the marine environment – an understanding that is predicated on solid science, which in turn depends on rigorous peer review. The ability to understand and protect marine ecosystems also depends on the ability to bring together the various disciplines of the marine sciences.

Science support for oceans management is important for delineating ecosystem boundaries, identifying key ecosystem functions and components, developing predictive models and risk assessment techniques, developing ecosystem-based management objectives, developing performance indicators, and assessing the state of ecosystem health. Modern oceans management requires integrating social and environmental information so that human activity is better factored into sound decision making.

The Government of Canada announced its intention to develop the Oceans Action Plan in 2004. The February 2005 budget announced an investment of $28 million over two years as the first phase of the Oceans Action Plan, focusing on improving oceans management and preserving the health of marine ecosystems. As a practical, action-oriented companion piece to our national oceans policy framework — Canada's Oceans Strategy — the Oceans Action Plan involves working collaboratively across all orders of government in Canada and with Canadians to pursue sustainable development and implement integrated management plans and marine protected areas in Canada's oceans and coastal areas.

Phase I of the Oceans Action Plan consists of targeted actions over the next two years while Canada completes its long-term oceans management agenda. These actions include developing integrated management plans for large ocean areas on all three coasts, in recognition of the interests of Canadians who rely on the oceans for their income and supporting their community social, environmental and cultural needs; and addressing particular oceans health issues and putting marine protected areas in place to protect fragile marine ecosystems and species.

Forests

The National Forest Strategy (NFS) has several objectives which directly pertain to the conservation and sustainable use of biodiversity and benefit-sharing. The first objective of the Strategy is to "Manage Canada's natural forest using an ecosystem-based approach that maintains forest health, structure, functions, composition and biodiversity, and includes, but is not limited to:

A. Using integrated land-use planning, especially before tenure allocation;
B. Maintaining natural forested ecosystems;
C. Completing a system of representative protected areas;
D. On a national basis, maintaining carbon reservoirs and managing the forest to be a net carbon sink, over the long term; and
E. Conserving old-growth forests and threatened forest ecosystems.

Objective 2 of the NFS is to "Develop legislation and policies to improve the sustainability (social, environmental and economic) of forest-based communities by:
A. Fostering participation and involvement in forest management decision making;
B. Improving access to resources;
C. Sharing benefits;
D. Enhancing multiple benefits; and
E. Supporting community resilience and adaptive capacity.

Objective 3 is to "accommodate Aboriginal and treaty rights in the sustainable use of the forest recognizing the historical and legal position of Aboriginal Peoples and their fundamental connection to ecosystems.
Objective 6 is to "Actively engage Canadians in sustaining the diversity of benefits underlying the importance of Canada's forest", including by establishing mechanisms to advance the planning, maintenance and management of urban forests based on an ecosystem-based approach.
Finally, Objective 8 of the NFS is to "Create a comprehensive national forest reporting system that consolidates data, information and knowledge for all valued features of the forest, both urban and rural."

Agriculture

Through the Agriculture Policy Framework (APF), Canadian Ministers of Agriculture have committed to work together and with industry towards a set of common outcome goals for improving environmental performance on farms. These measurable goals aim to achieve improvements in the quality of our water, soil and air, and in biodiversity. Specific areas where progress towards these goals could be demonstrated are:

- Water: Reduce agricultural risks to the health of water resources. Key priorities are nutrients, pathogens and pesticides.
- Soil: Reduce agricultural risks to the health of soils. Key priorities are soil erosion and soil organic matter.
- Air: Reduce agricultural risks to the health of air and the atmosphere. Key priorities are particulate emissions, odours, and greenhouse gas emissions.
- Biodiversity: To ensure compatibility between biodiversity and agriculture. Key priorities are wildlife habitat, species at risk, and economic damage to agriculture from wildlife.

Through the APF, Canadian jurisdictions have committed to work in collaboration with the agriculture sector and other stakeholders towards the goals of:

- Farm Planning: an increase in the use of environmental farm planning, regional environmental management plans, or equivalent increase in the coverage of such environmental plans;
- Nutrient Management: an increase in the use of beneficial manure management practices and fertilizer management practices, nutrient management plans and the degree to which nutrient application is in balance with need;

- Pest Management: an increase in the use of beneficial pest and pesticide management practices;
- Land and Water Management: a decrease in the number of bare-soil days on farm land, an increase in no-till or conservation tillage, and improved management of riparian areas, grazing lands and water use; and
- Nuisance Management: the adoption of better management practices to reduce odours and particulate emissions.

While Canadian jurisdictions will work together and with industry towards the common goals, the targets under each goal could vary across Canada given that the scope of the environmental challenge is different in different regions, as are the natural ecosystems. Jurisdictions would use common indicators to measure progress in achieving the proposed common environmental outcome and management goals.

16. Are migratory species and their habitats addressed by your country's national biodiversity strategy or action plan (NBSAP)? (decision VI/20)	
a) Yes	X
b) No	
I) If **YES**, please briefly describe the extent to which it addresses	
(a) Conservation, sustainable use and/or restoration of migratory species	Conservation and Sustainable Use is Goal 1 of the Canadian Biodiversity Strategy (CBS). Elements included within this section of the CBS are: wild flora and fauna, protected areas, restoration and rehabilitation, sustainable use of biological resources, harmful alien organisms and living modified organisms, atmosphere, and human population and settlement.
(b) Conservation, sustainable use and/or restoration of migratory species' habitats, including protected areas	Further to the above description, Strategic Direction 1.16 of the CBS states that comprehensive criteria should be developed for determining priority sites for designation as protected areas considering criteria such as, *inter alia*, the habitat requirements for species at risk and endemic species and other critical wildlife habitat; and migratory species or representative or unique species.
(c) Minimizing or eliminating barriers or obstacles to migration	Strategic Direction 1.5 of the CBS states that fragmented ecosystems should be re-connected where practical and necessary to provide corridors and habitats for isolated species and populations.
(d) Research and monitoring for migratory species	Strategic Direction 1.9 of the CBS states that indicators should be developed to monitor trends and support the management of wild populations, species, habitats and ecosystems.
(e) Transboundary movement	Strategic Direction 1.9 of the CBS states that Canada will support and

	promote international efforts to recover species-at-risk by, *inter alia*, supporting the recovery of migratory and trans-boundary species-at-risk.
II) If **NO**, please briefly indicate below	
(a) The extent to which your country addresses migratory species at national level	
(b) Cooperation with other Range States since 2000	

Biodiversity and Climate Change

17. Has your country implemented projects aimed at mitigating and adapting to climate change that incorporate biodiversity conservation and sustainable use? (decision VII/15)	
a) No	
b) No, but some projects or programs are under development	
c) Yes, some projects have been implemented (please provide details below)	X

Further comments on the projects aimed at mitigating and adapting to climate change that incorporate biodiversity conservation and sustainable use.

Since Budget 2000, the Government of Canada's commitment to climate change action totals $3.7 billion. This is in addition to a number of other measures that are designed to complement actions on climate change. Investments in infrastructure, technology, science, and regional development will all be considered in terms of their impact on reaching Canada’s climate change targets. Action on climate change will reduce the sources of air pollution by promoting energy efficient low pollution technologies such as fuel cells, and green power sources such as small hydro projects and wind turbines.

Under *Action Plan 2000 on Climate Change,* the federal government assisted farmers to take action on climate change through a number of initiatives, such as a shelterbelt program to encourage more planting of trees around farms to absorb carbon dioxide and reduce wind erosion of soil. The *2002 Climate Change Plan for Canad*a further developed initiatives that aim to reduce GHG emissions while promoting sustainability in sectors like agriculture and forestry. These efforts allowed for adapting to climate change and help to mitigate some of the negative impacts on biodiversity.

The Agriculture Policy Framework (APF) is promoting farm environmental planning to improve management of greenhouse gases. *Greencover Canada*, a five-year, $110 million national initiative within the APF, promotes sustainable land use and aims to expand the area covered by perennial forage and trees. This initiative will improve management of agricultural land by encouraging conversion of marginal annual crop land to perennial vegetation; improving management of existing forage and range land; protecting water quality by enhancing riparian and/or critical wildlife habitat; and enhancing integration of shelterbelts into the agricultural landscape.

Promotion of carbon sinks through *Action Plan 2000 on Climate Change*, the *2002 Climate Change Plan for Canada* and *Greencover Canada* is one means by which Canada will contribute to mitigating climate change while promoting

sustainable practices and enhancing biodiversity preservation.

The 2005 Climate Change Plan for Canada, a key component of the Government's broader environmental vision, addresses the full spectrum of environmental issues, including biodiversity. The first phase - *Moving Forward on Climate Change: A Plan For Honouring Our Kyoto Commitment* – builds on positive first steps resulting from previous efforts in Action Plan 2000, and the 2002 Climate Change Plan for Canada. Initiatives like the One-Tonne Challenge and EnerGuide retrofit programs were launched to encourage energy efficiency actions by Canadian homeowners and commercial building operators to reduce energy consumption. Canada has also made major investments supporting Canadian innovation in cleaner fossil fuels, ethanol and hydrogen fuel cells.

The groundwork for this initiative was established in the October 2004 Speech from the Throne and Budget 2005. Budget 2005 laid a solid foundation for the new approach, introducing new market mechanisms, tax measures and incentives for private sector innovation and consumer action. Upon this foundation, *Moving Forward on Climate Change* will:

- promote investments in science and technology so Canada can become a "first mover" in developing and using renewable energy and other green technologies;
- safeguard Canadians' health and quality of life through cleaner air and greener communities;
- build lasting partnerships with provinces, territories and municipalities;
- collaborate with industry and set effective, fair reduction targets; and
- ensure continuous improvement and value for money by reviewing programs annually, verifying our investments' results and shifting existing funds to strengthen what works.

As part of its long-term plan, Canada's approach to carbon sinks offers an opportunity to reap a double dividend for the environment – fighting climate change by removing carbon dioxide from the atmosphere while also achieving other important environmental benefits, like maintaining biodiversity.

18. Has your country facilitated coordination to ensure that climate change mitigation and adaptation projects are in line with commitments made under the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification? (decision VII/15)

a) No	
b) No, but relevant mechanisms are under development	
c) Yes, relevant mechanisms are in place (please provide details below)	X

Further comments on the coordination to ensure that climate change mitigation and adaptation projects are in line with commitments made under the UNFCCC and the UNCCD.

For many years, the Government of Canada has contributed to assisting developing nations combat climate change through the *Global Environment Facility of the World Bank* and, more recently, through the *World Bank's Prototype Carbon Fund*. The Government of Canada's Budget 2000 provided $100 million in new Official Development Assistance (ODA) funding over four years to further help developing countries address climate change and promote sustainable development. The new *Canada Climate Change Development Fund* promotes activities to combat the causes and effects of climate change in developing countries, while helping to reduce poverty and encourage

sustainable development. It supports a portfolio of 46 projects throughout all regions of the world through an approach that combines technology transfer and capacity building and is contributing to reducing the vulnerability of developing countries to the adverse effects of climate change.

Canada's new Climate Fund rewards creativity and innovation by funding projects that reduce greenhouse gas and smog-causing emissions. It will purchase the value of large scale emission reductions from businesses, governments, organizations and citizens - examples include farmers who adopt low-till practices and property developers who include renewable energy elements in building new sub-divisions.

The Fund also benefits Canada by supporting projects internationally. It will help showcase Canadian green technology at work around the world, and support our international development assistance objectives. Exporting our green technologies and supporting efforts to reduce emissions in other countries will benefit Canada's economy, the global environment and the health of Canadians and people around the world. In addition, tax and production incentives worth over $2 billion are directed to increasing Canadian development and use of renewable power technologies over the next 15 years, including wind, solar, hydrogen and ethanol.

Box XLII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 7 - Identification and monitoring

19. On Article 7(a), does your country have an ongoing programme to identify components of biological diversity at the genetic, species, ecosystem level?

a) No	
b) Yes, selected/partial programmes at the genetic, species and/or ecosystem level only (please specify and provide details below)	X
c) Yes, complete programmes at ecosystem level and selected/partial inventories at the genetic and/or species level (please specify and provide details below)	

Further comments on ongoing programmes to identify components of biodiversity at the genetic, species and ecosystem level.

Biological Survey of Canada (Terrestrial Arthropods)

The Biological Survey of Canada helps coordinate scientific research among specialists on the Canadian fauna of insects, mites, and their relatives. The Survey supports identification and monitoring initiatives through programs such as the Arthropods of Canadian Grasslands Project, the goal of which is to acquire a biodiversity database on arthropods in Canadian

grassland ecosystems. This biodiversity benchmark will function as a reference point against which ecosystem change can be assessed from a biotic standpoint. See http://www.biology.ualberta.ca/bsc/english/grasslands.htm for more information.

20. On Article 7(b), which components of biological diversity identified in accordance with Annex I of the Convention, have ongoing, systematic monitoring programmes?	
a) at ecosystem level (please provide percentage based on area covered)	X
b) at species level (please provide number of species per taxonomic group and percentage of total known number of species in each group)	X
c) at genetic level (please indicate number and focus of monitoring programmes)	

Further comments on ongoing monitoring programmes at the genetic, species and ecosystem level.

In Canada, systematic environmental monitoring is conducted on an issue by issue basis. The extent of some monitoring has declined over the past decade, particularly in the areas of status of wildlife, land use, water quality and water quantity. Other networks related to stresses on biodiversity have been enhanced, particularly in the areas of air quality and emissions of pollutants. New investments are particularly focused on enhanced monitoring for alien invasive species.

Ongoing Canadian monitoring programmes include the following:

1. ECOSYSTEM MONITORING

Parks Canada Ecosystem Monitoring Program

In Canada, managing for the integrity of national park ecosystems is legislated, through the *Canada National Parks Act*, as the primary management focus of national parks. Parks Canada is required to report comprehensively on the ecological integrity - including outcomes and timelines, indicators, goals and targets - of national protected areas ecosystems. This reporting requirement is achieved through park management planning and biennial State of the Park reports. To support reporting and management requirements, Parks Canada conducts an ongoing program to measure the ecological integrity of national park ecosystems. This involves ensuring that national parks have their native components intact, including abiotic components (the physical elements, e.g. water, rocks), biodiversity (the composition and abundance of species and communities in an ecosystem, e.g. tundra, rainforest and grasslands representing landscape diversity, and black bears, brook trout and black spruce representing species diversity) and ecosystem processes (fire, flooding and predation, which represent the engines that makes ecosystem work).

Parks Canada has developed an Ecological Integrity Monitoring Framework, which divides ecological integrity into plant and animal diversity, ecosystem processes and principal stressors. Biodiversity measurements describe the characteristics of the park and include species richness, population dynamics and trophic structure. Ecosystem function measurements describe resilience and evolutionary potential and include succession/retrogression, productivity, decomposition and nutrient retention. Stressor measurements describe the unimpaired system and include human land-use patterns, habitat fragmentation, pollutants, climate (including extreme events) and specific park related issues.

Ecological Monitoring and Assessment Network

The Ecological Monitoring and Assessment Network (EMAN) is made up of linked organizations and individuals across Canada who collaborate to better develop and deliver timely, scientifically sound and policy relevant information on the status and trends of Canadian ecosystems and emerging environmental issues (http://www.eman-rese.ca/). The network is a cooperative partnership of federal, provincial and municipal governments, academic institutions, environmental non-government organizations, community groups and other agencies and individuals involved in ecological monitoring. EMAN focuses on engaging Canadians and building partnerships for improved knowledge sharing, the promotion of best practices for ecological monitoring through activities such as protocol development and standardization, the development of cooperative assessments of ecological information and effective information delivery.

Following the EMAN standardized protocols, network participants collect scientifically robust, comparable data on species diversity and environmental condition. To date, 14 Ecosystem Monitoring Protocols have been developed including a subset of four "NatureWatch" protocols geared towards citizen scientists or volunteers. These protocols are being applied in a variety of Canadian ecosystems. The protocols measure the following factors:

- Terrestrial Vegetation Biodiversity
- Regeneration and Sapling Survey
- Exotic and Invasive Plants
- Lichen Abundance and Diversity
- Tree Health
- Annual Decay Rates (in soil)
- Downed Woody Debris
- Soil Temperature
- Salamander Species Richness and Diversity
- Benthic Macroinvertebrate Diversity
- Plant Phenology (PlantWatch)
- Anuran Species Richness and Calling Phenology (FrogWatch)
- Worm Species Richness (WormWatch)
- Ice Phenology (IceWatch)

EMAN also administers two additional programs for monitoring anuran species richness and phenology: the backyard call count and roadside survey. EMAN is currently pilot testing a protocol for monitoring the diversity and abundance of pollinator species. In the coming years, EMAN will be developing suites of protocols suitable for monitoring aquatic ecosystem health and grassland ecosystems.

Detailed assessments have been completed on ice phenology data. Over 150 monitoring stations have been established and inventoried but the monitoring results are still preliminary. Extensive data sets have been received on tree mortality, anuran species richness and distribution and plant phenology. A data management system is under development which will allow for the synthesis and integration of partner data for the full suite of the EMAN protocols.

National hydrometric program

The national hydrometric program collects, interprets and disseminates surface water quantity data and information, through partnership agreements between Environment Canada and each of the provinces and the Department of Indian and Northern Affairs (representing the territories). The agreements provide for the collection of surface water quantity and sediment data on a national basis.

Environmental Effects Monitoring (EEM) (http://www.ec.gc.ca/eem/**)**

Environmental Effects Monitoring (EEM) is a science-based tool that can detect and measure changes in aquatic ecosystems (i.e., receiving environments) potentially affected by human activity (i.e., effluent discharges). EEM is an iterative system of monitoring and interpretation phases that can be used to help assess the effectiveness of environmental management measures. Although EEM is currently employed within a regulatory context in Canada it can also be used as an assessment tool to help determine the sustainability of human activities on ecosystem health.

EEM is currently a requirement for regulated mills and mines under the *Regulations Amending the Pulp and Paper Effluent Regulations* (RAPPER) and the *Metal Mining Effluent Regulations* (MMER), both under the authority of the *Fisheries Act*. The objective of both the regulatory EEM programs is to evaluate the effects of effluents on fish, fish habitat and the use of fisheries resources by humans. The information generated by the EEM program is used to help assess the adequacy of the regulations to effectively protect aquatic resources. As such, EEM goes beyond end-of-pipe measurement of chemicals in effluent to examine the effectiveness of environmental protection measures directly in aquatic ecosystems. The Canadian EEM programs are unprecedented in the world for their magnitude and mandatory requirements.

EEM provides a nationally consistent approach, based on the "polluter pays" principle, to determine if effluents are causing effects on ecosystems. Long term effects are assessed using regular cyclical monitoring and interpretation phases. In this regard, impacts on the same endpoints and locations are recorded periodically every two to six years, depending on the program, thereby providing both a spatial characterization of potential effects and a record through time to assess changes in receiving environments.

International Long-Term Ecological Research Network (ILTER)

Ecological Monitoring and Assessment Network (EMAN) represents Canada's node in the International Long-Term Ecological Research Network (http://www.ilternet.edu/). The aim of the ILTER Network is to develop and effectively deliver to the scientific community, policy makers, and society in general, sound scientific information and predictive understanding of ecological processes associated with large temporal and spatial scales needed to better conserve, protect, and manage ecosystems at local, regional and global scales, their biodiversity, and the services they provide.

2. SPECIES MONITORING

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

COSEWIC (www.cosewic.gc.ca) is a committee of representatives from federal, provincial, territorial and private agencies, as well as independent experts, which assigns national status to species at risk in Canada. COSEWIC has been operating since 1978 to identify and designate the official, Canada-wide list of species at risk. There are currently more than 450 species on the official list. The federal *Species at Risk Act* (SARA), proclaimed in June 2003, gives COSEWIC the mandated responsibility for identifying and assessing the Canadian list of species that are at risk. This list is the basis for legal wildlife protection and recovery measures (http://www.sararegistry.gc.ca/default_e.cfm).

Wild Species Report 2000: The General Status of Species in Canada

The Wild Species Report 2000 provides a general status assessment for a broad

cross-section of over 1,600 Canadian species. However, this only captures approximately 2% of the over 70,000 described species in Canada. The next Wild Species Report, anticipated for 2005, will expand on the current level of knowledge.

The *Wild Species 2005* report is expected to include assessments for the same species assessed in *Wild Species 2000* and also assessments for over 5,000 additional wild species. The current general status work plan includes all vascular plants of Canada, *Margaritiferidae* and *Unionidae* mussels, crayfish, tiger beetles, dragonflies and damselflies, and marine fishes for inclusion in *Wild Species 2005* (National General Status Working Group unpublished).

Canadian Landbird Monitoring Strategy (CLMS)

The CLMS was prepared in 2000 as part of the Partners in Flight-Canada program to provide a strategic framework for the long-term monitoring of Canada's landbirds and selected waterbirds. The goals of the partnership program are to monitor the status of all Canadian landbirds and to ensure that monitoring information is used for research and conservation. Migratory species are monitored through internationally co-ordinated monitoring programs. The Monitoring Strategy includes a list of 297 species of landbirds that regularly breed in Canada, grouped by priority for action, and provides suggestions for the highest priority actions required to improve understanding of status and trends. See http://www.cws-scf.ec.gc.ca/nwrc-cnrf/migb/01_1_3_e.cfm for more information.

Since 2000, there have been several other publications and markers of progress on landbird monitoring (though the CLMS still provides useful background and contacts on the major landbird monitoring surveys in Canada). For instance, the Partners-in-Flight program has recently published the **North American Landbird Conservation Plan** (http://www.partnersinflight.org/), which provides a continental synthesis of priorities and objectives for landbird conservation, including lists of Watchlist species for North America, population estimates and objectives, and research and monitoring needs. As well, the Canadian Wildlife Service (CWS) of Environment Canada has published **National Action Needs for Canadian Landbird Conservation** (http://www.cws-scf.ec.gc.ca/birds/action/res_e.cfm), which outlines priority research and monitoring needs for specific landbird species.

Published in 2000, the **Canadian Shorebird Conservation Plan** (http://www.cws-scf.ec.gc.ca/birds/pdf/CSCP.pdf) outlines goals for shorebird conservation, including habitat conservation, research and monitoring. Regional conservation plans have also been developed to help guide regional activities in working toward implementing the national goals. The **Program for Regional and International Shorebird Monitoring (PRISM)** coordinates efforts to survey shorebirds in North America to meet goals of the various Conservation Plans. The CWS publication **Bird Trends: A Report on Results of National Ornithological Surveys in Canada** reviewed the population status of shorebirds in 2001.

A similar document for waterbirds is **Canada's Waterbird Conservation Plan**, ***Wings over Water*** (http://www.cws-scf.ec.gc.ca/birds/wb_om_e.cfm). The Plan provides a list of species for which monitoring, research and conservation are priorities, and provides an overview of the factors affecting waterbird populations in Canada. Through the CWS, the Quebec, Pacific and Yukon, Prairie, and Atlantic regions have developed monitoring plans for seabirds.

All of these efforts are integrated at the continental level under the **North American Bird Conservation Initiative** (http://www.bsc-eoc.org/nabci.html), the **North American Waterbird Conservation Plan**

(http://www.waterbirdconservation.org/), and the **North American Waterfowl Management Plan** (http://www.nawmp.ca/), all of which are partnerships between federal, provincial/state and local government, non-governmental organisations, private companies and individuals. These international conservation programs are implemented through cooperative, scientifically-based, landscape-oriented partnerships.

Breeding Bird Survey

The North American Breeding Bird Survey (BBS) is a large-scale survey initiated in 1966 to monitor the status and trends of breeding bird populations across North America. It is a cooperative effort among skilled amateur and professional ornithologists, jointly coordinated by the U.S. Geological Survey's (USGS) Patuxent Wildlife Research Center and the Canadian Wildlife Service's (CWS) National Wildlife Research Centre (NWRC). It has provided more than 30 years of data on abundance, distribution, and population trends for more than 400 bird species, including most landbirds and some noncolonial waterbirds and shorebirds.

Population trends from 1967 to 2000 for the 256 species of birds recorded on BBS routes in Canada for which sample sizes are sufficient for analysis are available at: http://www.cws-scf.ec.gc.ca/publications/notes/219/index_e.cfm#intro . Results of North American analyses are available on the USGS Patuxent Wildlife Research Center BBS website. Raw data can be downloaded directly from this website.

Circumpolar Biodiversity Monitoring Program

Through its participation in this initiative, Canada collects and disseminates information on several Arctic species and ecosystems, including Caribou/Reindeer; Arctic Tundra; Polar Bears; Shorebirds and Waders; Seabirds; Ringed Seals, and Geese.

Provincial Identification and Monitoring Initiatives

Provincial and territorial governments maintain a variety of identification and monitoring initiatives. Quebec, for example, has a set of 125 "performance response indicators", as well as a set of 20 biodiversity indicators. Some are "pressure indicators", that provide information on threats, and a few are "state indicators" that inform us about the nature of biodiversity. Quebec plans to further develop this group of indicators, both inside and outside protected areas. Trends of the indicators are grouped by themes in the annual reports of the Quebec Biodiversity Strategy. Finally, Quebec's forest and agriculture departments have also prepared sector-based biodiversity indicators that they are beginning to implement.

The Alberta Biodiversity Monitoring Program (ABMP) holds the promise of providing biodiversity measures suitable for incorporation into quantitative targets. The ABMP is currently in advanced prototype development with expected implementation in 2007. Considerable work is being invested in development of hierarchical multi-metric indices synthesizing ABMP data; Alberta Environment, for instance, is developing means of reporting on selected elements of biodiversity using a web-based State of the Environment-type format.

British Colombia, in which elements of biodiversity monitoring are already underway in the forest and range sectors, is also in the early stages of developing a biodiversity monitoring program; once it comes into effect, its findings will be included in the bi-annual reporting on environmental trends in the province which presents selected elements of biodiversity. Information collected through these initiatives is used to support national species status reports.

Other examples include Northwest Territories Species 2000; the Manitoba Big

Game, Species at Risk, Birds, Amphibians and Reptiles, and Invertebrates Monitoring Program; and the Saskatchewan Biodiversity Action Plan, of which monitoring is a major component (Saskatchewan Environment has a newly formed Integrated Monitoring Unit whose program is still being defined).

NatureServe Canada

NatureServe Canada works in close partnership with federal and provincial agencies to provide consistent, standardized scientific information about the conservation status of Canada's plants, animals and ecological communities.

NatureServe Canada is made up of eight independent conservation data (CDCs) and National Heritage Information (NIHC) Centres, covering all ten provinces and the Yukon Territory. CDCs conduct biological inventories to find and document populations of rare species, study and classify ecological communities, analyze critical conservation issues, provide customized information products and conservation services, and make their data widely available to the public via the Internet. CDCs use their scientific and data management expertise to serve the conservation information needs of government, corporations, researchers, conservation groups, and the public.

Canadian Amphibian and Reptile Conservation Network (CARCNET)

CARCNET (http://www.carcnet.ca/) represents one of several Canadian initiatives conducted by non-government organizations and academic institutions to inventory and monitor species in Canada. CARCNET is a network of Canadian biologists that monitor amphibian and reptile populations, working proactively to reverse the trends in habitat loss. CARCNET also helps to co-ordinate public involvement in frog and toad monitoring programs across Canada.

21. On Article 7(c), does your country have ongoing, systematic monitoring programmes on any of the following key threats to biodiversity?

a) No	
b) Yes, invasive alien species (please provide details below)	X
c) Yes, climate change (please provide details below)	X
d) Yes, pollution/eutrophication (please provide details below)	X
e) Yes, land use change/land degradation (please provide details below)	X
f) Yes, overexploitation or unsustainable use (please provide details below)	X

Further comments on monitoring programmes on key threats to biodiversity.

Canadian Biodiversity Information Facility (CBIF)

CBIF (http://www.cbif.gc.ca) is the result of the fledgling coordination mechanism, the Federal Biodiversity Information Partnership (FBIP). CBIF operates on similar principles as the Global Biodiversity Information Facility (GBIF) and has links to many Web-based tools relating to biodiversity data, biological modeling, taxonomy and natural history collections. The FBIP is Canada’s link to the GBIF and maintains our obligations to the Governing Board as a voting member. The FBIP operates at a demonstration level with a modest amount of funding to coordinate the digitization of specimen-based data.

Alien Invasive Species

The Canadian Food and Inspection Agency (CFIA) conducts surveys or product inspections for specific invasive alien species that are identified in the CFIA's List of Pests Regulated by Canada (http://www.inspection.gc.ca/english/plaveg/protect/listpespare.shtml).

Information on plant pest surveillance conducted by the CFIA may be found at http://www.inspection.gc.ca/english/sci/surv/obje.shtml. Surveys are conducted to detect new pest invasions, delimit the distribution of existing pests and facilitate their control or eradication, or to validate Canada's claims of pest freedom in international trade negotiations. Annual survey plans and results are reported on the internet, either by year or by specific pest. Surveys conducted in 2004, for example, included Asian long-horned beetle, Emerald ash borer, Sudden oak death and many others.
In addition to on-the-ground surveys, the CFIA contributes to the North American Plant Protection Organization (NAPPO) and internal CFIA early warning systems by scanning scientific and other literature sources for new information on pest situations either within Canada or abroad which present a potential threat to Canadian plant resources, and by responding to this new information in a manner appropriate to the perceived threat.

A Strategy for Canada: Addressing the threats of Invasive Alien Species responds to invasive alien species through an approach that prioritizes prevention of new invasions; early detection of new invaders; rapid response to new invaders; ad management of established and spreading invaders (containment, eradication and control). A consultation document, entitled "Proposal for a National Action Plan to Address the Threat of Aquatic Invasive Species", has been produced by the Canadian Council of Fisheries and Aquaculture Ministers Aquatic Invasive Species Task Group. When completed, this Action Plan will be incorporated as the aquatic component of the National Alien Invasive Species Strategy. See Article 8(h) for more information.

Climate Change

The Meteorological Service of Canada (MSC) monitors weather (e.g. temperature and precipitation), air quality, UV radiation, ice, water quantities and other environmental factors related to climate. This information is used to provide weather, marine weather and aviation forecasts and issue severe weather and ice hazard warnings. It is also used to support the Canadian Centre for Climate Modeling and Analysis, a MSC facility located at the University of Victoria.

Pollution/Eutrophication

The National Pollutant Release Inventory (NPRI) was established in 1992 to collect data on substances of concern in Canada. Its primary purpose is to provide Canadians with access to information about releases of pollutants by facilities located in their communities. In 2002 over 3100 facilities reported their pollution emissions and recycling activities through the NPRI. The NPRI is the only legislated, nationwide, publicly accessible inventory of its kind in Canada. The data collected are also used in a wide range of prevention and abatement activities.

The National Air Pollution Surveillance (NAPS) Network was established in 1969 as a joint program of the federal and provincial governments to monitor and assess the quality of the ambient air in Canadian urban centres. Air quality data for sulphur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3) and total suspended particulates (TSP) are measured at over 152 stations in 55 cities in the ten provinces and two territories. Various statistics derived from the measurements and comparisons with the National Air Quality Objectives prescribed under the Canadian Environmental Protection Act are published in annual data reports. The NAPS database also includes ozone observations from Canadian and US rural monitoring locations in order to allow analysis of regional ozone episodes. Measurements of PM_{10} (suspended particles with aerodynamic diameters less than 10 micro meters)

and $PM_{2.5}$ have been made at Canadian sites since 1984. Sample filters are analyzed for 50 elements (including toxic metals such as arsenic, lead and mercury) 14 inorganic and organic anions and 11 inorganic cations. Since 1988 improved techniques for measuring potentially toxic air contaminants have been developed. Measurements of VOC (aromatics, aldehydes and ketones) and semi-volatile organic compounds (PAHs, dioxins and furans) are now carried out at 40 urban and rural locations in Canada.

Sustainable Use : Forest Inventory

To strengthen the existing inventory design and to meet new demands, NRCan and other partners have embarked on the development of a new plot-based National Forest Inventory (NFI) to better assess and monitor the extent and sustainable development of Canada's forests in a timely and accurate manner.

The NFI will provide:

- Timely data reflecting the state of the resource at a defined time;
- National data with uniform definitions (consistent with international definitions);
- Data that reflect consistent and complete area coverage;
- Data suited for accurate assessment of ecological change;
- Data on non-timber forest resources.

The NFI supports the multiple forest values embodied in the Canadian Council of Forest Ministers Framework of Criteria and Indicators and the Montreal Process Criteria and Indicators, and provides data for national and international initiatives.

The NFI is an interagency partnership. The Canadian Forest Service, under the guidance of the Canadian Forest Inventory Committee, coordinates NFI activities. The NFI is being implemented through agreements between the federal government and the partner provinces or territories. Field implementation has begun in most jurisdictions. (For more information on Canada's NFI, please see http://www.pfc.cfs.nrcan.gc.ca/monitoring/inventory/canfi/cnfi-overview_e.html.)

Sustainable Use: Agriculture – Crop Condition Assessment Progam

(http://www25.statcan.ca:8081/ccap/overview).

The Agriculture Division of Statistics Canada has a mandate to collect census and survey information regarding all forms of agriculture in Canada, and provide it in an expeditious manner to clients, often government policy makers. Users require the most up-to-date information possible on how much, and where, week-to-week conditions have either deteriorated, remained unchanged, or improved in order to make appropriate management decisions. Long ago Statistics Canada realized that new technologies such as satellite remote sensing and geographic information system (GIS) could reduce costs and provide valuable information in support of its operations.

The Crop Condition Assessment Program (CCAP) combines remote sensing, GIS, and the Internet to provide timely and reliable information on crop and pasture/rangeland conditions for the predominately spring wheat growing regions of western Canada and the northern plains of the United States. The National Oceanic and Atmospheric Administration (NOAA) series of satellites carrying the Advanced Very High Resolution Radiometer (AVHRR) records images of the entire earth's surface twice daily. Although designed for atmospheric observations and weather forecasting, there are two AVHRR spectral bands (red and infrared) that have proven to be extremely useful to the CCAP for vegetation monitoring.

An interactive mapping interface allows subscribers to view, via the Web,

several types of weekly value-added satellite images and map products as well as statistical and graphical data. Subscribers from federal and provincial governments, grain marketing agencies, and crop insurance companies view weekly value-added products on the Internet in less than 24 hours after the last satellite overpass, a substantial improvement compared to a decade ago when processing and distribution took five days.

A detailed, quantitative analysis is used to calculate the mean Normalized Difference Vegetation Index (NDVI) value on a weekly basis for crop and pasture/rangeland masks and for each Census Agricultural Region (CAR) or Census Consolidated Subdivision (CCS) or US county. The NDVI emphasizes differences between stressed and unstressed vegetation, providing an indication of plant health. Mean NDVI data by CAR, CCS, or county can be plotted, viewed, compared, and analyzed with any other year in the statistical archive. The tabular and/or graphical data can either be electronically exported into reports or presentations, or users can produce hard-copy colour prints of their analysis.

A close working association with end-users has been paramount to the successful development of the CCAP.

22. On Article 7 (d), does your country have a mechanism to maintain and organize data derived from inventories and monitoring programmes and coordinate information collection and management at the national level?

a) No	
b) No, but some mechanisms or systems are being considered	
c) Yes, some mechanisms or systems are being established	
d) Yes, some mechanisms or systems are in place (please provide details below)	X
e) Yes, a relatively complete system is in place (please provide details below)	

Further information on the coordination of data and information collection and management.

Canada has a wide range of initiatives in environmental information led by various levels of government and others. Most of this information is either already available electronically on the world wide web or in the process of being made available. As of yet, there is no organization in Canada responsible for maintaining and archiving all core national environmental data sets. A Task Force on a Canadian Information System for the Environment (CISE) reported in 2001 on the potential and usefulness of a more coordinated environmental information system (http://www.cise-scie.ca/english/library/task_force_reports/cise_final_report.cfm#Approach).

The existing information systems most relevant to the conservation and sustainable use of biodiversity include:

- **Canadian Biodiversity Information Network (CBIN).** CBIN is Canada's node in the International Clearing-house Mechanism (CHM) of the Convention on Biological Diversity (CBD). The site covers the latest developments under the CBD and information on implementing the Convention in Canada through the Canadian Biodiversity Strategy. It also provides efficient access to biodiversity-related information from academia, industry, non-governmental organizations, and governments, on topics such as Canadian environmental activities, agreements, technologies and expertise. (http://www.cbin.ec.gc.ca/)
- The **Species at Risk Act Public Registry** (http://www.sararegistry.gc.ca)

is a gateway to information and documents relating to Canada's *Species at Risk Act* (SARA). It provides the assessments, conservation status, natural history and recovery plans for listed wildlife species, and is also a convenient forum to submit comments on SARA-related documents being developed by the Government of Canada.

- **Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (http://www.cosewic.gc.ca/index.htm)** maintains a publicly accessible, fully searchable database that allows the public to view the current species designated by COSEWIC. For each species, information includes: status and most recent assessment date, history of previous assessments and a brief statement describing the reason for designation. As well, the database provides access to COSEWIC candidate species, which are species not yet assessed by COSEWIC that have been identified by COSEWIC as potentially being at risk.
- **Species in Parks (SIPS) database.** Parks Canada maintains a database which lists all major plant and animal species that occur in national parks. The species list is updated as new information becomes available. It is not publicly available.
- **NatureServe Canada** (http://www.natureserve-canada.ca/), made up of eight independent conservation data (CDCs) and National Heritage Information (NIHC) Centres, maintains publicly accessible databases on the internet containing information on the conservation status of species and ecological communities in all ten provinces and the Yukon (see Q. 20 above).
- **National HYDAT database**. Stores national hydrometric data (also known as the National SurfaceWater Data Archive). Surface water quantity has been collected and archived in Canada since the middle of the nineteenth century. The archive contains daily, monthly and instantaneous data for streamflow, water level and sediment data for over 2 500 active and 5 500 discontinued hydrometric monitoring stations across Canada. Effective in 2003-2004, all historical streamflow and water level data can be accessed on-line along with period-of-record statistics for most stations.(ref: http://www.wsc.ec.gc.ca/hydat/H2O/)
- **The National Climate Data and Information Archive**, operated and maintained by Environment Canada, contains official climate and weather observations for Canada. Climate elements, such as temperature, precipitation, relative humidity, atmospheric pressure, wind speed, wind direction, visibility, cloud types, cloud heights and amounts, soil temperature, evaporation, solar radiation and sunshine as well as occurrences of thunderstorms, hail, fog or other weather phenomena are warehoused in a digital database. Access to selected portions of this data, as well as related products such as CD-ROMs and climate normals and averages are available on a web site (http://www.climate.weatheroffice.ec.gc.ca/Welcome_e.html.) Information regarding obtaining extremes, monthly summaries, microfilm, microfiche, paper documents and technical documents, is also available. Direct access to climate values in the database for specific locations and dates is available at Climate Data Online.
- The **Air Pollutant Emissions Inventory** provides emission summaries and maps for selected air pollutants (also known as Criteria Air Contaminants) such as Total Particulate Matter (TPM), Particulate Matter less than or equal to 10 Microns (PM_{10}), Particulate Matter less than or equal to 2.5 Microns ($PM_{2.5}$), Sulphur Oxides (SO_x), Nitrogen Oxides (NOx), Volatile Organic Compounds (VOCs), Carbon Monoxide (CO) and Ammonia (NH_3). Emission can be viewed using the different menus on

the web (http://www.ec.gc.ca/pdb/ape/cape_home_e.cfm)

- **The National Pollutant Release Inventory (NPRI)** is a legislated, nation-wide, publicly-accessible database of information on annual releases to air, water, land and disposal or recycling from all sectors - industrial, government, commercial and others. It provides Canadians with access to pollutant release information for facilities located in their communities. (http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm)

- **Canadian Soil Information System (http://sis.agr.gc.ca/cansis/)** is a publicly available spatial data set that contains information on major types of soil in Canada, including some associated landscape features such as slope and rock outcrops. The non-spatial attributes comprise those characteristics that are relevant to a soil's biological productivity; that is, its potential to grow plants and, indirectly, to support animals.

- The **Integrated Taxonomic Information System (ITIS) (http://www.itis.usda.gov/)**, an international effort by the United States, Canada and Mexico to build the first comprehensive, standardized reference for the scientific names of the flora and fauna of importance for North America. ITIS is also a partner of Species 2000 and the Global Biodiversity Information Facility (GBIF).

- **Marine Environmental Data Service (MEDS)** (http://www.meds-sdmm.dfo-mpo.gc.ca/) manages and archives ocean data collected by the Department of Fisheries and Oceans, or acquired through national and international programmes conducted in ocean areas adjacent to Canada. MEDS is a member of the International Oceanographic Data and Information Exchange (IODE) whose mission is to enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between participating member States and by meeting the needs of users of data and information products. Examples of data included are contaminants, currents, global sea surface, meteorological and oceanographic observations and ocean profiles.

- **National Forest Information System (NFIS) (http://www.nfis.org/)** is an internet-based information management system which enables seamless integration of spatial and thematic information on Canada's forests collected from a wide range of different organizations. Its purpose is to provide Canadians and the international community with authoritative information about the state of Canada's forests and how they are being sustainably managed.

- The **National Land and Water Information Service (NLWIS) (http://www.agr.gc.ca/nlwis/)** is an initiative of the environment chapter of Canada's Agricultural Policy Framework (APF). It aims to provide land, soil, water, air, climatic and biodiversity resource information to land-use decision makers to support an environmentally sustainable agricultural sector. NLWIS is being developed on a component by component basis. Already developed are *Drought Watch, Regional Environmental Information System (REIS, Manitoba Riparian health Council Internet Map Server)* and the *Crop Condition Assessment Program* (described in Q. 21 above).

  Drought Watch Website provides the agricultural sector with information on surface water supplies; forage production potential; potential crop yields and grasshopper threat. This information supports farm management decisions to mitigate the effects of climatic variability. Current drought watch activities are concentrated in the Prairie region of Western Canada, but will be expanded to the rest of Canada.

  Regional Environmental Information System (REIS)

Producers, planners and municipalities in Eastern Ontario can now 'point and click' their way to information on soils, land and water resources as part of an on-line Regional Environmental Information System (REIS). REIS provides a regional information base, data analysis and planning tools for decision-making, and improves the capacity to anticipate and prevent environmental problems on a cost-effective basis. Current applications of REIS address issues of water resource management, regional nutrient management and agricultural land evaluation.

Manitoba Riparian Health Council Internet Map Server
The *Manitoba Riparian Health Council Map Server* is a map viewing Website with calculators and tools to help landowners make decisions on how best to protect the river banks adjacent to their land.

23. Does your country use indicators for national-level monitoring of biodiversity? (decision III/10)	
a) No	
b) No, but identification of potential indicators is under way (please describe)	
c) Yes, some indicators identified and in use (please describe and, if available, provide website address, where data are summarized and presented)	X
d) Yes, a relatively complete set of indicators identified and in use (please describe and, if available, provide website address, where data are summarized and presented	

Further comments on the indicators identified and in use.

Canada began developing a national set of environmental indicators in the early 1990s, and has released the entire set in a report titled *Environmental Signals: Canada's National Environmental Indicator Series 2003*. The indicator series depicts trends in the environment through the use of an initial set of 55 environmental indicators, organized in 4 theme areas: ecological life support systems; human health and well-being; natural resource sustainability; human activities. Several of the indicators in the national set are the same as, or similar to those identified by the CBD to measure progress towards the 2010 target. The full report can be viewed at: http://www.ec.gc.ca/soer-ree/English/Indicator_series/

The National Roundtable on the Environment and Economy (NRTEE) lead a national exercise to develop a small suite of Environment and Sustainable Development Indicators (ESDI). The exercise engaged hundreds of experts and users across the country. Three of the 6 indicators recommended in the final suite are similar to the global indicators being developed by the CBD to measure progress towards the 2010 target (i.e. extent of wetlands and forest cover and water quality). The full NRTEE report and recommendations can be viewed at: http://www.nrtee-trnee.ca/eng/programs/Current_Programs/SDIndicators/

In 1993 the Canadian Council of Ministers of the Environment released an indicators report on climate change: *Climate, Nature, People: Indicators of Canada's Changing Climate*. The report shows trends in climate variables, such as temperature, precipitation and snow as well as impacts on aquatic and marine systems and wildlife populations. It is available on the web at: http://www.ccme.ca/initiatives/climate.html?category_id=33#69

Environment Canada has been working with partners in municipal, provincial and state governments as well as the US Environmental Protection Agency to

develop ecosystem based indicator and state of the environment reports for shared watersheds. This work is focused on the development of indicators with direct links to management and/or policy. Examples of regional ecosystem based indicator reports include:

- *State of the Great Lakes*, available at: http://cfpub.binational.net/solec/intro_e.cfm
- *State of the St. Lawrence River*, available at: http://www.slv2000.qc.ca/plan_action/phase3/biodiversite/suivi_ecosysteme/portrait_a.htm
- *Georgia Basin/Puget Sound Ecosystem Indicators* http://wlapwww.gov.bc.ca/cppl/gbpsei/index.html
- *Mackenzie River Basin, State of the Aquatic Ecosystem Report 2003,* available at: http://www.MRBB.ca

- Canada also has sector-based indicator initiatives.
  - In forestry Canada publishes indicators based on Criteria and Indicators (C&I) for Sustainable Forest Management. The most recent roll-up of Canadian indicators using the C&I process can be found by following the links at: http://www.ccfm.org/3_e.html

Canada began development Agri-Environmental indicators in 1993, and published the results in 2000 in the report, Environmental Sustainability of Canadian Agriculture: Report of the Agri-Environmental Indicator Project. Work is continuing under the National Agri-Environmental Health Analysis and Reporting Program, and an updated version of this report is planned for 2005 (details and reports are available from http://www.agr.gc.ca/env/naharp-pnarsa).

Box XLIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;

b) contribution to the achievement of the goals of the Strategic Plan of the Convention;

c) contribution to progress towards the 2010 target;

d) progress in implementing national biodiversity strategies and action plans;

e) contribution to the achievement of the Millennium Development Goals;

f) constraints encountered in implementation.

Decisions on Taxonomy

24.? Has your country developed a plan to implement the suggested actions as annexed to decision IV/1? (decision IV/1)	
a) No	
b) No, but a plan is under development	
c) Yes, a plan is in place (please provide details below)	X
d) Yes, reports on implementation available (please provide details below)	

Further information on a plan to implement the suggested actions as annexed to decision IV/1.

There is not a clearly articulated plan for Canada's contribution to IV/1, but there are several closely related actions that effectively address this item. Canada has several natural history museums and other collections that total near 60 million specimens and in most cases are being well curated, or needs have been identified and plans have been formulated for improvements. Recently there has been an Alliance of Natural History Museums formed (http://www.beringia.com/alliance.html) to assist in coordinating the actions of major museum collections from across the country. The Canadian Museum of Nature is Canada's national natural history museum and is the Canadian Focal Point to the Global Taxonomy Initiative's Coordination Mechanism. Canada actively participates in the Coordination Mechanism. A productive extension of the OECD Mega-science Forum on informatics was the formation of the Global Biodiversity Information Facility. Canada is a voting member of GBIF and regularly attends the Governing Board meetings. Canada also participates in the operational committees for GBIF and one Canadian was hired by the Secretariat Office as one of the key Project Leaders. In order to help fulfill Canada's obligations to GBIF there is a Federal Biodiversity Information Partnership (Environment, Parks, Health, Food Inspection Agency, Agriculture, Museum of Nature, and Forest Service); main role is to coordinate the digitization of specimen-based biological data and information and to promote the importance of systematics research.

25.? Is your country investing on a long-term basis in the development of appropriate infrastructure for your national taxonomic collections? (decision IV/1)	
a) No	
b) Yes (please provide details below)	X

Further information on investment on a long-term basis in the development of appropriate infrastructure for your national taxonomic collections.

Canada maintains a variety of taxonomic collections and the majority of these are maintained in partnership between a variety of organizations, including Agriculture and Agri-Food Canada, Canadian Forest Service, Parks Canada, Environment Canada, Health Canada, Department of National Defence, and the Canadian Museum of Nature.

There is ample evidence that provincial sources of funding are being used to improve provincial natural history facilities across Canada (Alberta, Newfoundland and Labrador, Ontario) and that plans for other upgrades are underway. The national museum is also well positioned for the care of its collection. Planning is underway to upgrade major federal collections related to agriculture.

Resources to digitize information and data related to the collection is scarce and not in step with demands for the data and information. To date opportunistic efforts through the Federal Biodiversity Information

Partnership and others have yielded a public interface to a distributed network of collection-based data and information, which is also part of Canada's obligation to the Global Biodiversity Information Facility (http://www.cbif.gc.ca).

26.? Does your country provide training programmes in taxonomy and work to increase its capacity of taxonomic research? (decision IV/1)	
a) No	
b) Yes (please provide details below)	X

Further information on training programmes in taxonomy and efforts to increase the capacity of taxonomic research.

These are done at collection facilities and museums or within university departments. Within the university environment there is a continuing strong trend toward molecular research techniques, with less emphasis on traditional taxonomy (meristics, morphometrics, form and function) and decreased offerings of whole organism biology.

27.? Has your country taken steps to ensure that institutions responsible for biological diversity inventories and taxonomic activities are financially and administratively stable? (decision IV/1)	
a) No	
b) No, but steps are being considered	X
c) Yes, for some institutions	
d) Yes, for all major institutions	

28.* [2] Is your country collaborating with the existing regional, subregional and global initiatives, partnerships and institutions in carrying out the programme of work, including assessing regional taxonomic needs and identifying regional-level priorities? (decision VI/8)	
a) No	
b) No, but collaborative programmes are under development	
c) Yes, some collaborative programmes are being implemented (please provide details about collaborative programmes, including results of regional needs assessments)	
d) Yes, comprehensive collaborative programmes are being implemented (please provide details about collaborative programmes, including results of regional needs assessment and priority identification)	

Further information on the collaboration your country is carrying out to implement the programme of work for the GTI, including regional needs assessment and priority identification.

[2] The questions marked with * in this section on Taxonomy are similar to some questions contained in the format for a report on the implementation of the programme of work on the Global Taxonomy Initiative. Those countries that have submitted such a report do not need to answer these questions unless they have updated information to provide.

29. * Has your country made an assessment of taxonomic needs and capacities at the national level for the implementation of the Convention? (annex to decision VI/8)	
a) No	
b) Yes, basic assessment made (please provide below a list of needs and capacities identified)	
c) Yes, thorough assessment made (please provide below a list of needs and capacities identified)	
Further comments on national assessment of taxonomic needs and capacities.	

30. * Is your country working on regional or global capacity building to support access to, and generation of, taxonomic information in collaboration with other Parties? (annex to decision VI/8)	
a) No	
b) Yes, relevant programmes are under development	
c) Yes, some activities are being undertaken for this purpose (please provide details below)	
d) Yes, many activities are being undertaken for this purpose (please provide details below)	
Further comments on regional or global capacity-building to support access to, and generation of, taxonomic information in collaboration with other Parties.	

31. * Has your country developed taxonomic support for the implementation of the programmes of work under the Convention as called upon in decision VI/8? (annex to decision VI/8)	
a) No	
b) Yes, for forest biodiversity (please provide details below)	
c) Yes, for marine and coastal biodiversity (please provide details below)	
d) Yes, for dry and sub-humid lands (please provide details below)	
e) Yes, for inland waters biodiversity (please provide details below)	
f) Yes, for mountain biodiversity (please provide details below)	
g) Yes, for protected areas (please provide details below)	
h) Yes, for agricultural biodiversity (please provide details below)	
i) Yes, for island biodiversity (please provide details below)	
Further comments on the development of taxonomic support for the implementation of the programmes of work under the Convention.	

32. * Has your country developed taxonomic support for the implementation of the cross-cutting issues under the Convention as called upon in decision VI/8?	
a) No	
b) Yes, for access and benefit-sharing (please provide details below)	
c) Yes, for Article 8(j) (please provide details below)	
d) Yes, for the ecosystem approach (please provide details below)	
e) Yes, for impact assessment, monitoring and indicators (please provide details below)	
f) Yes, for invasive alien species (please provide details below)	
g) Yes, for others (please provide details below)	
Further comments on the development of taxonomic support for the implementation of the cross-cutting issues under the Convention.	

Article 8 - *In-situ* conservation [excluding paragraphs (a) to (e), (h) and (j)]

33. ? On Article 8(i), has your country endeavored to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components?	
a) No	
b) No, but potential measures are being identified	
c) Yes, some measures undertaken (please provide details below)	X
d) Yes, comprehensive measures undertaken (please provide details below)	
Further comments on the measures taken to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components.	
Several sectoral plans link the present use of biological resources and the conservation of these resources. Tools for the implementation of these plans and implementation methodology are still lacking in several areas.	

34. ? On Article 8(k), has your country developed or maintained the necessary legislation and/or other regulatory provisions for the protection of threatened species and populations?	
a) No	
b) No, but legislation is being developed	
c) Yes, legislation or other measures are in place (please provide details below)	X
Further information on the legislation and/or regulations for the protection of threatened species and populations.	
Federal legislation pertaining to the protection of threatened species, the Canadian Species at Risk Act (SARA), was proclaimed in 2003 as one part of a three-part Government of Canada strategy for the protection of wildlife species at risk. This strategy also includes commitments under the Accord for	

the Protection of Species at Risk (1996), which commits governments to complementary legislation and programs to ensure that endangered species are protected throughout Canada and establishes a Council of Ministers that will provide direction, report on results, and settle disputes, and activities under the Habitat Stewardship Program for Species at Risk, a partnership-based conservation initiative sponsored by the Government of Canada. In addition, a number of provinces have legislation in place to protect endangered species and their habitat (ex. Quebec Endangered and Vulnerable Species Act, New Brunswick Endangered Species Act, Ontario Endangered Species Act, British Columbia Ecological Reserves Act, Saskatchewan Wildlife Act, etc.).

Monitoring initiatives under the Accord have resulted in the publication of the Wild Species 2000 Report: The General Status of Species in Canada. The report provides detailed information on a broad selection of more than 1,600 Canadian species (see comments to Article 7 for details).

In addition, a Status of Wildlife Habitat in Canada Report, completed by Wildlife Habitat Canada (WHC) as a companion to the Wild Species 2000 Report, was released in 2001. WHC, a Canadian NGO, had previously released a wildlife habitat status report in 1991, as a means for setting forth a strategy for wildlife habitat conservation.

Other federal laws and regulations have also been developed with either the direct or indirect goal of maintaining and enhancing the health and diversity of Canada's wildlife. Related legislation includes: Canada Wildlife Act; Canada National Parks Act; Migratory Birds Convention Act and Regulations; Department of Fisheries and Oceans Act; Department of the Environment Act; Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA); Oceans Act; and Canada Environmental Assessment Act.

Finally, Canada has several federal departments and agencies with mandates which include measures for the in-situ conservation of biodiversity. These include the Canadian Wildlife Service (Environment Canada), Parks Canada Agency, Department of Fisheries and Oceans, Natural Resources Canada and Agriculture and Agri-Food Canada. Provinces and territories also maintain their own natural resource and/or wildlife management agencies.

Canada's Stewardship Agenda

Federal, provincial and territorial governments collaborated in the development of *Canada's Stewardship Agenda*, an action plan aimed at engaging Canadians in conservation and sustainable use of biodiversity on private lands. Stewardship initiatives are being promoted by all levels of government, natural resource industries and other organizations across Canada. See http://www.stewardshipcanada.ca for more information.

NRTEE's Conservation of Nature Program

The Conservation of Nature Program of the National Round Table on the Environment and the Economy (NRTEE) was recently developed to encourage the conservation, maintenance and restoration of ecological integrity of ecosystems through the creation of regional-scale networks of core protected areas, buffers and corridors in Canada and North America. The program aims to develop a suite of policy instruments that will encourage progress towards specific conservation and restoration goals. This initiative represents a partnership of a wide variety of government and non-government organizations from across Canada. More information on NRTEE: www.nrtee-trnee.ca.

Panel on the Ecological Integrity of Canada's National Parks

The expert Panel on the Ecological Integrity of Canada's National Parks presented its landmark report in March 2000. The Panel confirmed that Canada's national parks have been progressively losing important natural components which Parks Canada was dedicated to protect. The Panel made 127 recommendations. The Minister of Canadian Heritage responded positively, indicating that the report would be implemented. Significant progress has been quickly made in several areas, and these are fully described in a report released by Parks Canada in March 2001 (*First Priority, Progress Report on Implementation of the Recommendations of the Panel on the Ecological Integrity of Canada's National Parks*). As highlights, the Canada National Parks Act now reflects ecological integrity as the first priority in making decisions; an ecological integrity orientation and training program is being taken by all Parks Canada staff; the Parks Canada Guide to Management Planning has been revised to reinforce the primacy of ecological integrity in the preparation and implementation of national park plans; and Parks Canada is working closely with the tourism and travel industry to influence travel industry marketing and the use of national parks. Finally, Parks Canada has taken steps to secure funds for implementing the full range of recommendations put forward by the Panel.

Reports and information on Canada’s national parks can be accessed on-line from the Parks Canada Agency: http://parkscanada.pc.gc.ca/progs/np-pn/index_E.asp

North American Bird Conservation Initiative (NABCI)

NABCI (http://www.bsc-eoc.org/nabci.html) is a tri-national North American agreement to increase the effectiveness of existing and new initiatives for bird conservation, through enhanced co-ordination at both the national and regional level and increased international co-operation. It builds on existing bird conservation programs such as the North American Waterfowl Management Plan (NAWMP), Partners in Flight, and Shorebird Conservation Plans, with a goal to cause the combined effectiveness of these programs to far exceed the total of their parts. The NABCI working group is currently facilitated by the CEC (see comments to Article 5). Initiatives include the establishment of Important Bird Areas (IBA), which are then targeted for conservation planning.

National Wildlife Areas (NWA) and Migratory Bird Sanctuaries (MBS)

NWA and MBS are established under the authority of the Migratory Birds Convention and the Canada Wildlife Act as protected areas primarily for migratory bird species, and are administered by the Canadian Wildlife Service (CWS). With the agreement of the province or territory, an NWA may also be created to protect other species under provincial or territorial jurisdiction. In 1996, there were 48 National Wildlife Areas protecting approximately 489 332 hectares of habitat and 98 Migratory Bird Sanctuaries covering approximately 11.3 million ha. Another two sites are designated to become NWAs.

The Role of Non-Government Organizations

In addition to efforts by all levels of government for species and habitat conservation, there are several other non-government organizations with a mandate for in-situ conservation. By working with government and the public, the initiatives undertaken by these organizations have made a substantial contribution to the goals of the Convention. For instance, between 1987 and 1996, NGOs were responsible for creating over 70% of the protected sites in the Atlantic provinces. While too numerous to provide a complete list, the efforts of many of these organizations has already been recognized elsewhere in this report (e.g. Wildlife Habitat Canada, Canadian Parks and Wilderness

Society, Canadian Wildlife Federation, Nature Canada , World Wildlife Fund, Nature Conservancy of Canada, Ducks Unlimited Canada, Sierra Club, Bird Studies Canada, etc.)

Progress Report on Protected Areas

Federal/Provincial Parks Council Ministers met in Iqaluit, Nunavut, in 2000. They released a joint progress report - *Working Together: Parks and Protected Areas in Canada* - highlighting what each government had done to meet a 1992 Statement of Commitment to complete Canada's networks of parks and protected areas by 2000. The report highlighted the fact that since 1992 Canada's governments have made tremendous progress towards protecting Canada's natural legacy. More than 24,000,000 hectares have been added to Canada's parks and protected areas networks. The ministers recognized that more work needs to be done and committed to continue efforts to complete parks and protected areas networks. The program of work on protected areas adopted at COP 7 (Decision VII/28) provides a further catalyst for completion of Canada's protected area systems. Work is currently underway to produce a National Status Report on Protected Areas.

International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants

The Canadian Museum of Nature is host to the IUCN Medicinal Plant Specialist Group (MPSG) secretariat. In August 2004, the MPSG began work on drafting an international standard and criteria for the sustainable wild collection of medicinal and aromatic plants, through an IUCN-Canada project funded by the German Federal Agency for Nature Conservation (BfN), and undertaken in collaboration with WWF Germany. A consultation on a first draft by an international advisory group was convened by BfN in Vilm, Germany, in December 2004. Preparation of a second draft is currently underway, and a broader consultation and testing process will be undertaken throughout 2005.

35. On Article 8(l), does your country regulate or manage processes and categories of activities identified under Article 7 as having significant adverse effects on biological diversity?

a) No	
b) No, but relevant processes and categories of activities being identified	
c) Yes, to a limited extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	X

Further comments on the regulation or management of the processes and categories of activities identified by Article 7 as having significant adverse effects on biodiversity.

Box XLIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation

In Goal 1, the Canadian Biodiversity Strategy sets out eight strategic directions related to the establishment and management of protected areas.

Despite this commitment, the relative priority and resource availability for in situ conservation varies greatly between jurisdictions.

The federal government supports in situ conservation through a variety of budget mechanisms. Recent funding decisions have provided new financial resources to support establishing new terrestrial parks and marine conservation areas, and to enhance the management of Canada's existing National Parks.

Programme of Work on Protected Areas (Article 8 (a) to (e))

36. Has your country established suitable time bound and measurable national-level protected areas targets and indicators? (Decision VII/28)	
a) No (please specify reasons)	
b) No, but relevant work is under way	
c) Yes, some targets and indicators established (please provide details below)	X
d) Yes, comprehensive targets and indicators established (please provide details below)	

Further comments on targets and indicators for protected areas.

Canada has several systems of protected areas developed and managed by various levels of government. Systems plans are in place and guide the development of the systems of national parks and national marine conservation areas – programs that are the responsibility of the federal government. Most systems of provincial protected areas are also guided by systems plans. The status and completion of the various protected area systems varies amongst the different jurisdictions.

Initiatives such as British Columbia's *Protected Areas Strategy* (1992), Alberta's *Special Places Program*, Saskatchewan's *Representative Areas Network Initiative*, Manitoba's *An Action Plan for Manitoba's Network of Protected Areas 1996-1998*, Ontario's *Living Legacy Land Use Strategy*, *Stratégie québécoise pour les aires protégées et le Plan d'action stratégique* (2002), the Northwest Territories *Protected Areas Strategy*, the Yukon's *"Wild Spaces, Protected Places": A Protected Areas Strategy for the Yukon* (1998), and Nova Scotia's *Protected Areas Strategy* have all translated into the creation of new protected areas. The Québec government, for example, has set a target of designating 8% of its area under protected status by 2008. In 2002, Quebec adopted a Natural Heritage Conservation Act to facilitate the establishment of a network of protected areas representative of biodiversity. Since 2002, the action plan has permitted the creation of 24 Biodiversity Reserves, 4 Aquatic Reserves, 8 Ecological Reserves, one National Park and 60 Exceptional Forest Ecosystems, totalling an additional 2.33 million hectares of protected areas.

In 2002, the Government of Canada announced a 5-year Action Plan to establish 10 new national parks and 5 new national marine conservation areas, to enlarge selected existing national parks, and to enhance management of existing national parks. Canadian industry, non-government organizations, aboriginal groups, and private citizens have also contributed to the establishment of new protected areas. A national framework for action on protected areas is being developed to facilitate a co-ordinated approach to protected areas planning amongst Canada's governments and with other key

national non-government interests, and to inform the Canadian response to the Convention on Biological Diversity's Programme of Work on Protected Areas.

37. Has your country taken action to establish or expand protected areas in any large or relatively unfragmented natural area or areas under high threat, including securing threatened species? (Decision VII/28)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, limited actions taken (please provide details below)	
d) Yes, significant actions taken (please provide details below)	X

Further comments on actions taken to establish or expand protected areas.

In total, Canada's parks agencies have added approximately +24 million hectares to the various systems of protected areas since 1992 – an area the size of the United Kingdom. Interim protection is in place for another 51,300 square kilometres of land that will become four new parks once final park establishment agreements are in place. All of these parks were created through agreements with indigenous and local communities.

Despite these noteworthy successes, most of Canada's networks of protected areas have yet to be completed. In 2000, the Canadian Parks Ministers' Council renewed the commitment to complete the Canadian network of protected areas. In 2002 the federal government committed to establish 10 new national parks and five marine conservation areas within 5 years; three new national parks have since been created.

38. Has your country taken any action to address the under representation of marine and inland water ecosystems in the existing national or regional systems of protected areas? (Decision VII/28)	
a) No	
b) Not applicable	
c) No, but relevant actions are being considered	
d) Yes, limited actions taken (please provide details below)	X
e) Yes, significant actions taken (please provide details below)	

Further comments on actions taken to address the under representation of marine and inland water ecosystems in the existing national or regional systems of protected areas.

Canada is also at an early stage in its efforts to establish marine protected areas, with a promising start made through emerging legislation and policy. The *Oceans Act* now provides a mechanism for establishing protected areas in the marine environment. In 1998, the governments of Quebec and Canada jointly created the Saguenay-St. Lawrence Marine Park, and studies are currently underway for other potential marine conservation areas, including a large site in Lake Superior which is expected to be established soon. In 2002, the Government announced a five-year action plan for the establishment of five new national marine conservation areas. Finally, a *Marine Protected Areas Strategy* for the Pacific Coast is in preparation as a joint initiative of the federal and B.C. governments.

The Canadian Heritage Rivers System (CHRS) was established in 1984 by the federal, provincial and territorial governments to conserve and protect the best examples of Canada's river heritage, to give them national recognition,

and to encourage the public to enjoy and appreciate them. It is a cooperative program of the governments of Canada, all 10 provinces, and the three territories. Today, there are 39 Heritage Rivers across Canada and more are being added to the system every year.

Two of the new national parks proposed in the 2002 Action Plan to protect Canada's Natural Heritage will help conserve inland freshwater ecosystems.

39. Has your country identified and implemented practical steps for improving the integration of protected areas into broader land and seascapes, including policy, planning and other measures? (Decision VII/28)	
a) No	
b) No, but some programmes are under development	
c) Yes, some steps identified and implemented (please provide details below)	X
d) Yes, many steps identified and implemented (please provide details below)	

Further comments on practical steps for improving integration of protected areas into broader land and seascapes, including policy, planning and other measures.

There are both formal approaches and less formal mechanisms that are used to integrate protected areas into the adjacent broader landscapes. Formal mechanisms include the creation of biosphere reserves to protect the "core area" resources, and model forests. Less formal mechanisms include collaboration in regional planning exercises, joint research, and participation by protected area staff in the environmental review of projects proposed in the greater ecosystem. In addition, best case examples of managing protected areas in a broader landscape context have been published by the National Round Table on the Environment and the Economy and by the Canadian Parks Council as a means to profile and promote good practice in this area and document lessons learned.

40. Is your country applying environmental impact assessment guidelines to projects or plans for evaluating effects on protected areas? (Decision VII/28)	
a) No	
b) No, but relevant EIA guidelines are under development	
c) Yes, EIA guidelines are applied to some projects or plans (please provide details below)	
d) Yes, EIA guidelines are applied to all relevant projects or plans (please provide details below)	***X***

Further comments on application of environmental impact assessment guidelines to projects or plans for evaluating effects on protected areas.

The Canadian Environmental Assessment Act is applied to ensure that projects are considered in a careful and precautionary manner before federal authorities take action in connection with them, in order to ensure that such projects do not cause significant adverse environmental effects and to promote sustainable development and contribute to a healthy environment and a healthy economy. At the national (federal) level, environmental considerations are integrated into new policies, programs, and plans through

the strategic environmental assessment process.

41. Has your country identified legislative and institutional gaps and barriers that impede effective establishment and management of protected areas? (Decision VII/28)	
a) No	
b) No, but relevant work is under way	
c) Yes, some gaps and barriers identified (please provide details below))	
d) Yes, many gaps and barriers identified (please provide details below)	

Further comments on identification of legislative and institutional gaps and barriers that impede effective establishment and management of protected areas.

Canada has legislative and policy guidelines related to the selection, establishment and management of national parks and national marine conservation areas. These guidelines are longstanding and well-defined. Provincial and territorial governments have different but comparable guidelines.

There are no "national" guidelines for protected areas in Canada. The determination of what constitutes a protected area has been left to each jurisdiction to define in light of its own particular legislative mandate, policies and systems plan. A cooperative initiative involving national/sub-national governments and non-government organizations is currently underway to accurately map all protected areas in Canada and assign IUCN protected area categories. Federal guidelines for the selection, establishment and management of protected areas are provided through the *National Parks Systems Plan*, the *National Parks Policy*, management plans specific to the situation of each national park, and other relevant strategies and legislation. In the case of other federal protected areas, scientific criteria for the establishment and management National Wildlife Areas, Marine Wildlife Areas, Migratory Bird Sanctuaries and marine protected areas under the Oceans Act have been promulgated. Similar criteria have been defined for protected areas established and managed by sub-national levels of government.

42. Has your country undertaken national protected-area capacity needs assessments and established capacity building programmes? (Decision VII/28)	
a) No	
b) No, but assessments are under way	
c) Yes, a basic assessment undertaken and some programmes establishe provide details below)	X
d) Yes, a thorough assessment undertaken and comprehensive programmes established (please provide details below)	

Further comments on protected-area capacity needs assessment and establishment of capacity building programmes.

A preliminary national training needs assessment has been undertaken as an initial step to developing a curriculum for training staff and managers of protected areas in Canada.

43. Is your country implementing country-level sustainable financing plans that support national systems of protected areas? (Decision VII/28)	
a) No	X
b) No, but relevant plan is under development	
c) Yes, relevant plan is in place (please provide details below)	
d) Yes, relevant plan is being implemented (please provide details below)	

Further comments on implementation of country-level sustainable financing plans that support national systems of protected areas.

Due to the nature of the Canadian federation and the division of responsibilities between various levels of government, there is no single country-level sustainable financing plan for protected areas in place or proposed. Protected areas managed by both the national and sub national levels of government in Canada are financed by a range of measures including appropriations provided by governments from tax revenues, user fees and other charges for visitor services. Though new additional funding has recently been provided to establish and manage new national parks and marine conservation areas and improve management of existing national parks, federal Migratory Bird Sanctuaries and National Wildlife areas face funding constraints. Protected area systems managed by sub-national governments in Canada also face financial resource and capacity constraints due, in part, to competing government priorities.

44. Is your country implementing appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected areas management and governance? (Decision VII/28)	
a) No	
b) No, but relevant methods, standards, criteria and indicators are under development	
c) Yes, some national methods, standards, criteria and indicators developed and in use (please provide details below)	
d) Yes, some national methods, standards, criteria and indicators developed and in use and some international methods, standards, criteria and indicators in use (please provide details below)	X

Further comments on methods, standards, criteria and indicators for evaluating the effectiveness of protected areas management and governance.

Management Planning

Canadian protected area agencies have policies (and, in some cases, legislation) in place that require the preparation of management plans for each protected area. They have adopted management planning guidelines that are consistent with IUCN's best practice guidelines on management planning and citizen involvement. Completing park management plans in a timely fashion and with full involvement of all stakeholders is a challenge due to capacity constraints and the time required to conduct participatory planning processes that engage all stakeholders.

A number of Canadian protected area agencies have begun adopting more sophisticated management planning processes that focus on defining outcomes and measurable objectives and performance indicators, and monitoring and

reporting on indicators. This approach to planning has been initiated for management planning for national parks, using ecological integrity as an indicator.

Management Effectiveness

Parks Canada is enhancing efforts to measure the effectiveness of national park management though a focus on ecological integrity as an indicator, and developing ecological integrity monitoring and reporting systems. National park management plans include comprehensive information on the state of the ecosystem and its significance; as well as on ecological integrity, public education and visitor experience objectives, and a description of monitoring and reporting programs, with appropriate indicators. This work is consistent with IUCN best practice guidelines for evaluating the effectiveness of protected area management.

Governance

Principles of good governance are respected in PA management in Canada through strong protected area legislation and policy and the rule of law, preparation of management plans with public input to set direction, completion of state of parks reports to provide transparency, public accountability and document performance, and the use of innovative consensus-based cooperative governance arrangements for park management involving local and indigenous communities.

State of the Parks Reports

Most protected areas agencies in Canada prepare state of parks reports that serve as an accountability mechanism and contribute to good environmental governance.

Box XLV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Outcomes and impacts of action taken

A National Framework for Action on Protected Areas is currently being developed to improve coordination of Canada's efforts to meet its obligations under the CBD programme of work on Protected Areas. In addition, protected area agencies in Canada are contributing to the implementation of the protected areas provisions of Article 8 of the Convention through policy and practice and day-to-day management actions.

Constraints encountered in implementation

With respect to implementation of the protected area provisions of Article 8, constraints include the following:

- Institutional, technical and capacity-related constraints, especially at the sub national protected area organization level;
- Lack of public education and awareness, particularly awareness of the

contribution of protected areas to biodiversity conservation Competing priorities within government for funding for protected areas

Article 8(h) - Alien species

45. Has your country identified alien species introduced into its territory and established a system for tracking the introduction of alien species?	
a) No	
b) Yes, some alien species identified but a tracking system not yet established	X
c) Yes, some alien species identified and tracking system in place	**2.**
d) Yes, alien species of major concern identified and tracking system in place	

46. ? Has your country assessed the risks posed to ecosystems, habitats or species by the introduction of these alien species?	
a) No	
b) Yes, but only for some alien species of concern (please provide details below)	X
c) Yes, for most alien species (please provide details below)	

Further information on the assessment of the risks posed to ecosystems, habitats or species by the introduction of these alien species.

The risks posed to ecosystems, habitats or species by some alien species have been assessed as a component of the plant protection program and initiatives to prevent the introduction of aquatic invasive species such as Asian Carp. Aquatic invasive species are a major threat to Canada's freshwater and marine fisheries resources and aquaculture industry. In addition they continue to cost millions of dollars to mitigate impacts on municipal and industrial infrastructure.

Unfortunately, studies are usually only conducted on those species that have an overwhelming impact on both ecosystems and the economy. In practice, few rigorous frameworks for quantitative risk analysis or adequate data currently exist to enable scientists to reliably predict the invasive potential of organisms and resilience of ecosystems. Capacity in key areas such as surveillance, diagnostics, risk assessment, policy development, and education & outreach is inadequate and eroding, and without significant investment, the rate of invasive species introductions and their costs will continue to increase.

47. ? Has your country undertaken measures to prevent the introduction of, control or eradicate, those alien species which threaten ecosystems, habitats or species?	
a) No	
b) No, but potential measures are under consideration	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to prevent the introduction of, control or eradicate those alien species that threaten ecosystems, habitats or species.

Canada's federal, provincial, and territorial governments have been taking action for decades to respond to plant quarantine pests and diseases, endemic and foreign animal diseases, aquatic invaders, and other non-native species. Nevertheless, the increasing volume and diversity of trade and travel both within and outside Canada's borders is overextending existing capacities, and resulting in new invaders and new pathways of invasion that are not adequately addressed under existing legislation, policies, and programs. Invasive alien species are entering Canada with increasing frequency, and posing a growing threat to domestic biosecurity.

In response to growing recognition of the threat of invasive alien species to the environment, economy, and society, and consistent with the directions of the Convention on Biological Diversity and the Canadian Biodiversity Strategy, Canadian governments identified invasive alien species (IAS) as a priority for inter-jurisdictional cooperation. Specifically, federal, provincial, and territorial Ministers responsible for wildlife, endangered species, forests, and fisheries and aquaculture developed "An Invasive Alien Species Strategy for Canada", which was approved in September 2004.

The IAS Strategy emphasizes leadership and coordination. It will institutionalize a collaborative approach that will allow federal, provincial, and territorial governments to integrate environmental factors into decision-making with economic and social factors, respond rapidly to new invasions and pathways of invasion, strengthen capacity of programs that protect natural resources, and maximize collaboration between *ad hoc* and regional/issue-specific efforts to ensure limited resources are used on the highest priority issues.

The purpose of the IAS Strategy is to establish a coordinated policy and management framework that minimizes the risk of invasive alien species to the economy, environment, and society. It envisions a comprehensive, coordinated, and efficient system that protects Canada's aquatic and terrestrial ecosystems, domestic animals and plants, and native biodiversity. The IAS Strategy is guided by four strategic goals that are the foundation of the management of invasive alien species:

1. *Prevent* harmful intentional and unintentional introductions;
2. *Detect* and identify new invaders pre-border and upon entry;
3. *Respond* rapidly to new invaders upon detection; and
4. *Manage* established and spreading invaders through eradication, containment, and control.

Implementation of the IAS Strategy will focus on five approaches: risk analysis; science and technology; legislation and regulations; engaging Canadians; and international cooperation. These approaches will be applied to address key pathways of invasion that have been identified for aquatic invasive species – shipping, live food fish, live bait fish, aquarium and water garden

trade, canals and water diversions, recreational boating, and unauthorized stocking; terrestrial invasive alien plants and plant pests – live plants and plant parts, viable seeds, and wood and forest products; and invasive alien animals – intentional introductions of vertebrate and invertebrate species.

The IAS Strategy will be operationalized through action plans for aquatic invasive species, terrestrial invasive alien plants and plant pests, and invasive alien animals, to be presented to federal, provincial, and territorial Ministers for their consideration and approval in September, 2005.

The IAS Strategy is a collaborative effort, and is building upon the mandates, policies, and programs of federal departments including Environment Canada, the Canadian Food Inspection Agency, Department of Fisheries and Oceans, Agriculture and Agri-Food Canada, Natural Resources Canada, Health Canada (Pest Management Regulatory Agency), Transport Canada, Parks Canada Agency, Department of National Defense, Indian and Northern Affairs Canada, Department of Foreign Affairs and International Trade, and others, as well as the provinces and territories.

Fisheries and Oceans Canada (FOC), for example, has jointly developed an Action Plan to Address the Threat of Aquatic Invasive Species with provinces and territories and is currently developing an implementation strategy. FOC's aquatic invasive program will be based on the Action Plan and its Implementation Strategy. FOC's aquatic invasive species activities will be targeted primarily at preventing new invasions. To do this, FOC has initiated a research network to study aquatic invasive species and will be developing a limited monitoring program as well as expertise in risk assessment.

FOC also has one mitigation and control program – the Sea Lamprey Control Program. The clients for this program include federal and provincial regulators and managers. Advice will be used to support regulatory development and direct management actions.

The 1992 *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (WAPPRIITA) regulates the intentional importation of alien animals and terrestrial invertebrates that pose a threat to Canadian ecosystems.

Canada has also adopted other management tools for combating the introduction of non-native species to the aquatic environment, such as the *Guidelines for the Control of Ballast Water Discharge from Ships in Waters under Canadian Jurisdiction* (September 1, 2000, amended June 8, 2001). These guidelines are intended to minimize the possible introduction of aquatic organisms or harmful pathogenic agents in ballast water discharged by ocean-going vessels. A current project is assessing the environmental efficiency of a new bioreactive procedure for treating ballast water on board ships in order to eliminate living organisms and ensure their discharge does not harm the aquatic receiving environment.

The *National Code on Introductions and Transfers of Aquatic Organisms*, published in January 2002 in Canada, sets in place a mechanism for assessing proposals for the movement of aquatic organisms from one water body to another.

The St. Lawrence Centre (SLC), a federal research and development centre,

conducts research on alien invasive species in order to reduce this threat. A pilot project is currently underway in Quebec to study a biological control method. It consists of introducing insects that feed exclusively on the leaves and young shoots of Purple Loosestrife, a naturalized invasive plant, to stop its spread. Before it can be adapted to large-scale use, however, this type of control must undergo a stringent assessment process. The St. Lawrence Centre is also participating in the development of an anti-fouling coating to keep Zebra Mussels from attaching themselves to underwater structures.

The *Community Involvement in Monitoring Wetland Biodiversity and Invasive Plants in Lake Saint-Pierre* project is being conducted within the scope of the SLC's, monitoring activities on the biodiversity of St. Lawrence wetlands. Its objectives are to develop, test and validate, in close collaboration with riverside communities, activities for collecting data and disseminating information on the issue of invasive plants and their impact on biodiversity, and to set up the necessary structure for the sound management and dissemination of the data generated under this monitoring project.

The *Introduction of Non-Native Species into the St. Lawrence River and Assessment of Impacts on Biodiversity* project is part of the SLC strategy for conserving biodiversity. Its purpose is to design and implement the tools needed to prevent the introduction and transfer of non-native aquatic species, control the propagation of invasive non-native species and assess the impacts of introduced species on biodiversity.

48. ? In dealing with the issue of invasive species, has your country developed, or involved itself in, mechanisms for international cooperation, including the exchange of best practices? (decision V/8)	
a) No	
b) Yes, bilateral cooperation	X
c) Yes, regional and/or subregional cooperation	X
d) Yes, multilateral cooperation	X

49. ? Is your country using the ecosystem approach and precautionary and bio-geographical approaches as appropriate in its work on alien invasive species? (decision V/8)	
a) No	
b) Yes (please provide details below)	X
Further comments on the use of the ecosystem approach and precautionary and bio-geographical approaches in work on alien invasive species.	
Elements of the ecosystem approach and precautionary and bio-geographical approaches are used as appropriate through the plant protection program and initiatives to address the threat of aquatic invasive species.	

50. Has your country identified national needs and priorities for the implementation of the Guiding Principles? (decision VI/23)	
a) No	
b) No, but needs and priorities are being identified	
c) Yes, national needs and priorities have been identified (please provide below a list of needs and priorities identified)	X

Further comments on the identification of national needs and priorities for the implementation of the Guiding Principles.

National needs and priorities for addressing the threat of invasive alien species have been identified in “An Invasive Alien Species Strategy for Canada”. To complement the Strategy, action plans for aquatic invasive species, invasive terrestrial plants and plant pests, and invasive animals are being developed. The Strategy establishes a policy and management framework to respond to national and regional priorities that have acute local impacts.

51. Has your country created mechanisms to coordinate national programmes for applying the Guiding Principles? (decision VI/23)	
a) No	
b) No, but mechanisms are under development	X
c) Yes, mechanisms are in place (please provide details below)	

Further comments on the mechanisms created to coordinate national programmes for implementing the Guiding Principles.

Mechanisms to coordinate national programmes to address the threat of invasive alien species were established for the development of “An Invasive Alien Species Strategy for Canada” while others are proposed for developed during the Strategy’s implementation.

The Invasive Species Secretariat has established a virtual secretariat to coordinate policy (federal, inter-jurisdictional), manage an overarching communications program, and coordinate rapid response.

52. Has your country reviewed relevant policies, legislation and institutions in the light of the Guiding Principles, and adjusted or developed policies, legislation and institutions? (decision VI/23)	
a) No	
b) No, but review under way	X
c) Yes, review completed and adjustment proposed (please provide details below)	X
d) Yes, adjustment and development ongoing	
e) Yes, some adjustments and development completed (please provide details below)	

Further information on the review, adjustment or development of policies, legislation and institutions in light of the Guiding Principles.

The federal government reviewed relevant policies, legislation and institutions regulating invasive alien species as part of the development of “An Invasive Alien Species Strategy for Canada”, and will consider adjustments or the

development of new policies, legislation and institutions as appropriate. Some provinces and territories are similarly reviewing relevant policies, legislation and institutions. The development of detailed proposals to adjust relevant policies, legislation, and institutions is under way or will be initiated as the Strategy is implemented.

53. Is your country enhancing cooperation between various sectors in order to improve prevention, early detection, eradication and/or control of invasive alien species? (decision VI/23)	
a) No	
b) No, but potential coordination mechanisms are under consideration	
c) Yes, mechanisms are in place (please provide details below)	X

Further comments on cooperation between various sectors.

The development and implementation of "An Invasive Alien Species Strategy for Canada" is enhancing cooperation between sectors to improve the prevention, early detection, rapid response, and management of invasive alien species.

In order to halt the introduction and propagation of non-native species, a team of SLC research scientists is designing, in partnership with private industry, control methods that are environmentally-friendly and efficient, such as a new ballast water treatment procedure and a new anti-fouling coating.

54. Is your country collaborating with trading partners and neighboring countries to address threats of invasive alien species to biodiversity in ecosystems that cross international boundaries? (decision VI/23)	
a) No	
b) Yes, relevant collaborative programmes are under development	X
c) Yes, relevant programmes are in place (please specify below the measures taken for this purpose)	

Further comments on collaboration with trading partners and neighboring countries.

Canada is working with trading partners and neighboring countries to address the threat of invasive alien species to biodiversity in ecosystems that cross international boundaries through work under the plant protection program, efforts to address aquatic invasive species, and other federal and provincial initiatives. A Goal of the Strategic Plan for North American Cooperation in the Conservation of biodiversity is "Promote collaborative responses to threats facing North American ecosystems, habitats and species." Among the Priority Actions associated with this goal is the following: "Promote the development of concerted efforts to combat invasive alien species, on a bi- or trilateral basis, in North America." Additionally, the International Joint Commission has requested a reference to coordinate and harmonize bi-national efforts on aquatic invasive species in the Great Lakes. Requirements based on Canadian guidelines have been enacted in the United States under its Non-indigenous Aquatic Nuisance Species Prevention and Control Act in the Great Lakes in 1993. Every ship entering the Great Lakes system is tested to ensure that its ballast water has a salinity content of at least 30 parts per thousand. Canada is currently working to harmonize its regulations with those of the United States.

Transport Canada and DFO also are actively engaged in the development of international ballast water regulations. When these regulations are finalized, Transport Canada will take them into consideration as it develops regulations for the management of ballast water in Canadian coastal waters.

To prevent the invasion of the Water Chestnut into the northern portion of Lake Champlain, the U.S. asked the Government of Quebec to intervene under the *Lake Champlain Management Plan Agreement*. A campaign was organized by the Water Chestnut Partners Committee to remove the plants by hand from the Rivière du Sud in summer 2001. This committee is coordinated by the Quebec Environment Ministry and made up of representatives of Ducks Unlimited Canada, the Centre d'interprétation du milieu écologique du Haut-Richelieu, Environment Canada, the MRC of Haut-Richelieu, and the Société de la faune et des parcs du Québec.

55. Is your country developing capacity to use risk assessment to address threats of invasive alien species to biodiversity and incorporate such methodologies in environmental impact assessment (EIA) and strategic environmental assessment (SEA)? (decision VI/23)	
a) No	
b) No, but programmes for this purpose are under development	
c) Yes, some activities for developing capacity in this field are being undertaken (please provide details below)	X
d) Yes, comprehensive activities are being undertaken (please provide details below)	
Further information on capacity development to address threats of invasive alien species.	

56. Has your country developed financial measures and other policies and tools to promote activities to reduce the threats of invasive species? (decision VI/23)	
a) No	
b) No, but relevant measures and policies are under development	X
c) Yes, some measures, policies and tools are in place (please provide details below)	
d) Yes, comprehensive measures and tools are in place (please provide details below)	
Further comments on the development of financial measures and other policies and tools for the promotion of activities to reduce the threats of invasive species.	
The development of financial measures and other policies and tools to promote activities to reduce the threats of invasive alien species will be considered with other potential measures to address priority pathways of invasion through implementation of "An Invasive Alien Species Strategy for Canada".	

Box XLVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 8(j) - Traditional knowledge and related provisions

GURTS

57. Has your country created and developed capacity-building programmes to involve and enable smallholder farmers, indigenous and local communities, and other relevant stakeholders to effectively participate in decision-making processes related to genetic use restriction technologies?

a) No	X
b) No, but some programmes are under development	
c) Yes, some programmes are in place (please provide details below)	
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments on capacity-building programmes to involve and enable smallholder farmers, indigenous and local communities and other relevant stakeholders to effectively participate in decision-making processes related to GURTs.

The Government of Canada provides Canadians the opportunity to participate in developing and implementing the regulatory system for products of biotechnology, for example, through providing comments on regulatory and guideline proposals (e.g. draft regulations). Individual regulatory decisions are publicly communicated, as federal regulatory authorities – such as Environment Canada, Health Canada (including its Pest Management Regulatory Agency), and the Canadian Food Inspection Agency (CFIA) – prepare and post on their Internet sites decision documents that describe safety assessments conducted on novel products, including those that could be used as GURTs (decision documents posted at http://www.hc-sc.gc.ca <http://www.hc-sc.gc.ca> and http://www.inspection.gc.ca <http://www.inspection.gc.ca> , respectively). To complement these decision documents, the CFIA has produced a selection of “simplified” decision documents and a series of reader-friendly fact sheets describing a wide variety of topics relevant to decision making processes related to novel products, including GURTs. These activities are aimed to help build the capacity of Canadians to understand the regulatory process and inform themselves about biotechnology.

The Government of Canada recognizes that gene switching technologies such as GURTs present opportunities and as well as risks, and as with any technology these opportunities and risks will remain unknown unless researched and studied. As with all plants with novel traits, a new variety using such gene switching technologies, would be required to undergo strict environmental safety, human health and livestock feed safety assessments under Canada's

stringent regulatory review and approval process, prior to commercialization. Any adoption of this technology must proceed with caution and on a case-by-case basis, to enable the full scientific evaluation of risks. As of August 2005, there have been no field trials or commercial applications of GURTs in Canada.

Canada is a not a Party to the Cartagena Protocol on Biosafety, but fully supports its objectives and is providing information voluntarily to the international Biosafety Clearing-House.

Status and Trends

58. Has your country supported indigenous and local communities in undertaking field studies to determine the status, trends and threats related to the knowledge, innovations and practices of indigenous and local communities? (decision VII/16)	
a) No	
b) No, but support to relevant studies is being considered	
c) Yes (please provide information on the studies undertaken)	X

Further information on the studies undertaken to determine the status, trends and threats related to the knowledge, innovations and practices of indigenous and local communities, and priority actions identified.

Beginning in 2001, Indian and Northern Affairs Canada (INAC) provided $4.4 million in funding over four years for research projects in the North that help advance economic development through increased knowledge and innovation. INAC also supports studies on status and trends related to social issues by publishing many varied reports. *Northern Indicators 2003*, for example, is a comprehensive research paper on the status of the social, economic, and public finance characteristics of Yukon, Northwest Territories and Nunavut (http://www.ainc-inac.gc.ca/pr/sts/nia_e.pdf). The Government of Canada has also recently created the First Nations Statistical Institute (http://www.firststats.ca/) to provide reliable data on trends like population and economic growth.

Akwé:Kon Guidelines

59. Has your country initiated a legal and institutional review of matters related to cultural, environmental and social impact assessment, with a view to incorporating the Akwé:Kon Guidelines into national legislation, policies, and procedures?	
a) No	X
b) No, but review is under way	
c) Yes, a review undertaken (please provide details on the review)	

Further information on the review.

60. Has your country used the Akwé:Kon Guidelines in any project proposed to take place on sacred sites and/or land and waters traditionally occupied by indigenous and local communities? (decision VII/16)	
a) No	X
b) No, but a review of the Akwé: Kon guidelines is under way	
c) Yes, to some extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	
Further information on the projects where the Akwé:Kon Guidelines are applied.	

Capacity Building and Participation of Indigenous and Local Communities

61. Has your country undertaken any measures to enhance and strengthen the capacity of indigenous and local communities to be effectively involved in decision-making related to the use of their traditional knowledge, innovations and practices relevant to the conservation and sustainable use of biodiversity? (decision V/16)	
a) No	
b) No, but some programmes being developed	
c) Yes, some measures taken (please provide details below)	
d) Yes, comprehensive measures taken (please provide details below)	X
Further information on the measures to enhance and strengthen the capacity of indigenous and local communities.	

Though Canada has committed limited new resources specifically to the implementation of Article 8j, considerable resources have and continue to be funneled into programmes and projects that are consistent with the intent of Article 8j. A domestic workshop on ABS and associated traditional knowledge (TK) took place in Whitehorse, Yukon, in 2005. The main objective of the workshop was to raise awareness about ABS and associated TK and gather views of indigenous communities and policy-makers on the implementation of ABS principles and the protection of TK. The workshop provided for an opportunity to learn more about the Council of Yukon First Nation’s future policy on TK.

Protection of some aspects of TK is currently available under Canada’s intellectual property laws, including copyright, trademarks, and trade secrets laws. In addition to its work under the 8j Working Group and in connection with other CBD fora, Canada is participating in the Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore of the World Intellectual Property Organization (WIPO), which has a mandate to assess the benefits and limits of existing intellectual property laws for protection of TK.

Ongoing discussions and negotiations with Indigenous organizations, bands and councils form a key part of any mechanism for implementing activity in Canada that directly impacts upon Indigenous peoples and their traditions.
For example, in September 2005, after more than five years of community consultations, research and government negotiations, the Heiltsuk Tribal Council released a land-use plan for their territory, which covers British Columbia's central coast - 16,770 square kilometres of what environmentalists call the Great Bear Rainforest, and an additional 19,000 square kilometres of

near-shore and offshore areas extending to international waters. The plan, titled *For Our Children's Tomorrows*, calls for the creation of "Natural and Cultural Areas" to protect pristine wilderness and Heiltsuk traditional use. In all other areas, economic development activities, including forestry, must be conducted according to the principles of ecosystem-based management (EBM), defined as "a strategic approach to managing human activities that seeks to ensure the co-existence of healthy, fully functioning ecosystems and human communities." Many components of this plan are groundbreaking and have clear links to the Canadian Biodiversity Strategy and implementation of the Convention on Biological Diversity:

- this area is included in the sub-regional Millennium Ecosystem Assessment for Coastal BC, to be released in spring 2006;
- language on access and benefit sharing is used throughout the plan, which presupposes the title and rights over the land base of the Heiltsuk and their rights to both benefits and priority access;
- there are only two land uses classifications: Natural and Cultural Areas (a form of Protected Areas equal to 49% of the area) and Ecosystem-Based Management (EBM) Areas;
- EBM is believed to be consistent with Heiltsuk cultural and legal traditions;
- both TK and western science were used as a foundation for the Plan; and
- the need for capacity building, especially in the area of policy and management development, has been identified as an implementation challenge;
- management directions will include goals, objectives and strategies for key resource sectors based on Heiltsuk values;
- key policy statements announced include no support for offshore oil and gas exploration (at least until Treaty Negotiations have been completed), no support for salmon aquaculture, and ensuring that old growth cedar are sustained forever;
- goals already developed (for non-timber forest products, forestry, wildlife and biodiversity – including sustaining and restoring abundant populations of fish and wildlife – hunting and trapping, inter-tidal resources, freshwater resources, tourism and recreation, transportation and access, and mineral and energy resources) are generally compatible with the Canadian Biodiversity Strategy and include some similar language.

The land-use plan's release comes shortly before a major announcement by the provincial government about wilderness protection on the British Columbia coast. In January 2004, the Central Coast Land and Resource Management Planning table, consisting of representatives from communities, labour, environmental groups, tourism, forest companies and recreation interests, reached an unprecedented consensus on land-use recommendations for B.C.'s Central Coast. Since then, environmental groups have raised tens of millions of dollars in conservation investments to finance sustainable economic development for First Nations and local communities in the region. The conservation investment package depends on matching grants from the provincial and federal governments. A provincial government announcement on the matching funds and consensus agreement is anticipated in 2005.

62. Has your country developed appropriate mechanisms, guidelines, legislation or other initiatives to foster and promote the effective participation of indigenous and local communities in decision making, policy planning and development and implementation of the conservation and sustainable use of biodiversity at international, regional, subregional, national and local levels? (decision V/16)	
a) No	
b) No, but relevant mechanisms, guidelines and legislation are under development	
c) Yes, some mechanisms, guidelines and legislation are in place (please provide details below)	X

Further information on the mechanisms, guidelines and legislation developed.

Application of Traditional Knowledge in Canada

Canada has done a significant amount of work in the field of traditional knowledge (TK). Among other things, TK is used to assist in land claims negotiations, to understand and develop conservation measures for species of significance to the aboriginal population (ex. caribou), and to determine the potential impacts of major development projects on the local population and ecosystems (ex. the impact of large scale hydro development in James Bay). The most significant amount of work has occurred in Canada's north. The Government of the Northwest Territories has developed a Policy on Traditional Knowledge, and TK has been placed at the forefront of the development of government structures in Nunavut Territory.

Numerous co-management boards have been established as the result of land claims agreement process. These boards have played a major role in shaping and developing TK, and also in campaigning for its recognition. Co-management regimes now relate to wildlife, lands, waters, environmental impact assessment and planning. In the absence of land claims agreements progress has been slower, but is still substantial.

The following is a list of only some of the TK initiatives that have occurred or are ongoing in Canada. The majority are highly sophisticated long-term initiatives, utilizing computerized data and GIS technologies for a better understanding of traditional environmental and ecological knowledge.

- Nunavik Inuit Land Use and Ecological Knowledge Database
- Nunavut and Inuvialuit Land Use and Occupancy Database
- Nunavut Atlas
- Inuit Knowledge of Bowhead Study
- A Strategy for Future Research on the North Baffin Caribou Population
- Labrador Inuit Land Use and Ecological Database
- Hudson Bay Programme Traditional Knowledge Study
- Dogrib Traditional Knowledge: Relationship Between Caribou Migration Patterns and the State of Caribou Habitat
- Gwich'in Environmental Knowledge Project
- Ashkui Project of the Innu Nation in Labrador
- Traditional Knowledge Projects of the Dene Cultural Institute
- Northern River Basins Study Traditional Knowledge Documentation Project

Canadian Indigenous Biodiversity Network

The Canadian Indigenous Biodiversity Network (CIBN) was established by Canadian Indigenous Peoples as a mechanism to exchange information, experiences and increase collaboration among Indigenous groups working on the

sustainable use and conservation of biodiversity and related issues. CBIN facilitates the sharing of information among Indigenous groups and the public at large.

COSEWIC Aboriginal Knowledge Specialist Group

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC – www.cosewic.gc.ca) has established an Aboriginal Knowledge Specialist Group (http://www.cosewic.gc.ca/eng/sct4/sct4_1_e.cfm) to facilitate the incorporation of aboriginal TK into the COSEWIC species status assessment process. The Chair of the Aboriginal Knowledge Specialist Group is a member of the COSEWIC Committee, the primary decision making body of COSEWIC.

Under the *Species at Risk Act* (SARA), aboriginal communities, including wildlife management boards established under land claims agreements, continue to play an essential role in the conservation of wildlife in Canada. Aboriginal knowledge is being applied to the species assessment process and to the development of species management plans.

Centre for Traditional Knowledge, Canadian Museum of Nature

The Canadian Museum of Nature (CMN – www.nature.ca) established a Chair of Traditional Knowledge in 1993. The Centre for Traditional Knowledge (CTK), based at the CMN, was incorporated as a not-for-profit non-governmental organization in 1994. The goal of the CTK is to promote and advance the recognition, understanding and use of TK around the world in policy and decision making for sustainable development.

Canadian International Development Agency (CIDA) and Traditional Knowledge

CIDA (www.acdi-cida.gc.ca) has developed a booklet to help guide its officers and partners by offering information, guidance, and suggested methodology on how to apply indigenous TK systems and involve TK and indigenous peoples in CIDA international development projects or programs planning implementation. CIDA has also collaboratively developed the publication *Guidelines: Integrating Traditional Knowledge in Project Planning and Implementation* for use by the international community.

First Nations Forestry Program (FNFP)

The First Nations Forestry Program (FNFP) is a joint national and provincial/territorial initiative between Natural Resources Canada and Indian and Northern Affairs Canada. One of its main objectives is to enhance the capacity of First Nations to sustainably manage their forest lands. Partnerships among First Nations, the Government of Canada, and the forestry industry have enabled the participation of over 460 First Nations people to improve their skills and apply sustainable forest management practices.

Traditions: National Gatherings on Indigenous Knowledge

This 2005 meeting was the 3rd in a series of National Gatherings organized by the Department of Canadian Heritage, with the goal of engaging Aboriginal communities across Canada in a dialogue on the key issues relating to artistic expression, cultures and tourism, and TK. The goal of Traditions is the development of practical strategies with First Nations, Inuit and Métis peoples for working together to respect and protect the diversity of Indigenous knowledge in Canada. The meeting focussed on issues relating to Indigenous knowledge that engage three key areas: Indigenous Knowledge and Artistic Expression; Indigenous Knowledge and Intellectual and Cultural Properties; and Indigenous Knowledge and Languages and Cultures.

Non-Government Participation

Several non-government organizations also contribute to the sustainable use of TK, often with funding assistance from CIDA or IDRC. For example, the Garden Institute of Alberta runs the Building on Biodiversity (BOB) program (http://www.mkids.com/Garden/project.htm) that works with immigrant communities in Alberta to create links with communities in their countries of origin to document TK of plants and their uses for the conservation of biodiversity. The "BOB El-Salvador" project is linked to an association in El Salvador to conserve traditional crop varieties, with a particular focus on women and the environment.

63. Has your country developed mechanisms for promoting the full and effective participation of indigenous and local communities with specific provisions for the full, active and effective participation of women in all elements of the programme of work? (decision V/16, annex)	
a) No	
b) No, but relevant mechanisms are being developed	
c) Yes, mechanisms are in place (please provide details below)	X

Further comments on the mechanisms for promoting the full and effective participation of women of indigenous and local communities in all elements of the programme of work.

Canada continues to provide financial support to both Canadian Indigenous groups/individuals and Indigenous groups/individuals based outside of Canada to facilitate their participation in the implementation of CBD, particularly those activities regarding Article 8j and Access and Benefit-sharing.

The Biodiversity Convention Office (BCO) of Environment Canada has actively sought the views and participation of Indigenous groups since the early negotiations of the CBD. This has been, and continues to be, carried out through direct solicitation to national organizations for expert opinions, and the invitation and support for Indigenous participation on Canadian delegations and as independent delegates to CBD or CBD-related meetings.

Currently, the BCO hosts the Indigenous Peoples' Secretariat (Canada) on the CBD and an Indigenous Communications Officer, which provides support to the CIBN. The BCO continues to seek improved effectiveness for Indigenous participation in the implementation of the CBD through ongoing discussions, dialogues and visits with First Nations, Inuit and Métis organizations, communities, knowledge-holders, experts and educators.

Additionally, Canada currently contributes annually to the UN Voluntary Fund for Indigenous Populations and to the UN Voluntary Fund for the International Decade of the World's Indigenous Populations.

The Government of Canada's Department of Canadian Heritage created the Aboriginal Women's Program in 1971 to enable aboriginal women to influence policies, programs, legislation and decision making that affect their social, cultural, economic and political well-being within their own communities and Canadian society. In a similar initiative, the Government of Canada will provide $5 million over a five-year period (2005-2010), to the Native Women's Association of Canada (NWAC) in funding as a response to its many program proposals. NWAC is founded on the collective goal to enhance, promote, and foster the social, economic, cultural and political well-being of First Nations and Métis women within First Nation and Canadian societies.

Support to implementation

64. Has your country established national, subregional and/or regional indigenous and local community biodiversity advisory committees?	
a) No	
b) No, but relevant work is under way	
c) Yes	X

65. Has your country assisted indigenous and local community organizations to hold regional meetings to discuss the outcomes of the decisions of the Conference of the Parties and to prepare for meetings under the Convention?	
a) No	
b) Yes (please provide details about the outcome of meetings)	X
Further information on the outcome of regional meetings.	

66. Has your country supported, financially and otherwise, indigenous and local communities in formulating their own community development and biodiversity conservation plans that will enable such communities to adopt a culturally appropriate strategic, integrated and phased approach to their development needs in line with community goals and objectives?	
a) No	
b) Yes, to some extent (please provide details below)	X
c) Yes, to a significant extent (please provide details below)	
Further information on the support provided.	
INAC is currently piloting a new Reserve Land and Environment Management Program (RLEMP). The RLEMP includes criteria that will enable First Nations communities to better develop and sustain land, natural resources and environmental management expertise. It also establishes mechanisms for First Nations to be involved in a broader spectrum of activities pursuant to the *Indian Act*, including community land use planning, environmental management, reserve land and natural resources management, and compliance.	

Box XLVII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 9 - *Ex-situ* conservation

67. On Article 9(a) and (b), has your country adopted measures for the *ex-situ* conservation of components of biological diversity native to your country and originating outside your country?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures adopted for the *ex-situ* conservation of components of biodiversity native to your country and originating outside your country.

No organization has taken responsibility for a comprehensive approach to the ex-situ conservation of components of biological diversity in Canada.

However, Canada's Plant Germplasm System is a network of centres and people dedicated to preserving the genetic diversity of crop plants, their wild relatives and plants present and unique in the Canadian biodiversity. The system plays a significant part of Agriculture and Agri-Food Canada's commitment to the Canadian Biodiversity Strategy in response to the CBD.

Agriculture and Agri-Food Canada established Plant Gene Resources of Canada (PGRC) in 1970. It moved to a new facility in Saskatoon in 1998. The PGRC seed genebank, as part of the Saskatoon Research Centre, coordinates Canada's germplasm system and is the main repository for seed. PGRC is actively expanding the collection to include native plant species occurring across Canada. This initiative will preserve Canada's genetic diversity and forms part of Agriculture and Agri-Food Canada's commitment to conserving biodiversity. Research is being initiated to understand the pollination requirements of various plant species in the collection. This is done to enhance seed production, maintain genetic purity of accessions, and to assist plant development and conservation efforts.

The Canadian Clonal Genebank was designated in 1989 as the primary germplasm repository for fruit tree and small fruit crops.

A multi-nodal system was established in 1992 to enhance germplasm conservation in Canada. This initiative links rejuvenation, evaluation, and documentation to research and plant breeding programs for specific crop plants. This strategy is consistent with recommendations of the Food and Agriculture Organization (FAO) of the United Nations: that the expertise of plant breeders be used to characterize, rejuvenate and document the diversity in collections. The Cereal Research Centre (Winnipeg) is responsible for cereals including wheat, oat, and barley. The Fredericton Research Centre is responsible for potatoes, while the Saskatoon Research Centre is responsible for Crucifers and forage crop germplasm (both legumes and grasses).

In the multi-nodal system, the two central agencies, PGRC and the Canadian Clonal Genebank, are the primary contact points for germplasm entering and leaving Canada, and have responsibility for national and international contacts; distribution, rejuvenation and evaluation of germplasm not assigned to the nodes; seed viability testing; database management; and technical information.

Canadian Botanical Gardens host over 4.5 million visitors per year and are

important science and educational facilities, providing leadership in plant conservation and public education. The Canadian Botanical Conservation Network (CBCN) aids organizations and individuals in Canada that are concerned with the conservation of the diversity of plant life, such as botanical gardens, arboreta, universities, and government agencies, to realize their potential to contribute to the conservation of biological diversity. By facilitating the exchange of information among the professional community engaged in botanical conservation, and by developing educational materials and seeking to raise public awareness of the value of plants and the need for their conservation, the CBCN increases the effectiveness of efforts to protect and conserve Canada's natural and cultivated botanical heritage. By leading cooperative research and practical projects, the CBCN directly contributes to the implementation of Canada's Biodiversity Strategy and the international Botanic Gardens Conservation Strategy. Finally, through communication, education and practical projects in plant conservation, the CBCN promotes the conservation of endangered or rare plants, plants that constitute important cultural, historic or economic genetic resources, and the ecosystems and habitats that sustain them.

Investing in Nature: A Partnership for Plants in Canada is a four-year programme to develop educational resources, enhance plant conservation and biodiversity education efforts and link Canadian botanical gardens to international conservation and environmental education networks. Reports from eight Canadian botanical gardens on projects supported by the Investing in Nature programme and the Department of Canadian Heritage in 2003/04 can be found at http://www.bgci.org/canada/edu_newpgms.html. The Biodiversity Education Colloquium, organised as part of the *Investing in Nature* programme, was held at the Montreal Botanical Garden in December 2004. In the largest get-together of Canadian botanical garden & arboreta representatives in over 30 years, 63 representatives from 27 botanical gardens, arboreta and related institutions across the country gathered to develop ways of improving and expanding educational efforts to promote plant conservation, biodiversity and sustainability.

The provision of on-line content by botanical gardens is increasing the amount of plant conservation and educational materials available to the public via the Internet. Recently updated Canadian examples include:

- **Memorial University of Newfoundland Botanical Gardens** is creating a "Biodiversity Hub" to draw attention to local flora, related plant conservation projects, education programmes and photos.
- **Harriet Irving Botanical Garden** is developing its own educational and interactive web site to provide virtual tours, activities, and insight into plants, biodiversity, and habitat conservation in the Acadian Forest Region.
- **Mitis River Park/ Reford Gardens** (Quebec) is establishing a web site, plant fact sheets and activities to present the plant conservation mission and values interpreted in their park and nature sanctuary.
- **Chateau Ramezay Museum** (Quebec) is expanding the Governor's Garden section of their web site to include historical stories, conservation issues and cultivation information of heirloom and historically important garden plants.
- **Royal Botanical Gardens** (Ontario) are designing web based activities to provide teachers with pre and post visit support to complement on-site educational programmes.
- **Niagara Parks Botanical Garden** (Ontario) is constructing a web section to highlight plant conservation, habitat restoration and environmental stewardship projects in both the botanical garden and adjacent park areas.
- **Columbia Valley Botanical Garden** (British Columbia) is launching a completely new web site to highlight their garden, its mission of conservation and education, and important local partners in conservation.

• **VanDusen Botanical Garden** (British Columbia) is adding a host of plant conservation resources, educational activities, photos of BC native plants, and links to regional ecological organisations.
• **Milner Gardens and Woodland** (British Columbia) is developing an education section to their web site to provide details about their educational programmes, photos, interpretive information and ecological resources.

68.? On Article 9(c), has your country adopted measures for the reintroduction of threatened species into their natural habitats under appropriate conditions?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further comments on the measures for the reintroduction of threatened species into their natural habitats under appropriate conditions.

The 1996 *Accord for the Protection of Species at Risk* is a federal-provincial-territorial approach to habitat and species protection that encourages stewardship, conservation and legislation. Of the 314 endangered, threatened and extirpated species on the November 2004 COSEWIC (Committee on the Status of Endangered Wildlife in Canada) list, 180 recovery plans or strategies have been initiated. The *Species at Risk Act Public Registry (http://www.sararegistry.gc.ca/)*, a gateway to information relating to the *Species at Risk Act (http://www.speciesatrisk.gc.ca/)*, includes the assessments, conservation status, natural history and recovery plans for listed wildlife species. Through the *Framework for Cooperation in the Protection and Recovery of Wild Species at Risk* (http://www.speciesatrisk.gc.ca/recovery/inter_e.cfm), Canada and the US are working together to ensure the captive breeding and re-introduction of certain endangered species (ex. whooping cranes, karner blue butterfly, black-footed ferrets, etc.) common to both countries.

Recovery of Nationally Endangered Wildlife (RENEW)

The RENEW program involves three federal departments, provincial and territorial government agencies, wildlife management boards authorized by land claim agreements, Aboriginal organizations, and over 120 other organizations. It has been instrumental in establishing captive breeding and reintroduction programs for endangered species native to Canada. The majority of these programs are conducted by Canadian zoos. RENEW focuses on those species or populations that have been designated as extirpated, endangered, or threatened by COSEWIC. Responsible jurisdictions establish a National Recovery Team of experts for each species to produce a recovery plan. Plans have been published for 5 mammal species, 13 birds, one species of plant and one reptile and one amphibian species, with several others in draft form. RENEW'S national objectives are to prevent endangered species in Canada from becoming extirpated or extinct; prevent species from becoming threatened or uplisted to endangered; when and where possible, reintroduce extirpated species in Canada; prepare recovery plans for all threatened and endangered species; and
initiate recovery programs, where feasible, aimed at removing species from threatened, endangered or extirpated status. More information on recovery efforts is available at: www.speciesatrisk.gc.ca

A large contribution to the ex-situ conservation of biological diversity is made by organizations outside government such as academic and private

institutions. For example, the **Canadian Association of Zoos and Aquariums** (CAZA – www.caza.ca) has thirty members from seven provinces across Canada. In addition to conservation and research, these organizations are also actively involved in programs such as the Species Survival Plan (SSP), a North American captive breeding program run in collaboration with the American Zoo and Aquarium Association (AZA).

Similarly, the **Canadian Botanical Conservation Network** (CBCN – www.rbg.ca/cbcn/) is an active participant in ex-situ plant conservation programs and produced, in 2001, *A Biodiversity Action Plan for Botanical Gardens and Arboreta in Canada*. (This plan is now being updated, taking into account the targets established under the Global Strategy for Plant Conservation. The revised Action Plan will be published by the end of 2005.) CBCN works in collaboration with the American Association of Botanical Gardens and Arboreta (AABGA) and Botanical Gardens Conservation International (BGCI) to achieve its program goals. BGCI, a global policy framework for botanic gardens to contribute to biodiversity conservation, brings together the world's botanic gardens forming a community working in partnership to achieve conservation and education goals. To date, 21 Canadian institutions have registered their commitment (see the full list at http://www.bgci.org/canada#part). These ex-situ conservation organizations promote public education and stewardship through the various programs they provide. For example, the Canadian Museum of Nature and the Royal Botanical Gardens have jointly developed a "Green Legacy" travelling museum exhibit about Canada's native plant diversity and the importance of its conservation.

To help prevent the harvesting of species for ex situ conservation from becoming detrimental to in situ conservation efforts, the **Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act** (WAPPRIITA) was created to control the domestic and international harvest and trade of certain wild species of plants and animals. Guides have been developed to clarify the use and interpretation of the legislation.

69.? On Article 9(d), has your country taken measures to regulate and manage the collection of biological resources from natural habitats for *ex-situ* conservation purposes so as not to threaten ecosystems and *in-situ* populations of species?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further information on the measures to regulate and manage the collection of biological resources from natural habitats for *ex-situ* conservation purposes so as not to threaten ecosystems and *in-situ* populations of species.

Comprehensive national and sub-national legislation exist to control the harvest of biological resources.

Box XLVIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Article 10 - Sustainable use of components of biological diversity

70.? On Article 10(a), has your country integrated consideration of the conservation and sustainable use of biological resources into national decision-making?

a) No	
b) No, but steps are being taken	
c) Yes, in some relevant sectors (please provide details below)	
d) Yes, in most relevant sectors (please provide details below)	X

Further information on integrating consideration of conservation and sustainable use of biological resources into national decision-making.

Jurisdiction over natural resources and decision making for sustainable use is shared between the federal and provincial governments. Many Aboriginal communities participate actively in decision-making processes involving issues such as sustainable or customary use and regional development. Aboriginal governments may have jurisdiction over natural resources on the lands as set out in a comprehensive land claim agreement or self-government agreement.

Sustainable use is critical to the future of Canada's natural resource-based industries. Canada is actively working to develop a system of integrated management for every natural resource sector. The federal, provincial and territorial governments, local communities and private sector all play a significant role. This role varies depending on the biological resources in question.

Sustainable use of biological resources is the stated policy of all federal, provincial and territorial governments for the control of natural resources in a given jurisdiction. Where jurisdiction for resources is shared (e.g. forestry, agriculture, etc.) a national decision-making process is in the advanced stages of development. Progress varies depending on the resource and jurisdictions involved.

71.? On Article 10(b), has your country adopted measures relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further information on the measures adopted relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity.

The enactment of the Canadian Environmental Assessment Act has allowed adverse impacts on biodiversity through use of natural resources to be minimized. Promotion of greater resource stewardship and the actions described in Canada's Stewardship Agenda (released in 2002) will also contribute to this goal. The Agenda outlines four key goals, with objectives for each goal and a set of priority actions that recognize and empower stewards. It draws upon the experiences of communities, organizations, Aboriginals, the private sector and individuals.

72.? On Article 10(c), has your country put in place measures that protect and encourage customary use of biological resources that is compatible with conservation or sustainable use requirements?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further information on the measures that protect and encourage customary use of biological resources that is compatible with conservation or sustainable use requirements.

The *Auditor General Act* was amended in 1995 to strengthen the federal government's performance in protecting the environment and promoting sustainable development. In addition to creating the position of Commissioner of the Environment and Sustainable Development, the amendments imposed a new onus on a number of federal departments and agencies to prepare and table a "sustainable development strategy" in the House of Commons by December 1997. These strategies outline, among other things, measures by which federal departments intend to ensure the sustainable use of natural resources. Other federal departments, provincial governments, and organizations have also voluntarily prepared sustainable development strategies. The initial strategies represented a first effort to systematically consider policy, program and operational impacts on sustainable development.

Through these first Strategies, departments and agencies began the longer term process of determining how they could make changes to enhance their contributions to sustainable development through a process of continuous improvement. Strategies are required to be updated at least every three years, under the *Auditor General Act*.

73. On Article 10(d), has your country put in place measures that help local populations develop and implement remedial action in degraded areas where biological diversity has been reduced?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further information on the measures that help local populations develop and implement remedial action in degraded areas where biodiversity has been reduced.

Comprehensive measures are in place in geographical areas of concern, but not for Canada as a whole. Community involvement in remedial action is encouraged by a variety of government and non-government programs. For example, community involvement in remedial action plans has been established or encouraged in association with the six Ecosystem Initiatives led by Environment Canada (e.g. development of Remedial Action Plans for contaminated sites in the Great Lakes Basin under the Great Lakes 2000 Ecosystem Initiative).

Joint Ventures of the North American Wildlife Management Plan (NAWMP) are public-private partnerships of all players in a region that can make wetland conservation happen, and a number of Plan projects work to restore wetlands that are then managed by the local community, such as the Delkalta estuary project in British Columbia.

Prairie Conservation Action Plan (PCAP)

The first Prairie Conservation Action Plan (PCAP) was released by the World Wildlife Fund in 1988 in consultation with the governments of Alberta, Manitoba and Saskatchewan. It was a five-year "blueprint for action" aimed at prairie-wide efforts to conserve and manage native prairie species. More recently, each of the three prairie provinces has renewed its commitment to PCAP and has prepared its own updated action plan. The Canadian Wildlife Service, along with other government and non-government agencies, has assisted in the development of these plans. Each province has developed its own set of conservation goals and initiatives, to be achieved between the years 1996 and 2008, with end dates varying by province. Copies of the plans are available through the individual provincial governments.

Sustainable Use in the Arctic – the Arctic Council

The Arctic Council (www.arctic-council.org) is an intergovernmental forum that provides a mechanism to address the common concerns and challenges faced by the Arctic governments and the people of the Arctic. As part of the international forum, Canada works in partnership with seven other circumpolar countries and various indigenous Councils and Associations. The main activities of the Council focus on protection of the Arctic environment and sustainable development (including biodiversity resources) as a means of improving the economic, cultural and social well-being of the north.

NatureWatch

NatureWatch is a suite of community-based "citizen science" monitoring programs through which Environment Canada collects data on indicators of ecosystem health. Existing monitoring programs such as FrogWatch, IceWatch, PlantWatch and WormWatch form the founding components of NatureWatch, while others are under development. These programs encourage schools, community

groups, individuals, naturalists, backyard enthusiasts, Scouts and Guides to engage in the monitoring of soil, air, water and other aspects of environmental quality.

The Canadian Community Monitoring Network (CCMN)

In September 2001, the Ecological Monitoring and Assessment Network Coordinating Office (EMAN CO) and the Canadian Nature Federation (CNF) set out to better understand the issues related to Community Based Monitoring across Canada. This included the establishment or expansion of efforts in communities to provide relevant science for policy and management decisions. The result was the initiation of the Canadian Community Monitoring Network (CCMN) with funding from the Voluntary Sector Initiative. The CCMN pilot project has been the most inclusive and complete look at local level community based monitoring in Canada to date, with input from over 12,000 volunteers, scientists, local decision makers, government partners, and industry representatives. The CCMN has developed a model and toolset to engage communities. The CCMN model outlines the most comprehensive and cost effective directions for communities to monitor, track, and respond to local environmental issues, while building the capacity to participate in a Canada-wide environmental reporting system.

74. ? Has your country identified indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity? (decision V/24)

a) No	
b) No, but assessment of potential indicators and incentive measures is under way	X
c) Yes, indicators and incentive measures identified (please describe below)	

Further comments on the identification of indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity.

The assessment of potential indicators relevant to the conservation and sustainable use of biodiversity is underway at the local, regional, sectoral, national and international level in Canada. Indicators are being developed, for example, as the result of the Environment Canada Task Force on Biodiversity Indicators.

In September 2000, the National Round Table on the Environment and the Economy (NRTEE) launched its Environment and Sustainable Development Indicators Initiative to develop indicators that link economic activity to its long-term effects on the environment. The initiative will attempt to track stocks of key types of capital, including natural capital (natural resources and ecosystem services). The six indicators released in May 2003 include five natural capital and one human capital indicator. The indicators are: forest cover, freshwater quality, air quality, greenhouse gas emissions, extent of wetlands, and educational attainment. In the February 2004 Speech from the Throne, the federal government made a commitment to begin using several of the recommended indicators. (Governor General Adrienne Clarkson announced that "… building on the recommendations of the National Round Table on the Environment and the Economy, the Government will start incorporating key indicators on clean water, clean air and emissions reductions into its decision making.")

Participants in the State of the Great Lakes Ecosystem Conference (SOLEC) are near completion of a set of indicators that include measures of biodiversity

in the Great Lakes Basin ecosystem, to aid in the management of the Great Lakes Water Quality Agreement (see Article 5). Major partners for this initiative include the federal governments in Canada and the US, and provincial/state governments with an interest in the Great Lakes. The SOLEC conferences are hosted by the US Environmental Protection Agency and Environment Canada on behalf of the two countries every two years in response to the bi-national Great Lakes Water Quality Agreement. The conferences are intended to provide a forum for exchange of information on the ecological condition of the Great Lakes and surrounding lands. A major purpose is to reach a large audience in all levels of government, as well as in the corporate and not-for-profit sectors which make decisions that affect the lakes. The conferences are the focal point of a process of gathering information from a wide variety of sources and engaging a variety of organizations. In the year following each conference, the participating governments have prepared a report on the state of the Lakes based in large part upon the conference process. For instance, a number of changes were introduced at SOLEC 2004: significant improvements in both the SOLEC process and the configuration of the indicator suite (the deletion, modification, addition or combination of indicators) were made as a result of outside reviews by experts and stakeholders. Details are documented in a companion report, *The Great Lakes Indicators Suite: Changes and Progress 2004*.

Canada has combined efforts with other OECD countries to develop a set of environmental indicators that can be used to track environmental progress, as well as integration of environmental priorities into sectoral and economic policies. Biodiversity and natural resources are included in the core set of environmental indicators.

Specific federal and provincial departments are also developing biodiversity indicators related to their related mandates. For example, in 2000, Agriculture and Agri-Food Canada published the Agri-Environmental Indicators Project Report. This report included an indicator for agro-ecosystem biodiversity. The Canadian Council of Forest Ministers has also developed a set of Criteria and Indicators for Sustainable Forest Management in Canada. National Status 2000 was the first report on sustainable forest management using these indicators.

75. ? Has your country implemented sustainable use practices, programmes and policies for the sustainable use of biological diversity, especially in pursuit of poverty alleviation? (decision V/24)

a) No	
b) No, but potential practices, programmes and policies are under review	
c) Yes, some policies and programmes are in place (please provide details below)	
d) Yes, comprehensive policies and programmes are in place (please provide details below)	X

Further information on sustainable use programmes and policies.

Sustainable Uses of Natural Resources – Sectoral

Federal Science for Sustainable Development

In 1995, the five federal departments dealing with natural resources – Agriculture and Agri-Food Canada, Environment Canada, Health Canada, Department of Fisheries and Oceans and Natural Resources Canada – banded together to encourage the use of science and technology for sustainable development. The Working Group, known as the 5NR (www.durable.gc.ca), also

collaborates with private industry, provincial and municipal governments, foreign agencies and grassroots groups to collect data, test solutions, and share knowledge and information. The collective focus on the member departments includes efforts to protect the long-term health and diversity of all species and the wise management and conservation of renewable resources.

Canada's Ocean Strategy

Released in 2002, Canada's Oceans Strategy provides the overall strategic framework for Canada's oceans-related programs and policies, based on the principles of sustainable development, integrated management and the precautionary approach. This federal framework for action engages all levels of government, local communities, aboriginal peoples and other partners for integrated management of the multiple uses of ocean resources. The strategy applies the ecosystem approach for protecting the marine environment (including habitat and biodiversity protection) and supporting sustainable economic opportunity.

Canada Forest Accord

In 1998, the Canadian Council of Forest Ministers (CCFM) signed *the Canada Forest Accord*, describing a national vision and commitment to action to maintain and enhance the long-term health of Canadian forest ecosystems. In April 2001, several groups added their signatures to *the Canada Forest Accord*, reaffirming and strengthening the commitment of its signatories, currently totaling 52, to take action toward sustainable forest management nation wide. In 2002-2003, representatives of the Canadian forest community reaffirmed their commitment to a renewed National Forest Strategy and signed the 3rd Canada Forest Accord, 2003-2008.

National Forest Strategy (2003-2008), Sustainable Forests: A Canadian Commitment

The National Forest Strategy sets out in broad terms what is needed to achieve the goal of sustainable forest management nationwide. Published in 1992 and updated in 1998 and 2003, it identifies priorities that will guide the policies and actions of Canada's forest community, and is intended to influence and complement other national initiatives for economic, environmental and social progress. Specific objectives of the NFS (2003-2008) include integrated land use planning, no net loss of forests on public lands, a completed system of representative protected areas at all scales and maintaining reservoirs and managing forests to be a net carbon sink by 2015, on a long-term basis. Implementation and evaluation of the Strategy, as well as the Canada Forest Accord, are overseen by the National Forest Strategy Coalition, which reports to the Canadian Council of Forest Ministers and represents a wide array of forest interests from governments, industry, the Aboriginal community, academic institutions, conservation and environmental groups, labour, private woodlot associations, professional and technical associations and research organizations.

Biodiversity in Agriculture

The agriculture sector in Canada has long recognized that the conservation and protection of biodiversity in Canada is a key in sustaining the earth's resources on which the industry depends. Agriculture and Agri-Food Canada (AAFC) has developed an action plan for the sustainable use of biodiversity in the agricultural sector. While this represents a federal framework, it is accompanied by an inventory of federal and sectoral initiatives currently directed towards the goal of biodiversity conservation in agricultural production. See Decision V/5 for more information.

Sustainable Communities

The Sustainable Communities and Environmental Policy Department of the Federation of Canadian Municipalities (FCM – www.fcm.ca) provides tools, services and support to help Canadian municipalities deliver community services and manage operations in an environmentally responsible and cost-effective manner. This includes policy goals for biodiversity (e.g. conservation of environmentally sensitive areas and municipal support of endangered species legislation). The FCM has also developed tools to help municipalities assess and monitor their sustainability, such as the Sustainable Community Indicators Program.

The FCM produces case studies to document the success of local sustainable development strategies and the sustainable use of municipal resources. For example, the Natural and Open Spaces Study (NOSS) of Ottawa, Ontario, evaluated all remaining open spaces in the city, regardless of ownership, for their environmental and social value. Based on study results, targets for the preservation of natural areas and corridors were set and areas were assigned one of four protection levels. Similar initiatives have been undertaken in other Canadian municipalities.

Sustainable use initiatives of local communities are also supported by federal and provincial governments through various funding and policy initiatives. For instance, the EcoAction Community Funding Program of Environment Canada encourages Canadians to take action in their communities in support of healthy environments, with both a public awareness and community funding component. Some provinces have coordinated formal arrangements to ensure municipal participation in sustainable use initiatives. For instance, Newfoundland's Municipal Stewardship Program involves municipalities in stewardship agreements with the provincial government.

The International Development Research Council (IDRC) assists developing nations in various regions to build capacity to implement sustainable use practices through its research and development of Community-Based Natural Resource Management Programs and Environmental Management Programs.

The Canadian International Development Agency (CIDA) also conducts programs to help developing nations to protect their environment and to contribute to addressing global and regional environmental issues. Both IDRC and CIDA focus on poverty alleviation and the development of sustainable communities/livelihoods.

The use of co-management boards assures that some indigenous and local communities, as well as other non-government actors, participate in decisions for and benefit from sustainable resource use. Co-management agreements have been established for some communities as part of aboriginal land claim agreements in the territories and in Quebec (e.g. Nunavut Land Claims Agreement). Other, less formal co-management arrangements also exist elsewhere in Canada. At the provincial level, Saskatchewan has developed a set of guidelines to aid the establishment of co-management agreements.

76.? Has your country developed or explored mechanisms to involve the private sector in initiatives on the sustainable use of biodiversity? (decision V/24)	
a) No	
b) No, but mechanisms are under development	
c) Yes, mechanisms are in place (please describe below)	X

Further comments on the development of mechanisms to involve the private sector in initiatives on the sustainable use of biodiversity.

Federal, provincial and territorial governments work with the private sector for the sustainable management of every natural resource based industry. Guides such as ***Biodiversity Conservation: Creating a Biodiversity Management Procedures Guide for Your Organization,*** have been produced in consultation with a variety of government and non-government partners as a business tool to assist organizations to take biodiversity into consideration in their daily decision and policy making.

Maximum levels of sustainable resource harvest are established using the best science and information available, taking the needs of the private sector into consideration. In most cases, resource harvesting activities (forestry, fishing, hunting, etc.) can only be undertaken by private industry by permit or licence. Harvest quotas are strictly enforced according to regulations set out in a variety of federal, provincial and territorial legislation.

For example, as the majority of Canada's managed forests are publicly owned, provincial and territorial governments play an active role in setting annual allowable cut levels for the private logging industry. Similarly, the federal government ensures sustainable use of marine resources by limiting access to fisheries and establishing and monitoring quotas. Provincial governments administer hunting and trapping regulations, following established wildlife harvest goals and quotas.

The Canadian Code of Conduct for Responsible Fishing Operations is another example of private sector involvement in the establishing of sustainable harvest levels. The Canadian fishing industry has taken the lead in applying the International Code of Conduct for Responsible Fisheries adopted in 1995 by the United Nations Food and Agriculture Organization. The Canadian Code of Conduct for Responsible Fishing Operations was developed as a grassroots initiative by fishermen for fishermen and represents a fundamental change in Canada's approach to achieving sustainable, conservation-based commercial fisheries across the country. The grassroots development of the Code remains unique in the world, with the broad-based involvement of all Canadian fishing organizations being the driving force behind the development process. It is estimated that the Code has been ratified or endorsed by fisheries fleets and organizations that account for over 80% of Canada's commercial fish harvest.

Sustainable Use and Industry Associations

Industry associations from across Canada, in all natural resource sectors, have recognized their responsibility for conservation and the sustainable use and management of natural resources. Industry is regularly consulted in government decision making affecting natural resources, and works with government to implement strategies and adopt voluntary frameworks for action. Some notable examples include:

- Canadian Sustainable Forestry Certification Coalition – developing national standards for forest products.
- Forest Products Association of Canada and provincial forestry associations – support initiatives that promote sustainable forestry and certification

of forestry products.

- Ontario Federation of Agriculture, Union des producteurs agricoles and other provincial agricultural associations – support initiatives that promote sustainable agriculture.
- Tourism Industry Association of Canada – support initiatives that promote sustainable tourism development.
- Canadian Council of Professional Fish Harvesters and other provincial and regional fisheries organizations – implementation of code of conduct.

Various sports hunting and fishing organizations – support habitat preservation and species conservation for sustainable hunting and fishing opportunities.

77. Has your country initiated a process to apply the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity? (decision VII/12)	
a) No	
b) No, but the principles and guidelines are under review	
c) Yes, a process is being planned	
d) Yes, a process has been initiated (please provide detailed information)	X

Further information on the process to apply the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.

Canada has shown its commitment to the sustainable use of biological diversity through initiatives such as the Canadian Biodiversity Strategy, which includes, as its first goal, the need to "conserve biodiversity and use biological resources in a sustainable manner." Released in 1995, the Strategy continues to be the main tool used to promote the sustainable use of biological diversity in Canada. Emphasis is now being placed on the implementation of the draft Addis Ababa principles and guidelines through their integration and mainstreaming into national legislation, regulations, plans and programmes.

Other key documents which promote the idea of sustainable use in Canada include Canada's Forest Biodiversity: A decade of progress in sustainable forest management, Canada's Stewardship Agenda, and Canada's Oceans Strategy.

In 2001, Canada contributed several case studies on sustainable use to the CBD Secretariat, in *Compendium of Selected Projects, Initiatives and Activities Related to the Sustainable Use of Biological Diversity* (http://www.biodiv.org/doc/case-studies/suse/cs-suse-ca.pdf).

78. Has your country taken any initiative or action to develop and transfer technologies and provide financial resources to assist in the application of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity? (decision VII/12)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, some technologies developed and transferred and limited financial resources provided (please provide details below)	
d) Yes, many technologies developed and transferred and significant financial resources provided (please provide details below)	X

Further comments on the development and transfer of technologies and provision of financial resources to assist in the application of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.

To successfully apply the Guidelines for the Sustainable Use of Biodiversity, it will be necessary to alleviate poverty in developing countries. Partnerships such as the **Equator Initiative** support community level development projects that link economic improvement with the conservation and sustainable use of biological diversity. The Initiative is strongly linked to the objectives of the CBD and the World Summit on Sustainable Development (WSSD). It functions as an international partnership that showcases examples of good practice in sustainable use, particularly in rural communities in the tropics. With its focus on locally-based sustainable resource management, the *Initiative* celebrates the empowerment of communities to manage biological resources and generate sustainable livelihoods for their citizens. Due to the strong link between poverty and the loss of biodiversity, Environment Canada's Biodiversity Convention Office has taken an active role in developing and promoting the *Equator Initiative*.

Examples of the provision of Canadian financial resources to promote the sustainable use of biodiversity:

Canada-Costa Rica Debt Conversion Fund (Canadian International Development Agency, http://www.acdi-cida.gc.ca/cidaweb/webcountry.nsf/VLUDocEn/CostaRica-Projects)
In 1995, under its Latin America Debt Conversion Initiative (1992), Canada signed an agreement with Costa Rica to convert $23 million of Costa Rica's official development assistance debt at 50% into an $11.5-million environmental fund. The Fund has three major components: half goes to the National Bio-Diversity Institute (INBio), one-quarter supports counterpart costs in CIDA's Arenal Project (an environmental initiative that promotes ecologically sustainable land use in an important watershed), and the balance—about $2.7 million—finances small community-based environmental projects. The government of Costa Rica has fulfilled its obligations under this initiative, and Treasury Board forgave the country's official development assistance debt to Canada in March 2000.

Tree Growers Cooperative (Canadian International Development Agency)
Duration: 1991/92 - 2002/03, CIDA Contribution: $ 16 M
Indian Partner: National Tree Growers' Cooperative Federation Ltd., Anand, Gujarat; Canadian Partner: Poulin Thériault Incorporated, Quebec

The project goal is to strengthen India's capacity to reclaim and manage its wastelands in a socially, economically and environmentally sustainable

manner, through village-based tree growers' cooperatives. Funding is provided through a counterpart fund, generated by the sale of Kraft wood pulp or a suitable alternative commodity in India. Support is also provided through technical assistance which advises on technical soundness, training and extension, processing and marketing of wood and non-wood products and viability and sustainability of the cooperative structures.

Biodiversity and Tourism

79. Has your country established mechanisms to assess, monitor and measure the impact of tourism on biodiversity?	
a) No	
b) No, but mechanisms are under development	
c) Yes, mechanisms are in place (please specify below)	X
d) Yes, existing mechanisms are under review	

Further comments on the establishment of mechanisms to assess, monitor and measure the impact of tourism on biodiversity.

Canada has a comprehensive system to ensure sustainable development of biological resources which includes tourism considerations. Tourism in federal protected areas is controlled by Parks Canada and Environment Canada. Environmental assessment legislation requires a review of proposed tourism projects prior to implementation. Federal, provincial and municipal land use planning is also useful in controlling ecotourism. Provincial legislation controls outfitters and tourist operators. Municipal legislation is also in place to control potentially harmful activities such as cottage wastes and off-road vehicle activity.

Best management practices in linking tourism development and conservation are promoted by the Canadian Tourism Commission, which has been involved in sharing best practices and by commissioning and disseminating studies on best practices in nature-related tourism.

Several recent environmental assessments of the impacts of tourism on protected areas (ex. Report of the Panel on Ecological Integrity of Canada's National Parks, Banff-Bow Valley Study, etc.) have resulted in some legislative changes and the development of strategies to better integrate tourism while enhancing the protection of ecological integrity in areas of biological importance.

In January 2001, Canada completed a case study entitled "Integration of Biodiversity and Tourism: Canada Case Study for UNEP's Biodiversity Planning Support Programme". This document provides an overview of the present state of tourism in Canada, as well as the links between tourism development and biodiversity conservation and planning. The document also introduces some proposed strategies and solutions for improving the linkages between biodiversity and tourism in Canada.

Survey on the Importance of Nature to Canadians

The Survey on the Importance of Nature to Canadians, which assesses the social and economic value of nature-related activities to Canadians, draws on a nationwide partnership of 16 federal, provincial, and territorial agencies. The survey examines the popularity of nature-related recreational activities, participation in these activities according to the natural areas in which

they take place (such as the ecozones of Canada), and the significant benefits to the economy resulting from spending on these activities. Socioeconomic insights based on survey results contribute to the management of Canada's wildlife, water, forests, and protected areas that are essential for the public's enjoyment of nature-related activities. The survey has been conducted approximately every five years since 1981.

Tourism Industry Association of Canada (TIAC)

The Tourism Industry Association of Canada (http://www.tiac-aitc.ca/) actively supports initiatives for sustainable tourism development in Canada. TIAC supports the mandate of the Parks Canada Agency to maintain ecological integrity, and had representation on the Ecological Integrity Advisory Committee.

80. ? Has your country provided educational and training programmes to the tourism operators so as to increase their awareness of the impacts of tourism on biodiversity and upgrade the technical capacity at the local level to minimize the impacts? (decision V/25)

a) No	
b) No, but programmes are under development	
c) Yes, programmes are in place (please describe below)	X

Further comments on educational and training programmes provided to tourism operators.

British Columbia has developed a joint government-tourism project, the Tourism Wildlife Project Team (TWPT), led by the Ministry of Water, Land and Air Protection and involving other government agencies and key tourism associations. It has the mission of facilitating the collaborative development of a management framework for the stewardship of wildlife and ecosystems by the tourism sector operating on Crown Land in BC. This project follows a previous attempt to develop species-specific interim guidelines, and addresses concerns regarding the lack of involvement by tourism operators and their experience. TWPT has produced user-friendly guidelines that are credible, informed by science and operational experience, meet legislative and policy needs of government and sustainability objectives of government and tourism. The project addresses such activities as mountain biking, canoeing/kayaking, fishing, hunting, animal watching, horseback riding and hiking, in a variety of different ecosystems and habitats. The TWPT also endorses a set of “Mountain Best Practice” principles, an initiative by the BC Helicopter and Snowcat Skiing Association, which outlines a set of appropriate human behaviours for recreation in mountain ecosystems, and contains overall environmental, social and economic goals and minimum standards.

81. Does your country provide indigenous and local communities with capacity-building and financial resources to support their participation in tourism policy-making, development planning, product development and management? (decision VII/14)

a) No	
b) No, but relevant programmes are being considered	
c) Yes, some programmes are in place (please provide details below)	X
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments in the capacity-building and financial resources provided to indigenous and local

communities to support their participation in tourism policy-making, development planning, product development and management.

Trans Canada Trail

As a major tourism initiative linked to biodiversity conservation, Canada is currently nearing completion of the Trans Canada Trail (TCT – www.tctrail.ca). When completed the TCT will be the longest recreational nature trail in the world. TCT is a recreational trail that winds its way through every province and territory, with a mission of allowing users to connect with nature and with communities across Canada. The TCT Discovery Program, with a series of over 2000 interpretative discovery panels, will allow tourists to learn more about Canada's forests. The TCT is made possible with the support of individual, corporations and all levels of government.

UNESCO World Biosphere Reserves

In Canada, UNESCO World Biosphere Reserves play an active role in integrating nature-based tourism and biodiversity. For example, the Niagara Escarpment Commission, the management body created in support of the Niagara Escarpment UNESCO World Biosphere Reserve, actively promotes sustainable tourism within the region.

82. Has your country integrated the Guidelines on Biodiversity and Tourism Development in the development or review of national strategies and plans for tourism development, national biodiversity strategies and actions plans, and other related sectoral strategies? (decision VII/14)

a) No, but the guidelines are under review	
b) No, but a plan is under consideration to integrate some principles of the guidelines into relevant strategies	
c) Yes, a few principles of the guidelines are integrated into some sectoral plans and NBSAPs (please specify which principle and sector)	
d) Yes, many principles of the guidelines are integrated into some sectoral plans and NBSAPs (please specify which principle and sector)	X

Further information on the sectors where the principles of the Guidelines on Biodiversity and Tourism Development are integrated.

Since 1995, the Canadian Tourism Commission (CTC) has been working to meet the objective of sustainable tourism. The CTC mission is to work toward developing a Canadian tourism industry which can "deliver world-class cultural and leisure experiences year-round, while preserving and sharing Canada's clean, safe and natural environments." The CTC works to fulfill these aims through projects and initiatives such as the Catalogue of Exemplary Practices in Adventure Travel and Ecotourism. Released in 1999, it is intended to serve as "a tool to enable [tourism] operators to review the applicability of a wide range of successful, practical, approaches to their own operations".

In 2002, the CTC helped celebrate the International Year of Ecotourism by hosting, in cooperation with Tourisme Quebec, the World Eco-tourism Summit in Quebec City. Among the themes discussed at the Summit were ecotourism policy and planning; ecotourism regulation; product development, marketing and promotion of ecotourism; and monitoring the costs and benefits of ecotourism.

Box XLIX.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
The Government of Canada has been involved in protecting and presenting natural areas and commemorating significant aspects of Canada's natural heritage for over a century. Parks Canada was established as an Agency in 1998, with a mandate to foster public understanding, use and enjoyment of representative natural areas in ways that ensure their ecological integrity. Together with provincial and territorial governments, Canada maintains a vast network of parks and protected areas with joint priorities for conservation and tourism.

Article 11 - Incentive measures

83. ? Has your country established programmes to identify and adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity?

a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes are in place (please provide details below)	
d) Yes, comprehensive programmes are in place (please provide details below)	X

Further comments on the programmes to identify and adopt incentives for the conservation and sustainable use of biodiversity.

Incentive measures have been developed by all levels of government and non-government organisations across Canada. To maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources is, for example, one of the major goals of the Canadian Biodiversity Strategy. Most incentives are directed at habitat conservation rather than species protection, with participation on a voluntary basis. Incentive measures are also often closely tied to stewardship and education programs. See examples of positive incentives, disincentives, indirect incentives and removal of perverse incentives in *Incentive Measures: Examples of case studies, guidelines and best practices*, Canadian submission to the CBD, 2002 (http://www.biodiv.org/doc/case-studies/inc/cs-inc-ca-01-en.doc).

NRTEE Ecological Fiscal Reform and Energy Program

The National Round Table on the Environment and the Economy (NRTEE) is committed to improving the quality of economic and environmental policy development by providing decision makers with the information they need to make reasoned choices on a sustainable future for Canada. The agency seeks to carry out its mandate by advising decision makers and opinion leaders on the best way to integrate environmental and economic considerations into decision making, and by analysing environmental and economic facts to identify changes

that will enhance sustainability in Canada.

The ultimate goal of the National Round Table on the Environment and the Economy (NRTEE)'s Ecological Fiscal Reform (EFR) program is to demonstrate how the government can use fiscal policy as a strategic tool to achieve environmental and economic objectives simultaneously. The EFR & Energy program focuses on reducing carbon emissions Through a series of case studies and consultations, the Round Table demonstrated how taxation policy can broaden the array of available Canadian energy options by enabling competitive production and use of less carbon-intensive fuels, processes and technologies. The case studies explore the role of fiscal policy in promoting energy efficiency, renewable power, and the commercialization of hydrogen-based energy systems. A *State of the Debate* report, including the program's findings and key recommendations, will be released in the summer of 2005.

In 2002, the NRTEE released a report entitled *Toward a Canadian Agenda for Ecological Fiscal Reform: First Steps*, in order to expand the understanding of how government taxation and expenditures can be redirected to create an integrated set of incentives to support the shift to sustainable development. International experience was examined and three case studies undertaken to illustrate and explore specific challenges for the application of ecological fiscal reform.

The energy focus of the EFR & Energy program is to explore approaches aimed at reducing the carbon emission intensity of Canadian energy systems. Three case studies all conclude that, to varying degrees, fiscal tools and incentives can have a positive impact in reducing carbon-based emissions:

1) The renewable energy case study explores the ability of selected fiscal instruments to accelerate the use of renewable energy technologies and promote the long-term development of Canada's renewable energy sector. As part of this exploration, the case study looks at the following technologies: wind turbines, low-impact hydro, grid-connected photovoltaics, landfill gas for electricity generation; biomass for electricity generation; tidal energy, and geothermal. The study examines the current status and the long-term maximum generating capacity of each of these technologies, presents the projected cost of each and the trends affecting this cost, then analyzes the results.

2) Canadians routinely avoid obvious cost-effective investments in energy efficiency. This "energy efficiency gap" is one of the challenges addressed in this case study which, through baseline forecasts and simulation models as well as economic and policy analyses, evaluates the potential for EFR policy to influence the adoption of energy-efficient technologies.

3) A case study on the role of fiscal policy in promoting development of hydrogen technologies and reducing greenhouse gas emissions produced a baseline report describing the state of development of hydrogen technologies in Canada and the existing policy framework, and provides an initial evaluation of a range of fiscal policy options. The report identifies seven fiscal policies capable of providing direct incentives to hydrogen technologies while addressing a major barrier that currently limits the technology's market penetration. The accompanying economic analysis presents the results of the modelling exercise undertaken to test

the impact of the fiscal policies on particular hydrogen technologies.

Ecogifts

Donation by private individual and corporate landowners of ecologically sensitive land (or milieu écosensible in Quebec) is emerging as an important tool in conserving sensitive ecosystems and biodiversity across Canada. The 2000 federal budget announced that two-thirds of the tax on deemed capital gains associated with any ecological gift will be exempt from income. These tax reforms simplified the donation of ecological gifts, and made donation more favourable economically. By January 2005, over 429 gifts had been donated, protecting 36,000 hectares of wildlife habitat. More than one-third of these ecogifts contain areas designated as being of national or provincial significance, and many are home to some of Canada's species at risk. More information on Ecogifts can be obtained at: www.cws-scf.ec.gc.ca/ecogifts/.

Conservation Agreements

The Nature Conservancy of Canada and many other conservation groups hold conservation agreements with private landowners for millions of acres of land. In most cases, the agreement hands a portion of a willing landowner's property rights over to a conservation group, giving it a right to restrict development according to the terms of the agreement. If there is a drop in the value of the land as a result of the agreement, the property owner can receive a charitable tax deduction equal to the drop. While land can be sold and used at the owner's discretion, the agreement continues to be legally binding as long as the conservation group is involved. Examples of organizations involved in these agreements include the Southern Alberta Land Trust Society and the Manitoba Wildlife Federation and the Manitoba Habitat Heritage Corporation.

Provincial and Territorial Incentive Programs

Provinces and territories offer a wide range of incentive programs to protect land qualifying as important wildlife habitat, often working with agricultural producers and other private land users. Some examples include the Alberta Buck for Wildlife Program, the Manitoba Critical Wildlife Habitat Program, the Saskatchewan Fish and Wildlife Development Fund, and the Nova Scotia Habitat Conservation Fund.

Quebec has adopted an *Act Respecting Nature Reserves on Private Land* which promotes landowner contributions to biodiversity conservation.

In Ontario, there are three programs that provide tax incentives for land conservation – the Ontario Conservation Land Tax Incentive Program (CLTIP); the Ontario Managed Forest Tax Incentive Program (MFTIP); and the Ontario Farmland Taxation Policy Program. These programs are designed to promote long-term private stewardship for conservation and management of lands, by providing tax credits or exemptions to eligible participants.

Incentives in Agriculture

Because farmland is usually privately owned, response options usually involve the voluntary participation of landowners. Incentive measures can further the understanding and appreciation of producers for the value of conserving wildlife and wildlife habitat. In response to this, various levels of government and non-government organizations have created incentive programs for agricultural habitat conservation.

One large example is the Ontario Land CARE and Prairie CARE (Conservation of

Agriculture, Resources and the Environment) Programs. In the prairie provinces, this program provides incentives and technical assistance to promote practical farming techniques which benefit wildlife and the landowner in the Prairie provinces. Prairie CARE is a major component of the North American Waterfowl Management Plan (http://www.nawmp.ca/) and is delivered by Ducks Unlimited Canada in cooperation with federal, provincial and United States partners. The Ontario program provides financial incentives and technical assistance to help farmers increase agricultural productivity, conserve their soil and water resources and improve the environmental conditions.

The Ontario Environmental Farm Plan Program administered by the Ontario Soil and Crop Improvement Association (OSCIA) encourages farmers in Ontario to identify areas of environmental concern and develop farm plans by providing farmers up to $1,500 per farm business to help implement new management practices. The Ontario Land Stewardship Program (provided by the Ontario Ministry of Agriculture, Food and Rural Affairs and OSCIA) offers additional grants for improved environmental farm management.

84. ? Has your country developed the mechanisms or approaches to ensure adequate incorporation of both market and non-market values of biological diversity into relevant plans, policies and programmes and other relevant areas? (decisions III/18 and IV/10)

a) No	
b) No, but relevant mechanisms are under development	
c) Yes, mechanisms are in place (please provide details below)	X
d) Yes, review of impact of mechanisms available (please provide details below)	

Further comments on the mechanism or approaches to incorporate market and non-market values of biodiversity into relevant plans, policies and programmes.

Ecological fiscal reform (EFR) as a new policy instrument is uniquely appropriate for addressing sustainable development. It is a strategy that redirects a government's taxation and expenditure programs to create an integrated set of incentives to support the shift to sustainable development. The NRTEE's EFR Program was established to gain insight into the key challenges and opportunities related to EFR, and to explore the potential for EFR in Canada. Phase 1 of the program reviewed international experience with EFR and initiated three case studies on the potential application of EFR in the Canadian context. This approach expanded the base of knowledge and understanding regarding how an EFR strategy can be useful, moving beyond theoretical discussions to assess practical policy aspects of EFR application such as instrument design, integration with other policy tools to create a suite of measures, analytical needs, and options for measures design.

The three EFR case studies undertaken by the NRTEE are as follows:
1) Agricultural Landscapes, illustrating redirection of taxation and expenditure programs. The study objective was to determine the feasibility of redirecting governmental (federal, provincial and municipal) taxation and expenditure programs affecting farmers across Canada to meet conservation needs and reduce pollution from farmlands. Three types of programs were researched: environmental farm plans, municipal tax credits for on-farm conservation areas, and conservation cover programs.

2) Cleaner Transportation, illustrating how to complement regulations. The objective studied was to facilitate the adoption of cleaner fuels and engines to promote the transition to cleaner transportation in the diesel-

based freight and mass transit sectors.

3) Substances of Concern, illustrating how to support voluntary programs. The direction of this case study is still in the development stage. It aims to assess the potential for using suites of fiscal instruments to achieve more efficiently an appropriate level of environmental management of chemicals through a global approach.

Lessons learned during these case studies were used to construct a framework for EFR, including guiding principles that can apply to a broader range of sustainable development issues. The research concluded that EFR is a worthy tool — one to be considered each time policy options to achieve a new environmental objective or goal are being assessed. EFR is particularly appealing when seeking to go beyond an environmental improvement objective to a sustainable development objective and achieve positive changes in eco-efficiency, trade competitiveness, innovation, and employment.

85. ? Has your country developed training and capacity-building programmes to implement incentive measures and promote private-sector initiatives? (decision III/18)

a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes are in place	X (see Q86)
d) Yes, many programmes are in place	

86. Does your country take into consideration the proposals for the design and implementation of incentive measures as contained in Annex I to decision VI/15 when designing and implementing incentive measures for the conservation and sustainable use of biodiversity? (decision VI/15)

a) No	
b) Yes (please provide details below)	X

Further information on the proposals considered when designing and implementing the incentive measures for the conservation and sustainable use of biodiversity.

The 2005 Climate Change Plan for Canada, a key component of the Government's broader environmental vision, addresses the full spectrum of environmental issues, including biodiversity. The first phase, *Moving Forward on Climate Change: A Plan For Honouring Our Kyoto Commitment,* includes EnerGuide retrofit programs, launched to encourage energy efficiency actions by Canadian homeowners and commercial building operators to reduce energy consumption. Canada has also made major investments supporting Canadian innovation in cleaner fossil fuels, ethanol and hydrogen fuel cells.

The groundwork for this initiative was established in the federal budget of 2005, which introduced new market mechanisms, tax measures and incentives for private sector innovation and consumer action. Upon this foundation, *Moving Forward on Climate Change* will promote investments in science and technology so Canada can become a "first mover" in developing and using renewable energy and other green technologies, and collaborate with industry to set effective, fair reduction targets.

The new *Canada Climate Change Development Fund* promotes activities to combat the causes and effects of climate change in developing countries, while helping to reduce poverty and encourage sustainable development. The Fund rewards creativity and innovation by funding projects that reduce greenhouse

gas and smog-causing emissions. It will purchase the value of large scale emission reductions from businesses, governments, organizations and citizens - examples include farmers who adopt low-till practices and property developers who include renewable energy elements in building new sub-divisions. In addition, tax and production incentives worth over $2 billion are directed to increasing Canadian development and use of renewable power technologies over the next 15 years, including wind, solar, hydrogen and ethanol.

A central element of Environment Canada's innovation agenda is use of economic incentives and instruments as a complement or substitute for regulatory and voluntary instruments. This includes using tax measures such as environmental taxes, tax incentives and tax shifting, and non-tax measures such as tradable permits, subsidies, user charges and resource pricing policies.

In practice, such incentives have proven to be more flexible than "command and control" approaches. They induce technological innovation, and reduce costs of pollution control when compared to certain regulations. Environment Canada is considering use of these instruments in an effort to align economic and environmental signals and ensure a long-term path towards sustainability.

To build momentum for more substantial use of economic incentives, Environment Canada sponsored a conference in 2000 entitled *Supporting a Sustainable Future: Making Dollars and Sense*. The purpose of this conference was to share information and experiences on the use of market-based incentives. About 200 people from Canada and around the world attended the conference.

87. Has your country made any progress in removing or mitigating policies or practices that generate perverse incentives for the conservation and sustainable use of biological diversity? (decision VII/18)

a) No	
b) No, but identification of such policies and practices is under way	
c) Yes, relevant policies and practices identified but not entirely removed or mitigated (please provide details below)	X
d) Yes, relevant policies and practices identified and removed or mitigated (please provide details below)	

Further information on perverse incentives identified and/or removed or mitigated.

See section 4, “Removal of Perverse Incentives”, in *Incentive Measures: Examples of case studies, guidelines and best practices*, submitted to the CBD by Canada, 2002 (http://www.biodiv.org/doc/case-studies/inc/cs-inc-ca-01-en.doc). For example, under the Canada National Forest Strategy 1998-2003, a pressing need to remove disincentives and create incentives to sustainable management of woodlots is identified. The Framework for Action, *inter alia*, envisages the use of incentives to invest in woodlot management including appropriate taxation and woodlot management programmes. Furthermore, the implementation of suitable changes to the Federal Income Tax Act and to provincial and municipal taxation will contribute in a constructive way to investments in and fair returns from the sustainable development of woodlots.

Box L.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 12 - Research and training

88. On Article 12(a), has your country established programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components?

a) No	
b) No, but programmes are under development	
c) Yes, programmes are in place (please provide details below)	X

Further information on the programmes for scientific and technical education and training in the measures for identification, conservation and sustainable use of biodiversity.

Federal, provincial and territorial governments recognize that science capacity related to biodiversity research and training must be enhanced. Gaps are particularly acute in areas such as taxonomy, as specialists retire and are not replaced, as well as in emerging issues such as invasive alien species and the ecological impacts of GMOs.

Improved research capacity is identified as a strategic priority under the Canadian Biodiversity Strategy (CBS). Research is focussed on improving policy development for the integration of multiple resource use objectives, on increasing our understanding of ecosystems and on managing human use. "Building a foundation of biodiversity science and information" was identified by Canada's ministers of fisheries, forests, and wildlife in 2001 as a priority for action under the CBS. In 2002, these ministers agreed on a set of twelve guiding principles for biological information management. Key principles are to make data freely available, and to build an inclusive network by connecting databases where they reside, rather than creating a central data warehouse. In 2003, a federal-provincial-territorial information coordinating mechanism was formalised as a partnership between the FBIP, NatureServe Canada, and the Federal-Provincial-Territorial Biodiversity Working Group that oversees implementation of the CBS. Ministers also approved a draft Biodiversity Science Agenda as a basis for setting priorities across the full range of biodiversity science topics (including, but not limited to biosystematics, biodiversity and climate change, invasive species, biodiversity and human health, and valuation of ecosystem services).

The International Development Research Centre (IDRC) has awards programs at the masters and PhD levels for researchers from Canada and developing countries. The mandate of the IDRC is to support research that meets the priorities of developing countries. Therefore, most of IDRC’s training funds and awards are granted to individuals doing research directly related to, and

in, the context of IDRC's programs and projects. By supporting academic study and offering opportunities for hands-on experience, IDRC is helping countries of the South to provide themselves with a critical mass of trained and experienced researchers to promote sustainable and equitable development in their regions. For more information, see http://www.idrc.ca/en/ev-23261-201-1-DO_TOPIC.html.

89. On Article 12(b), does your country promote and encourage research which contributes to the conservation and sustainable use of biological diversity?	
a) No	
b) Yes (please provide details below)	X

Further information on the research which contributes to the conservation and sustainable use of biodiversity.

The majority of post-secondary institutions in Canada (college and university) offer a variety of environmental training programs. Faculties of engineering, science, arts, social science and agriculture provide biodiversity-oriented courses such as biology, environmental science, environmental studies, agricultural science and ecology. These academic institutions are also actively engaged in biodiversity research in support of their education and training programs.

For 13 years beginning in 1992, Canada's IDRC had a Sustainable Use of Biodiversity research program, with the goal of promoting the conservation and sustainable use of biodiversity and the development of appropriate technologies, local institutions and policy frameworks through the application of interdisciplinary and participatory research that incorporates gender considerations and local and indigenous knowledge (see Q32 for further information).

The Canadian Museum of Nature has a multidisciplinary team of scientists who conduct leading-edge research in the natural sciences. Researchers specialize in systematics research, based on natural history collections, on minerals, fossil plants and animals. The results of this research provide the basic information that is vital to the management of natural resources in Canada. The Museum's researchers also help to increase knowledge and understanding of the natural world by working on diverse projects in Canada and around the world.

90. On Article 12(c), does your country promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources?	
a) No	
b) Yes (please provide details below)	X

Further information on the use of scientific advances in biodiversity research in developing methods for conservation and sustainable use of biodiversity.

The Sustainable Forest Management Network provides research support for the development of a total management protocol for Canada's Boreal Forest so it will be sustained in all its physical, biological, ecological and economic dimensions for future generations (http://sfm-1.biology.ualberta.ca/). A summary of all 2004-2005 SFMN research projects is available at http://sfm-1.biology.ualberta.ca/english/research/PDF/en_projsummall.pdf.

Research funded through IDRC's Sustainable Use of Biodiversity Program Initiative has resulted in a number of improved local management strategies, livelihood options, primary health care strategies and policy changes that have contributed both to the Strategic Plan of the Convention and the Millennium Development Goals. The Initiative promoted the conservation and sustainable use of biodiversity, and aims to develop appropriate technologies, local institutions, and policy frameworks through the application of interdisciplinary and participatory research that incorporates local and indigenous knowledge, as well as gender considerations. Given the changing roles and responsibilities of women and men in natural resource management in many rural areas, the program initiative stressed the importance of rigorous gender/social analysis in projects and programs to insure that the gender-differentiated impacts of these changes are understood, with a particular focus on resource tenure. The Initiative emphasized funding interdisciplinary research in sub-Saharan Africa, Asia, Latin America & the Caribbean, and the Middle East and North Africa that is community-based but can influence national and international policies. Projects tended to focus on the following areas:

- new and traditional approaches to increasing food production without losing on-farm biodiversity;
- the sustainable and rational use of medicinal plants;
- the impacts of traditional and changing gender roles on biodiversity resources used for food and medicine;
- the development of research tools and skills within communities that can effectively contribute to documenting biodiversity;
- the participation of Indigenous and local peoples in research through the use of participatory methodologies, innovative research designs and strategies, and partnerships;
- developing, implementing, and disseminating research methods that link formal and informal scientists: and
- science through targeted training, strategic research, and information sharing.

Starting in April 2005, IDRC integrated its support to natural resource management activities in rural areas of Africa, Asia, and Latin America and the Caribbean, including biodiversity, into one global program, while continuing to support projects related to access to and sustainable management of genetic resources within the structure of the new global program. See http://web.idrc.ca/en/ev-1248-201-1-DO_TOPIC.html.

Box LI.

Please elaborate below on the implementation of this article specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Making Aid More Effective: In September 2002, the Canadian International Development Agency (CIDA) released its policy statement on strengthening aid effectiveness. Its key principles are now being implemented across the aid program:

- focus on local priorities and local ownership;
- improved coordination among donors;
- stronger partnerships;
- consistency between aid policies and other policies affecting aid, such as trade; and
- emphasis on results.

At the same time, CIDA took a number of steps to make sure that aid dollars were well-managed and achieved their intended purposes. The Agency streamlined and integrated all planning, resourcing, implementation, and evaluation to improve its reporting and accountability to Canadians. Meanwhile in the field, CIDA, together with other donors, is supporting its partner countries in their own financial management reforms. Finally, regular monitoring and in-depth evaluations and audits throughout the life cycle of projects, programs, partners and programming areas, like gender equality, helps CIDA to keep things on track and solve problems as soon as they occur.

CIDA's program is based on the **Millennium Development Goals**, to which it contributes through the following four key areas:

Social development - Basic education, child protection, health and nutrition, HIV/AIDS

In Tanzania, CIDA support to the non-governmental organization Marie Stopes Tanzania has helped establish and run 9 clinics and 61 outreach sites. Over the past 4 years, more than 495,000 clients visited the facilities, exceeding expectations by 25 percent. In addition, more than 25,500 people sought help for STD/HIV infections and 11,500 were treated for HIV/AIDS.

Economic well-being - Economic growth and improved living standards for the poor through a renewed focus on agricultural development and private sector development

In Senegal, a CIDA-supported program to strengthen the PAMECAS (Programme d'appui aux mutuelles d'épargne et de crédit au Sénégal) network of savings and loans institutions has helped make credit available to the poorest of the poor, mainly rural women. The network's institutions are now financially self-sustaining, and the value of loans is increasing on average by 39 percent a year. Membership has grown from 73,540 to 83,744, and 60 percent of the members are women.

Environmental sustainability - Protection, conservation, and management of the

environment

CIDA supports a training program in greenhouse gas emissions reduction for the oil and gas sector in Azerbaijan, Uzbekistan, and Kazakhstan. This program is helping companies to identify and develop greenhouse gas emission-reduction projects to be funded under the Kyoto Protocol or by other means.

Governance - Human rights, democracy and good governance

CIDA was one of the first donors to fund the Anti-Corruption Unit in the Vice-President's Office of the Government of Bolivia. This unit has sent a powerful message that corruption will no longer be tolerated. Complaints from the public are processed, investigated, and resolved by this unit and several cases have resulted in legal charges against public officials.

In all areas of CIDA's work, equality between women and men is promoted and supported. CIDA also funds programs that benefit women directly. In Pakistan, CIDA-supported training programs have helped thousands of women to become involved in municipal politics, and 43,000 have won seats as councillors. Training has also helped the women to be more effective advocates for gender equality in their own communities.

The Canadian Museum of Nature (CMN), as part of the new vision for 2003-2008 of national service, took a lead role in developing a consortium of natural history museums from across Canada. Incorporated as the Alliance of Natural History of Museums of Canada, in February 2004, it primary objective is to increase the preservation and understanding of Canada's natural heritage. The Alliance works jointly in areas where museums can have greater impact through combined efforts (e.g. collections planning and development to facilitate public and scientific access to collections information.)

Article 13 - Public education and awareness

91. Is your country implementing a communication, education and public awareness strategy and promoting public participation in support of the Convention? (Goal 4.1 of the Strategic Plan)	
a) No	
b) No, but a CEPA strategy is under development	
c) Yes, a CEPA strategy developed and public participation promoted to a limited extent (please provide details below)	
d) Yes, a CEPA strategy developed and public participation promoted to a significant extent (please provide details below)	X

Further comments on the implementation of a CEPA strategy and the promotion of public participation in support of the Convention.

Education is one of the five goals of the Canadian Biodiversity Strategy, and engaging Canadians through stewardship is one of the national priorities being recommended to Ministers for national action over the next five years.

In 1998, Canada produced a report entitled *Learning about Biodiversity – A*

First Look at the Theory and Practice of Biodiversity Education, Awareness and Training in Canada. The report provides practitioners with both an academic perspective on biodiversity education, as well as practical examples of programs developed in Canada. In 2002, a second Canadian biodiversity education guide, *Learning through Real-Life Experiences*, was released to help expose local communities to a range of successful conservation and sustainable use practices. By examining case studies from Eastern Ontario and highlighting the importance of collaboration, stewardship and creative solutions, this document encourages all Canadians to participate in activities which promote environmental learning. Also in 2002, a brochure entitled *Conserving Biodiversity in Canada: A Journey in Progress* was developed to summarise progress made over the past decade in implementing the Convention in Canada.

At the 2002 World Summit on Sustainable Development, Canada announced its own *Framework for Environmental Learning and Sustainability in Canada*. This Framework was created with the consultation and contributions of more than 5,500 Canadians and provided a 'jumping-off' point for moving forward in the environmental education field.

Formal education in Canada is the responsibility of the provincial governments. Much work is being done to integrate biodiversity into the curriculum. At the college and university level, a variety of institutions offer training in biodiversity related fields.

Informal education is provided by a number of government and non-government organizations, and through a variety of media. Museums, zoos, botanical gardens, aquariums and environmental education centres have exhibits and programs that support informal biodiversity education and public awareness. Visitors to Canada's parks and protected areas are also exposed to informal biodiversity education through interpretation centres and programs provided by staff.

Public and educational programming at the Canadian Museum of Nature includes: *The Gee! In Genome* national travelling exhibition which opened in April 2003.The exhibition is a key component of the new national project **The Nature of Humans**, focusing on genomics: the study of genes and their functions. It highlights the achievements of Canadian scientists working in genetic research. It explores the topics ranging from DNA, genes and genomics to the impact of this emerging field of science on the environment and human health. It is fully booked at venues across Canada until 2006. This exhibit was co-produced with Genome Canada and Canadian Institutes of Health Research. A CMN Web site component including curriculum-based educational resources, ethical debates and interactive games has been developed. Host venues are developing forums for youth and the general public as the exhibition tours with assistance from CMN and the national and regional partners.

Sila: Clue to Climate Change is a new travelling exhibition designed to teach youth about environmental issues. It explores climate change from both a western science and traditional knowledge perspective and was developed in partnership with *The Centre for Traditional Knowledge.* This trilingual exhibition (information is provided in English, French and Inuktitut) contains real-life examples of climate change in different parts of the world and show how some areas are coping with the challenges. The exhibition was supported by the Government of Canada Climate Change Action Fund, the Canadian International Development Agency, RBC Foundation and Canada Post Corporation. Three school programmes have been developed as part of CMN's "Let's Do Science" workshops for school groups.

Conservation of Medicinal Plants in Canada: Canadian members of the Medicinal

Plant Specialist Group (MPSG) are currently collaborating on a project to document the status of knowledge and research on medicinal plants in Canada as a contribution towards the Global Strategy for Plant Conservation. The principal outcome of the project will be a book that summarizes the broad range of scientific research, conservation, traditional and commercial use, policy, and education issues related to medicinal plants in Canada. This project expands on a paper presented by E. Small and P.M. Catling to the *Symposium on Biodiversity and Health: Focusing Research to Policy*, in Ottawa, Canada, October 2003. The symposium was co-sponsored by the MPSG with the Tropical Conservancy, the Biodiversity Convention Office of Environment Canada, the Canadian International Development Agency and other government departments and agencies, the Canadian Museum of Nature, the International Development Research Centre (IDRC), the University of Ottawa, and the World Bank, amongst others. Discussion with the National Research Council (NRC) concerning publication has been initiated.

Guidelines on the Conservation of Medicinal Plants

Revision of the 1993 WHO/IUCN/WWF *Guidelines on the Conservation of Medicinal Plants*, is a collaborative undertaking of Medicinal Plant Specialist Group (MPSG) on behalf of the IUCN (together with the SSC Wildlife Trade Programme), with the World Health Organizations (WHO), the World-wide Fund for Nature (WWF), and TRAFFIC. The 1993 *Guidelines* are now being updated and revised through a broad international consultation process which began in 2003 and continues into 2005. Publication of the revised Guidelines is anticipated in 2006, provided adequate funding can be secured. (The Canadian Museum of Nature is host to the MPSG Secretariat.)

Stewardship is the term the federal government uses for voluntary actions that individuals, communities (including Aboriginal communities), industries, and non-profit organizations undertake to help conserve habitat. Stewardship programs can also include public education and outreach. The federal government has stated that stewardship is its preferred approach to conserving habitat for the protection and recovery of species at risk.

Federal, provincial and territorial governments collaborated in the development of *Canada's Stewardship Agenda* (2002), a Canada-wide stewardship action plan aimed at engaging Canadians in conservation and sustainable use of biodiversity on private lands.

Stewardship objectives in Canada are furthered by national conferences and workshops such as "Caring for Our Land and Water" national stewardship conference in 2000, Voluntary Sector Initiatives Cross-Canada Stewardship Workshops held in 2001/2002, the Canada Wetland Stewardship Conference in 2003, and "The Leading Edge" national stewardship conference in 2003. The Stewardship Canada Web Portal (http://www.stewardshipcanada.ca) and network of integrated provincial "hubs" is designed to provide one screen entry to directories of funders and organizations, and to resources such as case studies, demonstration projects, training programs, events and forums. The Stewardship Canada network links provincial hubs which share common architecture, interactive applications, hardware and management services. As partners, organizations can link or transfer their web sites to the network and be hosted either on the national portal or at the provincial hub.

NGOs such as the World Wildlife Fund, Canadian Nature Federation, Canadian Wildlife Federation, Sierra Club and Wildlife Habitat Canada also play a major role in raising public awareness. Volunteer monitoring and observation networks are also creating opportunities for citizens to get involved in biodiversity science. Ex-situ facilities also provide valuable biodiversity science experiences and information to millions of Canadians each year (e.g.

Metro Toronto Zoo, Quebec Biodome, etc).

In 2002 the Canadian Museum of Nature (CMN), with the support of The Salamander Foundation, initiated a 3-year project on Native Plant Biodiversity aimed at the development of an outreach educational programme with tools to enhance understanding of native plant diversity, its value and vulnerability. This programme includes the holding of workshops and forums, exchange of up-to-date knowledge; encouraging communication and collaboration amongst stakeholders and the general public; creation of synergy amongst participants in the pursuit of their own activities; and educating and engaging the general public in fostering good stewardship of native plant diversity and best practices at the community level. CMN is currently developing a web-based educational component on native plants conservation and environmental stewardship practices.

The Habitat Stewardship Program for Species at Risk (http://www.cws-scf.ec.gc.ca/hsp-pih/default_e.cfm) helps Canadians protect species and their habitats. In the first year of the program (2000/2001) over 60 partnerships were established. The Program's ability to attract non-federal funding exceeded expectations in the first year. While nearly $5 million was contributed in HSP funds by the federal government, over $8 million in matching funding was raised from Program partners. In the second year, 2001-2002, the program was significantly expanded with $10 million used to fund 150 initiatives located in every major ecosystem in Canada. In 2002 -2003, another $10 million was invested in 166 projects. Projects implemented under the Habitat Stewardship Program have included a wide range of habitats types, from coastal to prairie, mountain and forested.
The overall goal for the Habitat Stewardship Program is to enhance existing conservation activities and encourage new ones so that land and resources are used in ways that maintain habitat critical to the survival and recovery of identified species at risk, as well as species that are not at risk.
Specific objectives were targeted such as supporting habitat projects that benefit multiple species at risk, enabling Canadians to become actively and concretely involved in stewardship projects for species at risk that will result in tangible, measurable environmental benefits, and improving the scientific, sociological, and economic understanding of the role of stewardship has as a conservation tool. Priority landscapes targeted in the first year of the Program included the South Okanagan-Smilkameen region of British Columbia, the 23,000 square km area of the Missouri-Coteau grasslands of Saskatchewan, the Clear Creek Carolinian Forest in southern Ontario, Areas of Manitoba, Ontario, and Quebec in support of recovery efforts for the Eastern population of the loggerhead shrike, and he Bay of Fundy.

More information on the program is available at http://www.speciesatrisk.gc.ca/.

92. Is your country undertaking any activities to facilitate the implementation of the programme of work on Communication, Education and Public Awareness as contained in the annex to decision VI/19? (decision VI/19)

a) No	
b) No, but some programmes are under development	
c) Yes, some activities are being undertaken (please provide details below)	X
d) Yes, many activities are being undertaken (please provide details below)	

Further comments on the activities to facilitate the implementation of the programme of work on

CEPA.

Most government departments have numerous initiatives in terms of developing environmental education programming. The Government of Canada's most notable example of an investment in sustainability education is the Public Education and Outreach program on climate change.

A wide range of biodiversity information and education products have been developed and distributed. In 1998, for instance, the Biodiversity Convention Office (BCO) released Learning about Biodiversity: A First Look at the Theory and Practice of Biodiversity Education, Awareness and Training in Canada. Since its release, Learning about Biodiversity has been recognized as a useful introduction to the many means of implementing biodiversity education programmes.

In 2002, a second Canadian biodiversity education guide, Learning through Real-Life Experiences, was released to help expose local communities to a range of successful conservation and sustainable use practices. By examining case studies from Eastern Ontario and highlighting the importance of collaboration, stewardship and creative solutions, this document encourages all Canadians to participate in activities which promote environmental learning.

Every year, the BCO also encourages the celebration of events - such as the International Day for Biological Diversity and Ocean's Day - by designing educational materials, creating and staffing public displays and taking part in activities that promote biodiversity.

The examples provided under Question # 91 also apply here.

93. Is your country strongly and effectively promoting biodiversity-related issues through the press, the various media and public relations and communications networks at national level? (decision VI/19)

a) No	
b) No, but some programmes are under development	
c) Yes, to a limited extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	X

Further comments on the promotion of biodiversity-related issues through the press, the various media and public relations and communications networks at national level.

Environment Canada (EC) has a number of national initiatives aimed at educating and informing people on environmental issues, as well as targeting specific demographics, such as youth, to become involved. These initiatives include many informative websites, forums for discussion and idea exchanges, regularly published bulletins, a syndicated radio program, an environmental newsmagazine, regularly printed 'tip sheets', television commercials to promote awareness of endangered species ("Hinterland Who's Who" – see website at http://www.hww.ca), and environmental science television videos. EC also regularly provides educational posters for distribution at schools, conferences and educational kiosks. For more information, see the EC website on Environmental Learning and Sustainability (<http://www.ec.gc.ca/education/ee_learning_outreach1_e.htm).>

94. Does your country promote the communication, education and public awareness of biodiversity at the local level? (decision VI/19)	
a) No	
b) Yes (please provide details below)	X

Further information on the efforts to promote the communication, education and public awareness of biodiversity at the local level.

Numerous initiatives to promote public education at the local level could be cited. The Adopt-a-River programme, for example, provides an opportunity for students to learn about life sciences while encouraging action to solve an environmental problem at a local level. This programme involves collecting and analysing data. A teacher's manual is available. This programme is a joint initiative between the *Canadian Museum of Nature*, *The Biosphere* of Environment Canada and *le Comité de valorisation de la rivière Beauport*.

In Alberta, the Cows and Fish initiative began in 1992 as a unique partnership involving Fisheries and Oceans Canada, landowners, associations, provincial agencies and non-government organizations. It aims to foster a better understanding of how improvement in grazing management on riparian areas can enhance landscape health and productivity, for the benefit of ranchers and others who value riparian areas. As part of the extension strategy for the Cows and Fish initiative, a producer-oriented booklet called Caring for the Green Zone has been published.

Canada's Oceans Day Program - led by the Canadian Wildlife Federation (CWF) in partnership with a variety of government and non-government organizations, including Environment Canada - provides Oceans Day Kits for schools containing curriculum-related materials and posters; the CWF also hosts an Oceans Education website. This program targets teachers and students. Many other similar initiatives, including Environment Day and Earth Day, are promoted and celebrated at a local level and target younger students and their families.

As mentioned under Question #91, in 2002 a second Canadian biodiversity education guide, *Learning through Real-Life Experiences*, was released to help expose local communities to a range of successful conservation and sustainable use practices. By examining case studies from Eastern Ontario and highlighting the importance of collaboration, stewardship and creative solutions, this document encourages all Canadians to participate in activities which promote environmental learning.

95. Is your country supporting national, regional and international activities prioritized by the Global Initiative on Education and Public Awareness? (decision VI/19)	
a) No	
b) No, but some programmes are under development	
c) Yes, some activities supported (please provide details below)	X
d) Yes, many activities supported (please provide details below)	

Further comments on the support of national, regional and international activities prioritized by the Global Initiative on Education and Public Awareness.

Canada's Contribution to the Global Strategy for Plant Conservation (GSPC) by Medicinal Plants Specialist Group (MPSG)

Revision of the guidelines will touch upon numerous targets outlined within the GSPC, and in terms of education and public awareness will contribute principally to:

Target 14: *The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes.*

96. Has your country developed adequate capacity to deliver initiatives on communication, education and public awareness?	
a) No	
b) No, but some programmes are under development	
c) Yes, some programmes are being implemented (please provide details below)	
d) Yes, comprehensive programmes are being implemented (please provide details below)	X

Further comments on the development of adequate capacity to deliver initiatives on communication, education and public awareness.

Canadian CEPA initiatives are delivered through numerous media and the participation of various parts of government and sectors of society. Television programs for education and increased awareness are aired on public stations; initiatives are aimed at and delivered through schools and workplaces; the various levels of governments (federal, provincial and territorial, and municipal) publish enormous amounts of information on websites, newsletters and radio programs; NGOs utilize websites and educational packages to get their message out. See the answers to questions 91-95 for specific examples.

97. Does your country promote cooperation and exchange programmes for biodiversity education and awareness at the national, regional and international levels? (decisions IV /10 and VI/19)	
a) No	
b) Yes (please provide details below)	X

Further comments on the promotion of cooperation and exchange programmes for biodiversity education and awareness, at the national, regional and international levels.

The Environment Canada website on Environmental Learning and Sustainability (http://www.ec.gc.ca/education/) is essentially a network for interested

groups to share information and successes, find answers to questions, network with others, discover involved organizations and become a part of the environmental learning and sustainability movement in Canada. The site links to Action Plans that support Canada's framework for CEPA activities. The Action Plans section is an index of ideas and projects from thousands of individuals and organizations from all sectors of society. By producing an Action Plan, they support the vision of the Framework for Environmental Learning and Sustainability in Canada and recognize its values and principles. Presently, 236 organizations have produced Action Plans.

Environment Canada's Volunteers Web site contains exciting volunteer opportunities for people from every walk of life. The programs reflect the diversity of Canadian environmental concerns pertaining to water, wildlife, weather, and environmental action. This site provides resources to enables Canadians to become part of Environment Canada's team of citizen scientists.

98. Is your country undertaking some CEPA activities for implementation of cross-cutting issues and thematic programmes of work adopted under the Convention?

a) No (please specify reasons below)	
b) Yes, some activities undertaken for some issues and thematic areas (please provide details below)	X
c) Yes, many activities undertaken for most issues and thematic areas (please provide details below)	
d) Yes, comprehensive activities undertaken for all issues and thematic areas (please provide details below)	

Further comments on the CEPA activities for implementation of cross-cutting issues and thematic programmes of work adopted under the Convention.

Environment Canada, for example, lists the development of an environmental education strategy as its first priority for encouraging a greater degree of nation-wide environmental education. This strategy would, through a phased approach, identify gaps and opportunities, align education efforts with those of other federal organizations, work with the provinces in education, look for opportunities to partner with the non-profit sector, and work with best practice companies that implement environmental learning approaches.

99. ? Does your country support initiatives by major groups, key actors and stakeholders that integrate biological diversity conservation matters in their practice and education programmes as well as into their relevant sectoral and cross-sectoral plans, programmes and policies? (decision IV/10 and Goal 4.4 of the Strategic Plan)

a) No	
b) Yes (please provide details below)	X

Further comments on the initiatives by major groups, key actors and stakeholders that integrate biodiversity conservation in their practice and education programmes as well as their relevant sectoral and cross-sectoral plans, programmes and policies.

Environment Canada feels that the successful implementation of environmental education nation-wide must be done through the work of all levels of government, businesses, NGOs, and consumers. Some businesses and governmental offices have begun participating in events such as Environment Week and the Commuter Challenge, as well as promoting clean-up activities and conservation campaigns for Earth Day. Businesses have begun helping their

consumers understand the environmental impacts of their operations through corporate sustainability reporting. Moreover, Environment Canada has implemented the Ecological Gifts Program which provides a way for private and corporate landowners to donate ecologically sensitive lands, or interests in such land, and receive significant tax benefits through this program. The main objective of the Program is to protect and secure ecologically sensitive lands across Canada using income tax incentives, as part of efforts to conserve biodiversity.

100. Is your country communicating the various elements of the 2010 biodiversity target and establishing appropriate linkages to the Decade on Education for Sustainable Development in the implementation of your national CEPA programmes and activities? (decision VII/24)

a) No	
b) No, but some programmes are under development	
c) Yes, some programmes developed and activities undertaken for this purpose (please provide details below)	X
d) Yes, comprehensive programmes developed and many activities undertaken for this purpose (please provide details below)	

Further comments on the communication of the various elements of the 2010 biodiversity target and the establishment of linkages to the Decade on Education for Sustainable Development.

Information pertaining to the 2010 target and the development of a strategic and outcomes-based biodiversity agenda for Canada is included on the Canadian Biodiversity Information Network website.

In 2005, in recognition of the fact that the conservation of biodiversity can be considered one of the most important outcomes of sustainable land and resource management, and that the achievement of biodiversity outcomes is key to the continuing sustainability of our natural resource base, the Federal-Provincial-Territorial Working Group on Biodiversity began to examine the benefits of developing an outcomes-based implementation and reporting framework for the Canadian Biodiversity Strategy. This process which included the examination of a range of options on the scope, structure and content of such a framework. One such option being considered was to use the Provisional Framework developed under the CBD as the basis for facilitating the assessment of progress towards the 2010 target to significantly reduce the rate of biodiversity loss. A decision on the option which will be adopted in Canada is pending.

Box LII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Article 14 - Impact assessment and minimizing adverse impacts

101. On Article 14.1(a), has your country developed legislation requiring an environmental impact assessment of proposed projects likely to have adverse effects on biological diversity?

a) No	
b) No, legislation is still in early stages of development	
c) No, but legislation is in advanced stages of development	
d) Yes, legislation is in place (please provide details below)	X
e) Yes, review of implementation available (please provide details below)	X

Further information on the legislation requiring EIA of proposed projects likely to have adverse effects on biodiversity.

The need for an environmental impact assessment in Canada is determined by both federal and provincial law. A Cabinet Directive issued in 1990 requires a strategic environmental assessment (SEA) of federal policy and program initiatives. This Cabinet Directive was revised in 1999 to strengthen the role of SEAs by clarifying obligations and linking SEAs to sustainable development strategies. The Canadian Environmental Assessment Agency (http://www.ceaa.gc.ca) has published guidelines on implementing the Directive. The Agency strengthens relationships with in-country partners through interdepartmental and multi-stakeholder committees such as the Regulatory Advisory Committee, the Senior Management Committee on Environmental Assessment, provincial environmental assessment administrators, federal councils and the Regional Environmental Assessment Committees.Other guides have also been published to assist project, program and policy developers in determining when an EA is required and how it should be conducted (see Q. 102).

The Canadian Environmental Assessment Act (CEAA) came into force in 1995. It prescribes conditions under which federal departments and agencies must perform environmental assessments. In all Environment Canada project assessments under the CEAA, the impacts on biodiversity are identified, recorded, and some mitigation measures suggested. However, there is insufficient capacity to undertake comprehensive surveys of baseline conditions, and engage in follow-up activities. Environment Canada also provides scientific expertise (including impacts on biodiversity) to other federal assessments, or sometimes provinces in joint assessments.

In 1998 and 2000, the Commissioner of the Environment and Sustainable Development in the Office of the Auditor General of Canada conducted audits of the implementation of environmental assessments under the CEAA and the processes in place for the implementation of policies and programs. Subsequently, in 2003, amendments to the CEAA were proclaimed into law. The changes in the Act strengthened the inclusion of Aboriginal perspectives into assessments, including the formal recognition of Aboriginal traditional knowledge. The Canadian Environmental Assessment Agency's role was also strengthened, allowing it to promote compliance, resolve disputes and coordinate federal involvement in assessments conducted in cooperation with other jurisdictions.

Canada participated in the Workshop on Liability and Redress hosted by the Secretariat in Paris, June 18-20, 2001. Previous to that workshop, Canada submitted a written summary of Canadian legal provisions on liability and

redress to the Secretariat.

Provincial and Territorial Impact Assessment

Several provinces and territories have established legislation or policies that include provisions for environmental impact assessment of projects and programs. Impact assessments of wetlands provide one example. The provinces of Prince Edward Island, Nova Scotia and New Brunswick have environmental legislation that requires an environment impact assessment for both private and public projects affecting wetlands. The province of Ontario's Natural Heritage Policies prohibit development and site alteration on certain "significant wetlands" and requires demonstration of no negative impacts on other significant wetlands in adjacent areas. The New Brunswick *Clean Environment Act* includes provisions for environmental impact assessment for activities that impact any aspect of the environment. Schedule 'A' of the regulation provides a list of activities that automatically trigger an EIA. The Act can be viewed at: http://www.gov.nb.ca/justice/acts/acts/c%2D06.htm.

102. ? On Article 14.1(b), has your country developed mechanisms to ensure that due consideration is given to the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biological diversity?

a) No	
b) No, mechanisms are still in early stages of development	
c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place (please provide details below)	X

Further comments on the mechanisms developed to ensure that due consideration is given to the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biodiversity.

A Cabinet Directive issued in 1990 requires a strategic environmental assessment (SEA) of federal policy and program initiatives. This Cabinet Directive was revised in 1999 to strengthen role of SEA by clarifying obligations and linking SEA to sustainable development strategies. The Canadian Environmental Assessment Agency has published guidelines on implementing the Directive.

Other guides have also been published to assist project, program and policy developers in determining when an EA is required and how it should be conducted: for example*, A Guide on Biodiversity and Environmental Assessment* (1996) *and Strategic Environmental Assessment at Environment Canada – How to Conduct Environmental Assessments of Policy, Plan and Program Proposals*. Issue-specific guides such as the *Wetlands Environmental Assessment Guideline* and the *Migratory Birds Environmental Assessment Guideline* have been developed to guide impact assessment in specific program and policy areas.

The *Environmental Assessment Best Practice Guide for Wildlife at Risk in Canada*, issued in 2004, outlines a national approach on how to gather and assess information necessary for understanding the consequences of proposed actions on wildlife at risk and for making sound project decisions that contribute, in the long run, to sustainable development. This guide highlights solely the wildlife at risk component that an environmental assessment would address. Guides for the implementation of environmental assessment processes under federal, provincial and territorial laws, such as the *Responsible Authority's Guide* (Canadian Environmental Assessment Agency 1994), have also been produced.

103. ? On Article 14.1(c), is your country implementing bilateral, regional and/or multilateral agreements on activities likely to significantly affect biological diversity outside your country's jurisdiction?

a) No	
b) No, but assessment of options is in progress	
c) Yes, some completed, others in progress (please provide details below)	X
d) Yes (please provide details below)	

Further information on the bilateral, regional and/or multilateral agreements on activities likely to significantly affect biodiversity outside your country's jurisdiction.

The Canadian Environmental Assessment Agency has drafted *Cooperative Environmental Assessment Processes Across Jurisdictions* to improve environmental assessment processes with other jurisdictions and with federal departments and agencies. The Agency has also participated in negotiations pertaining to international issues such as the following: the Canada, United States and Mexico trilateral agreement on transboundary environmental impact assessment, the administrative agreement to facilitate the implementation of obligations under the Espoo Convention, and ratification of the Madrid Protocol to the Antarctic Treaty. Environmental assessments are also intended to assist with factoring environmental considerations into the negotiation of trade agreements. They are to be applied to current and any future trade liberalizing negotiations involving the World Trade Organization (WTO) and the Free Trade Area of the Americas (FTAA), as well as to bilateral Free Trade Agreements (FTAs). Canada participates in international discussions on the environmental assessment of trade policy with those agencies and also with the Organization for Economic Cooperation and Development (OECD), and the North American Commission for Environmental Cooperation (NACEC).

The federal government has stated its commitment to actively promote sustainable development in the international sphere. To this end, Canada is a signatory to several international bilateral and multilateral transboundary agreements that involve environmental assessment provisions.

In addition, the government of Canada is involved in numerous regional organizations and in the implementation of bilateral, regional and/or multilateral agreements on activities which could significantly affect biological diversity within and outside Canada's jurisdiction, including:

- The Commission for Environmental Cooperation(CEC)
- The Inter-American Institute for Global Change Research
- The International Joint Commission (IJC)
- Health and Environment Ministers of the Americas (HEMA)
- The Organization of American States (OAS)

Canada is also a party to many multilateral organizations that are implementing agreements on activities pertaining to the environment, ranging from the Canada-US Gulf of Maine Council on the Marine Environment to the G-8 and the Organization for Economic Cooperation and Development (OCDE).

The Agency plans to continue to pursue bilateral harmonization agreements with provinces in the context of the recently signed Canadian Council of Ministers of the Environment (CCME) multilateral agreement on environmental

assessment harmonization, with the intention of improving the effectiveness and efficiency of environmental assessment and to develop the full potential of international links and agreements. The majority of efforts will be concentrated on ratifying and implementing various transboundary environmental assessment agreements, such as the UNECE *Convention on Environmental Impact Assessment in a Transboundary Context*, and a binding agreement under the *North American Agreement on Environmental Cooperation.*

104. ? On Article 14.1(d), has your country put mechanisms in place to prevent or minimize danger or damage originating in your territory to biological diversity in the territory of other Parties or in areas beyond the limits of national jurisdiction?	
a) No	
b) No, mechanisms are still in early stages of development	
c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place based on current scientific knowledge	X

105. ? On Article 14.1(e), has your country established national mechanisms for emergency response to activities or events which present a grave and imminent danger to biological diversity?	
a) No	
b) No, mechanisms are still in early stages of development	
c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place (please provide details below)	X

Further information on national mechanisms for emergency response to the activities or events which present a grave and imminent danger to biodiversity.

The Environmental Emergencies Program of Environment Canada (http://www.ec.gc.ca/ee-ue/whats_new/whats_new_e.asp) works to reduce the frequency, severity and consequences of environmental emergencies by: promoting prevention and preparedness for environmental emergencies; providing response and recovery advice; and advancing emergency science and technology. The mandate of the Environmental Emergencies Program mandate is derived from a variety of federal legislations and policies, including the Fisheries Act, the Canadian Environmental Protection Act, and the Migratory Birds Convention Act.

Environment Canada's mandate under the *Canadian Environmental Protection Act* and the *Fisheries Act* sets out its coordinating role and responsibility in the area of environmental emergencies. This means Environment Canada works in partnership with other departments in the Government of Canada in prevention, preparedness and response to emergencies that affect the environment, as well as in the recovery from those emergencies.

106. Is your country applying the Guidelines for Incorporating Biodiversity-related Issues into Environment-Impact-Assessment Legislation or Processes and in Strategic Impact Assessment as contained in the annex to decision VI/7 in the context of the implementation of paragraph 1 of Article 14? (decision VI/7)

a) No	
b) No, but application of the guidelines under consideration	
c) Yes, some aspects being applied (please specify below)	
d) Yes, major aspects being applied (please specify below)	X

Further comments on application of the guidelines.

As part of this commitment, and in keeping with the *1999 Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*, Canada will conduct Strategic Environmental Assessments of trade negotiations. This framework establishes the process and analytical requirements for conducting such assessments. The government of Canada has developed *An Analytical Framework to Conduct an Environmental Assessment of Trade Negotiations* to mitigate the negative impact of free trade on the environment and its biological components.

107. On Article 14 (2), has your country put in place national legislative, administrative or policy measures regarding liability and redress for damage to biological diversity? (decision VI/11)

a) No	
b) Yes (please specify the measures)	X

Further comments on national legislative, administrative or policy measures regarding liability and redress for damage to biological diversity.

In broad terms, there are four key steps to environmental assessment: describe the project in detail; evaluate the negative environmental effects; determine ways to eliminate or reduce the negative effects on the environment; and find the best solution possible for the Canadian public, the environment and industry. The specific steps in the process can vary depending upon the scope of the project, the anticipated level of the impact on the environment and several of other factors.

The Canadian federal environmental assessment process is applied whenever a federal authority has a specified decision-making responsibility in relation to a project, also known as a “trigger” for an environmental assessment.

There are four types of federal environmental assessments: screenings (including class screenings); comprehensive studies; mediations; and review panels. These four types fall under two categories: self-directed assessments and independent assessments. The four types of environmental assessment are not mutually exclusive, as some projects may undergo more than one type of environmental assessment.

The majority of projects subject to a federal environmental assessment (approximately 99 per cent) requiring an environmental assessment will undergo either a screening or a comprehensive study. These types of environmental assessment fall under the "self-directed" category given that the responsible authority is required to ensure that the assessment is carried out in compliance with the Act. The other two types, mediation and

assessment by a review panel, fall under the independent assessment category. They are "independent" because mediators and panels are appointed by the Minister of the Environment to conduct an assessment independent of government.

The Canadian Environmental Assessment Agency does not conduct the assessments. It provides support such as training and guidance, funding for public participation and recommendations during the environmental assessment process.

108. Has your country put in place any measures to prevent damage to biological diversity?	
a) No	
b) No, but some measures are being developed	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further information on the measures in place to prevent damage to biological diversity.

The *Canadian Environmental Assessment Act* and its regulations are the legislative basis for the federal practice of environmental assessment. The Act:

- ensures that the environmental effects of projects are carefully reviewed before federal authorities take action in connection with them so that projects do not cause significant adverse environmental effects;
- encourages federal authorities to take actions that promote sustainable development;
- promotes cooperation and coordinated action between federal and provincial governments on environmental assessments;
- promotes communication and cooperation between federal authorities and Aboriginal peoples;
- ensures that development in Canada or on federal lands does not cause significant adverse environmental effects in areas surrounding the project; and
- ensures that there is an opportunity for public participation in the environmental assessment process.

Regulations help to put the Act's procedures into effect and to clarify under what circumstances an environmental assessment is required.

Numerous other measures are also in place to prevent damage to the biological diversity of Canada. The national park system, for example, is a country-wide system of representative natural areas of Canadian significance. By law, they are protected for public understanding, appreciation and enjoyment, while being maintained in an unimpaired state for future generations. Parks Canada is responsible for both protecting the ecosystems of these magnificent natural areas and managing them for visitors to understand, appreciate, and enjoy in a way that doesn't compromise their integrity. Canada has also created a variety of other types of protected areas, including Ramsar conservation sites, Marine Wildlife Areas, National Wildlife Areas, and Migratory Bird Sanctuaries.

The Habitat Conservation Program of Environment Canada’s Canadian Wildlife

Service (CWS), through the application of a mix of policy and programs for protected areas, sensitive habitats conservation, communications, and environmental impact assessment, advances the objectives of CWS to conserve, protect, and rehabilitate habitats of significance to migratory birds and species at risk in Canada.

Since 1995, Environment Canada's Ecological Gifts Program has enabled individual and corporate landowners to donate ecologically-sensitive land to an environmental charity or government body. An "ecogift" can be a donation of land or a partial interest in land in order to protect Canada's biodiversity and environmental heritage. The Ecological Gifts Program is administered by Environment Canada in cooperation with federal, provincial, and municipal governments, and non-governmental partners.

Many legislative Acts, including the Canada Wildlife Act, the Migratory Bird Conservation Act, the Species at Risk Act, also prohibit activities that could be harmful to species and to their habitat.

109. Is your country cooperating with other Parties to strengthen capacities at the national level for the prevention of damage to biodiversity, establishment and implementation of national legislative regimes, policy and administrative measures on liability and redress? (decision VI/11)

a) No	
b) No, but cooperation is under consideration	
c) No, but cooperative programmes are under development	
d) Yes, some cooperative activities being undertaken (please provide details below)	X
e) Yes, comprehensive cooperative activities being undertaken (please provide details below)	

Further comments on cooperation with other Parties to strengthen capacities for the prevention of damage to biodiversity.

International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants

The Canadian Museum of Nature is host to the IUCN Medicinal Plant Specialist Group (MPSG) Secretariat. In August 2004, the MPSG began work on drafting international standards and criteria for the sustainable wild collection of medicinal and aromatic plants, through an IUCN-Canada project funded by the German Federal Agency for Nature Conservation (BfN) and undertaken in collaboration with WWF Germany. A consultation on a first draft by an international advisory group was convened by BfN in Vilm, Germany, in December 2004. Preparation of a second draft is currently underway, and a broader consultation and testing process will be undertaken throughout 2005.

Box LIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 15 - Access to genetic resources

110. ? Has your country endeavored to facilitate access to genetic resources for environmentally sound uses by other Parties, on the basis of prior informed consent and mutually agreed terms, in accordance with paragraphs 2, 4 and 5 of Article 15?	
a) No	
b) Yes (please provide details below)	X
Further information on the efforts taken by your country to facilitate access to genetic resources for environmentally sound uses by other Parties, on the basis of prior informed consent and mutually agreed terms.	

In Canada, access to genetic resources is governed by existing law, in particular property laws (including intellectual property statutes), laws governing crown land, laws governing access and use of biological resources in national and provincial parks etc., and policies governing access to material kept in ex-situ genebank collections. Canada does not have a single piece of national access legislation per se. Generally, national policy governing access to genetic resources is more developed for ex-situ than in-situ genetic resources.
In general, access to in-situ genetic resources falls under laws governing land tenure. Approximately, 11% of land in Canada is privately owned, 48% is provincial crown land and 41% is federal crown land. Thus, the majority of crown land in Canada falls under provincial jurisdiction. Access to and use of crown land is regulated under both provincial and federal laws. In partnership with the provincial and territorial governments, the federal government has initiated a national policy dialogue has begun that is engaging key sectors and actors in order to adequately capture all relevant interests and concerns nationwide.

Many aboriginal communities participate actively in decision-making processes involving issues such as sustainable or customary use and regional development. Aboriginal governments may have jurisdiction over natural resources on the land as set out in a comprehensive claim agreement or self-government agreement.

Several federal departments and agencies are responsible for administering crown lands and most have developed policies that may affect the protection of and access to in-situ genetic resources. Environment Canada is working with several, including Parks Canada and the Canadian Forest Service, to find ways to incorporate ABS principles into their management systems.

Many sectors of the Canadian economy are dependent upon the use of genetic resources, as defined by the CBD, ranging from textiles and pulpwood/lumber to chemical and other manufacturing industries, and even to ornamental horticulture and landscaping. Environment Canada, in tandem with the Canadian Biotechnology Secretariat, has made some preliminary steps to engage with the biotechnology sectors.

Canada has established a national focal point on ABS within the Biodiversity Convention Office of Environment Canada.

111. ? Has your country taken measures to ensure that any scientific research based on genetic resources provided by other Parties is developed and carried out with the full participation of such Parties, in accordance with Article 15(6)?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to ensure that any scientific research based on genetic resources provided by other Contracting Parties is developed and carried out with the full participation of such Contracting Parties.

A workshop was held in Ottawa in December 2004 with key members of the scientific community involved in research using genetic resources. As a follow on, Environment Canada is reviewing how genetic resources are governed across the scientific and technological sector (Codes of Practice, Material Transfer Agreements, etc) with a view to supporting the development of a common approach to ABS across the scientific community.

112. Has your country taken measures to ensure the fair and equitable sharing of the results of research and development and of the benefits arising from the commercial and other use of genetic resources with any Contracting Party providing such resources, in accordance with Article 15(7)?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive legislation is in place (please provide details below)	
e) Yes, comprehensive statutory policy or subsidiary legislation are in place (please provide details below)	
f) Yes, comprehensive policy and administrative measures are in place (please provide details below)	

Further information on the type of measures taken.

Some institutions (such as the Jardin Botanique de Montréal and the University of British Columbia) have voluntarily signed agreements with Parties providing genetic resources that provide for sharing of revenues and research information.

113. In developing national measures to address access to genetic resources and benefit-sharing, has your country taken into account the multilateral system of access and benefit-sharing set out in the International Treaty on Plant Genetic Resources for Food and Agriculture?	
a) No	
b) Yes (please provide details below)	X

Further information on national measures taken which consider the multilateral system of access and benefit-sharing as set out in the International Treaty on Plant Genetic Resources for Food and Agriculture.

National authority has been established for granting access to federal ex-situ agriculture collections.

114. Is your country using the Bonn Guidelines when developing and drafting legislative, administrative or policy measures on access and benefit-sharing and/or when negotiating contracts and other arrangements under mutually agreed terms for access and benefit-sharing? (decision VII/19A)	
a) No	
b) No, but steps being taken to do so (please provide details below)	
c) Yes (please provide details below)	X

Please provide details and specify successes and constraints in the implementation of the Bonn Guidelines.

The Bonn Guidelines have been used as a basis to engage with aboriginal people and key stakeholders. Copies have been handed out at several ABS workshops conducted in the process. The principles contained in the Bonn Guidelines have served as points of reference in domestic ABS policy development discussions.

115. Has your country adopted national policies or measures, including legislation, which address the role of intellectual property rights in access and benefit-sharing arrangements (i.e. the issue of disclosure of origin/source/legal provenance of genetic resources in applications for intellectual property rights where the subject matter of the application concerns, or makes use of, genetic resources in its development)?	
a) No	
b) No, but potential policies or measures have been identified (please specify below)	X
c) No, but relevant policies or measures are under development (please specify below)	
d) Yes, some policies or measures are in place (please specify below)	
e) Yes, comprehensive policies or measures adopted (please specify below)	

Further information on policies or measures that address the role of IPR in access and benefit-sharing arrangements.

Canada is in the process of assessing the connection between intellectual property rights and benefit-sharing in order to determine whether any changes in domestic policy or legislation are necessary.

116. Has your country been involved in capacity-building activities related to access and benefit-sharing?	
a) Yes (please provide details below)	X
b) No	

Please provide further information on capacity-building activities (your involvement as donor or recipient, key actors involved, target audience, time period, goals and objectives of the capacity-building activities, main capacity-building areas covered, nature of activities). Please also specify whether these activities took into account the Action Plan on capacity-building for access and benefit-sharing adopted at COP VII and available in annex to decision VII/19F.

Canada has held a number of workshops that have enhanced awareness of the Bonn Guidelines and issues associated with the implementation of ABS systems at the national level, including:

- a joint Canada-Mexico International Experts Workshop on Access and Benefit-Sharing, Cuernavaca, Mexico, October 24-27, 2004
- a Science and ABS Workshop, Ottawa, December 1-2, 2004
- a Northern Workshop on ABS, Whitehorse, Yukon Territory, March 15-17,2005; this workshop was jointly organized with the Arctic Athabaskan Council and the Inuit Circumpolar Conference

Box LIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 16 - Access to and transfer of technology

117. ? On Article 16(1), has your country taken measures to provide or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	X

Further information on the measures to provide or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment.

The Canadian Biodiversity Information Network (CBIN) is Canada's node in the international Clearing-House Mechanism of the CBD. CBIN, which is coordinated and maintained by the Biodiversity Convention Office of Environment Canada, brings together seekers and providers of information and provides efficient access to biodiversity-related material from academia, industry, non-governmental organizations and governments.

The International Development Research Centre (IDRC) focuses on strengthening and supporting the development of local solutions for the sustainable use of biodiversity. IDRC, working in partnership with the Crucible Group, has produced documents such as *Seeding Solutions: Policy Options for Genetic Resources – People, Plants and Patents Revisited*. (The Crucible Group is a multi-national, multi-stakeholder gathering of experts to examine questions of genetic resources control and management. In its first report, *People, Plants and Patents: The impact of intellectual property on trade, plant biodiversity and rural society* (1994), the Group identified 28 recommendations they felt able to offer collectively to policy- and decision-makers. A second publication, *Seeding Solutions: Policy options for genetic resources – Plants, people and patents revisited* (2000), provided another set of recommendations from a wider variety of Group participants. IDRC has played a critical role in the work of the Group.)

Environment Canada’s Environmental Technology Advancement Directorate (ETAD) plays an important role in developing and supporting Environment Canada’s international priorities. ETAD develops and applies science and technology for environmental protection in Canada and around the world.

Generally, technology transfer is a very broad subject and is tackled on a

sector-specific basis. The department of Natural Resources Canada, for example, as with most federal government departments, has no specific technology transfer plan for work associated with biodiversity, but rather a general technology transfer policy: make the work that is performed by the Department as widely available as is possible and reasonable.

118. ? On Article 16(3), has your country taken measures so that Parties which provide genetic resources are provided access to and transfer of technology which make use of those resources, on mutually agreed terms?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	X
d) Yes, comprehensive legislation is in place	
e) Yes, comprehensive statutory policy or subsidiary legislation are in place	
f) Yes, comprehensive policy and administrative arrangements are in place	
g) Not applicable	

In Canada, access to genetic resources is governed by existing law, in particular property laws (including intellectual property statutes), laws governing crown land, laws governing access and use of biological resources in national and provincial parks, and policies governing access to material kept in ex-situ genebank collections. Canada does not have a single piece of national access legislation per se. Generally, national policy governing access to genetic resources is more developed for ex-situ than in-situ genetic resources.

In general, access to in-situ genetic resources falls under laws governing land tenure. Approximately, 11% of land in Canada is privately owned, 48% is provincial crown land and 41% is federal crown land. Thus, the majority of crown land in Canada falls under provincial jurisdiction. Access to and use of crown land is regulated under both provincial and federal laws. In partnership with the provincial and territorial governments, the federal government has initiated a national policy dialogue has begun that is engaging key sectors and actors in order to adequately capture all relevant interests and concerns nationwide.

Canada is in the process of assessing the connection between intellectual property rights and benefit-sharing in order to determine whether any changes in domestic policy or legislation are necessary.

Many aboriginal communities participate actively in decision-making processes involving issues such as sustainable or customary use and regional development. Aboriginal governments may have jurisdiction over natural resources on the land as set out in a comprehensive claim agreement or self-government agreement. The Bonn Guidelines have been used as a basis to engage with aboriginal people and key stakeholders. Copies have been handed out at several ABS workshops conducted in the process. The principles contained in the Bonn Guidelines have served as points of reference in domestic ABS policy development discussions. Canada has also held a number of workshops that have enhanced awareness of the Bonn Guidelines and issues associated with the implementation of ABS systems at the national level, including a joint Canada-Mexico International Experts Workshop on Access and Benefit-Sharing, Cuernavaca, Mexico, October 24-27, 2004, a Science and ABS Workshop, Ottawa, December 1-2, 2004, and a Northern Workshop on ABS, Whitehorse, Yukon Territory, March 15-17, 2005; this workshop was jointly organized with the Arctic Athabaskan Council and the Inuit Circumpolar Conference.

Canada has established a national focal point on ABS within the Biodiversity Convention Office of Environment Canada.

Some institutions (such as the Jardin Botanique de Montréal and the University of British Columbia) have voluntarily signed agreements with Parties providing genetic resources that provide for sharing of revenues and research information.

119. ? On Article 16(4), has your country taken measures so that the private sector facilitates access to joint development and transfer of relevant technology for the benefit of Government institutions and the private sector of developing countries?	
a) No	
b) No, but potential measures are under review	X
c) Yes, some policies and measures are in place (please provide details below)	
d) Yes, comprehensive policies and measures are in place (please provide details below)	
e) Not applicable	

Further information on the measures taken.

One of the principle Canadian International Development Agency (CIDA) initiatives is the Industrial Co-operation Division (CIDA-INC). CIDA-INC helps firms defray costs unique for doing business in the Asia-Pacific, Africa, Middle East and the Americas regions. It provides such assistance to Canadian firms that wish to build long-term business partnerships in order to promote and support sustainable socio-economic development. CIDA-INC also works to help reduce the risks of firms participating in such business activities with a view to supporting specific elements of investment projects in the area of training, social development, the participation of women and a clean environment. These activities aim to strengthen the knowledge, practical skills and technical know-how of local populations of developing countries.

Environment Canada's Technology Advancement Directorate (ETAD) partners, at home and abroad, with the private sector, other government departments, the provinces, territories, municipalities, academia, and associations. ETAD continuously strives to engage the public and private sectors in developing, transferring and implementing solutions for environmental protection.

Box LV.

Please elaborate below on the implementation of this article specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Programme of Work on transfer of technology and technology cooperation

120. Has your country provided financial and technical support and training to assist in the implementation of the programme of work on transfer of technology and technology cooperation? (decision VII/29)

a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes being implemented (please provide details below)	X
d) Yes, comprehensive programmes being implemented (please provide details below)	

Further comments on the provision of financial and technical support and training to assist in the implementation of the programme of work on transfer of technology and technology cooperation.

Canada has some systems and incentives in place to facilitate cooperation between research institutions and the private sector and developing countries, and supports this type of work through its bilateral aid programme, administered by the Canadian International Development Agency (CIDA). One of the principal CIDA initiatives is the Industrial Co-operation Division (CIDA-INC), which helps firms defray costs unique for doing business in the Asia-Pacific, Africa, Middle East and the Americas regions. It provides such assistance to Canadian firms that wish to build long-term business partnerships in order to promote and support sustainable socio-economic development. CIDA-INC also works to help reduce the risks of firms participating in such business activities with a view to supporting specific elements of investment projects in the area of training, social development, the participation of women and a clean environment. These activities aim to strengthen the knowledge, practical skills and technical know-how of local populations of developing country Members and LDCs.

Federal Partners in Technology Transfer (FPTT) work to ensure the strategic management of intellectual property in the federal government, and to facilitate all stages of the technology transfer process by bringing together regional, national, and international stakeholders in Canada’s innovation system and providing information, contacts and advice from technology transfer experts worldwide. The FTTP membership consists of 16 federal science-based departments and agencies, with over 250 technology transfer professionals employed in more than 110 federal laboratories across Canada.

Environment Canada has developed the following rationale to determine its strategic direction for international activities: 1) protect Canadians and Canadian ecosystems from direct foreign environmental threats; 2) engage where the environmental threat from other countries is less direct to Canadians and Canadian ecosystems or where the mandate is not principally EC's; and 3) support Canada's broader economic and foreign policy agenda, including the demonstration and transfer of environmental technology and know-how internationally, greening government in other countries as well as capacity building.

121. Is your country taking any measures to remove unnecessary impediments to funding of multi-country initiatives for technology transfer and for scientific and technical cooperation? (decision VII/29)

a) No	
b) No, but some measures being considered	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures to remove unnecessary impediments to funding of multi-country initiatives for technology transfer and for scientific and technical cooperation.

Industry Canada, for example, sponsors several programmes for the transfer of technology by Canadian institutions and enterprises to developing countries. This work aims to improve the domestic and international investment climate by spurring companies, including those based in developing countries, to make their products and services export-ready. It also supports international collaboration for Canadian research institutions in the emerging high-growth areas of electronic commerce, genomics, environmental technologies and advanced engineering.

A Memoranda of Understanding (MOU) is a non-binding statement of intent to cooperate which provides a framework under which Canada and another country can cooperate on environmental activities that address mutual priorities and produce benefits. An MOU helps to achieve Canada's international environmental objectives by providing other countries with Canadian solutions, technologies and expertise to address environmental problems, while also providing a vehicle for state-of-the-art Canadian environmental technology and service providers to meet the environmental needs of target countries. This leads to positive effects on the environment in the recipient country, addresses environmental issues of particular concern to Canada, and creates economic benefits at home. ETAD is the Canadian lead for MOUs with Argentina, Uruguay, and Taiwan, and a partner in MOUs and bilateral agreements with Chile, China, Mexico, Brazil, Cuba, Colombia, India, and Pakistan.

Strengthening Environmental Institutions in India

This bilateral collaborative project from ETAD uses Environment Canada’s expertise to strengthen institutional capacity in India to address environmental issues of national and global concern while promoting sustainable development.

India Centre of Excellence/International Advisory Panel on Environmental Science, Policy and Technology (design phase): This project (also from ETAD) strengthens India's capacities to address science, policy and technology aspects of global, transboundary, and national environmental issues, as well as fostering enhanced cooperation and dialogue on environmental issues between India and Canada.

Cooperation for Capacity Building with the Pakistan Environmental Protection Agency (PEPA)

This project focuses on sharing information and transferring knowledge and skills in environmental laboratory accreditation, oil spill prevention, and remediation, environmental technology verification, hazardous products

handling, and air quality monitoring and control.

122. Has your country made any technology assessments addressing technology needs, opportunities and barriers in relevant sectors as well as related needs in capacity building? (annex to decision VII/29)	
a) No	
b) No, but assessments are under way	
c) Yes, basic assessments undertaken (please provide details below)	X
d) Yes, thorough assessments undertaken (please provide details below)	

Further comments on technology assessments addressing technology needs, opportunities and barriers in relevant sectors as well as related needs in capacity building.
International Capacity Building and Technology Transfer involves developing, supporting, and transferring science and technology to build the capacity and potential of partnering institutions to address environmental protection issues. ETAD plays a leadership role in supporting and developing Environment Canada's international priorities, particularly with respect to demonstrating and transferring environmental technology and know-how internationally, greening government in other countries, and capacity building.

123. Has your country made any assessments and risk analysis of the potential benefits, risks and associated costs with the introduction of new technologies? (annex to decision VII/29)	
a) No	
b) No, but assessments are under way	
c) Yes, some assessments undertaken (please provide details below)	X
d) Yes, comprehensive assessments undertaken (please provide details below)	

Further comments on the assessments and risk analysis of the potential benefits, risks and associated costs with the introduction of new technologies.
Technology Transfer in Canada is tackled on a sector-specific basis. Although many Government Departments execute programmes dealing with the transfer of environmentally sound technologies, there is no over-arching programme for technology transfer for the Government of Canada - it occurs on an as needed basis, and is usually specific to a particular programme. See Canada's *Thematic Report on Transfer of Technology and Technology Cooperation* (http://www.biodiv.org/doc/world/ca/ca-nr-stc-en.doc) for details.

124. Has your country identified and implemented any measures to develop or strengthen appropriate information systems for technology transfer and cooperation, including assessing capacity building needs? (annex to decision VII/29)	
a) No	
b) No, but some programmes are under development	
c) Yes, some programmes are in place and being implemented (please provide details below)	X
d) Yes, comprehensive programmes are being implemented (please	

provide details below)	

Further comments on measures to develop or strengthen appropriate information systems for technology transfer and cooperation.

For example, Industry Canada sponsors several programmes for the transfer of technology by Canadian institutions and enterprises to developing countries. This work aims to improve the domestic and international investment climate in order to create incentives to global markets, including those of developing countries, by spurring companies to make their products and services export-ready. It also supports international collaboration for Canadian research institutions in emerging high-growth areas of electronic commerce, genomics, environmental technologies and advanced engineering.

For further information, see Canada's *Thematic Report on Transfer of Technology and Technology Cooperation* (http://www.biodiv.org/doc/world/ca/ca-nr-stc-en.doc).

125. Has your country taken any of the measures specified under Target 3.2 of the programme of work as a preparatory phase to the development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation as well as access to and adaptation of technologies of relevance to the Convention? (annex to decision VII/29)

a)	No	
b)	No, but a few measures being considered	
c)	Yes, some measures taken (please specify below)	X
d)	Yes, many measures taken (please specify below)	

Further comments on the measures taken as a preparatory phase to the development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation as well as access to and adaptation of technologies of relevance to the Convention.

The **Canadian Biodiversity Information Network (CBIN)** - Canada's node in the international Clearing-House Mechanism of the CBD, a website which is coordinated and maintained by the Biodiversity Convention Office of Environment Canada - brings together seekers and providers of information and provides efficient access to biodiversity-related material from academia, industry, non-governmental organizations and governments.

Box LVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Article 17 - Exchange of information

126. On Article 17(1), has your country taken measures to facilitate the exchange of information from publicly available sources with a view to assist with the implementation of the Convention and promote technical and scientific cooperation?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	
d) Yes, comprehensive measures are in place	X

The following question (127) is for DEVELOPED COUNTRIES

127. On Article 17(1), do these measures take into account the special needs of developing countries and include the categories of information listed in Article 17(2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on?	
a) No	
b) Yes, but they do not include the categories of information listed in Article 17(2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on	X
c) Yes, and they include categories of information listed in Article 17 (2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on	

Box LVII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
While more work is still required, progress is being made in enhancing data and information management across Canada. Conservation Data Centres (CDCs) are collecting and disseminating data, and are working with NatureServe (http://www.abi.org and http://www.natureserve.org) to develop and manage critical information on biodiversity. NatureServe Canada and the CDCs have a mission to provide information on the distribution, abundance, and conservation needs of rare species and natural communities. Their role took on added importance with the signing of the *National Accord for the Protection of Species at Risk* in 1996 and the federal Species at Risk Act in 2002. By 2003, the annual investment in the network of CDCs across Canada, mostly by provincial governments, was over $5 million. At the federal level, attention has focused on issues related to taxonomy (or biosystematics) - the science of discovering, describing, and classifying species. In 1993, three agencies with major specimen-based collections (Agriculture and Agri-Food Canada, Natural Resources Canada - Canadian Forest

Service, and Canadian Museum of Nature) formed a Federal Biosystematics Partnership (FBP). Four other federal agencies (Environment Canada, Fisheries and Oceans, Parks Canada, and the Canadian Food Inspection Agency) subsequently joined the partnership. The FBP held a major national conference in 2001 which brought biodiversity information networking issues to a much wider audience.

In 2003, the FBP's name was changed to the Federal Biodiversity Information Partnership (FBIP) in recognition of the Partnership's broader role in facilitating a coordinated federal approach to biodiversity information management, and in meeting Canada's commitments to the Global Biodiversity Information Facility (see below).

A task force was established in 2000 to start the process of developing the Canadian Information System for the Environment (CISE). CISE is aimed at providing easy and timely access to information so that governments and citizens can make responsible and informed decisions affecting the environment. When CISE is fully implemented, biodiversity information will be one of its three key components, along with information on air and water.

"Building a foundation of biodiversity science and information" was identified by Canada's ministers of fisheries, forests, and wildlife in 2001 as a priority for action under the Canadian Biodiversity Strategy (CBS). In 2002, ministers agreed on a set of twelve guiding principles for biological information management. Key principles are to make data freely available, and to build an inclusive network by connecting databases where they reside, rather than creating a central data warehouse. In 2003, ministers formalized a federal-provincial-territorial information coordinating mechanism as a partnership between the FBIP, NatureServe Canada, and the Federal-Provincial-Territorial Biodiversity Working Group that oversees implementation of the CBS. Ministers also approved a draft Biodiversity Science Agenda as a basis for setting priorities across the full range of biodiversity science topics (including, but not limited to biosystematics, biodiversity and climate change, invasive species, biodiversity and human health, and valuation of ecosystem services).

Canada is also a signatory to the Global Biodiversity Information Facility (GBIF) which requires member countries to make appropriate investments in biodiversity information infrastructure and promote global access to biodiversity data. As of late 2003, the CBIF web site (http://www.cbif.gc.ca/home_e.php) had provided on-line access to 1.5 million records of specimens housed in Canadian natural history collections.

Article 18 - Technical and scientific cooperation

128. ? On Article 18(1), has your country taken measures to promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to promote international technical and scientific cooperation.

There are several (mainly sector-specific) initiatives in Canada for international technical and scientific cooperation on biodiversity. For example, the North American Forest Commission (http://www.fs.fed.us/global/nafc/welcome.html) is a trilateral organization for which a primary objective is to identify and take advantage of opportunities for increasingly scientific and technical collaboration of a variety of forest biodiversity issues. Similarly, the Great Lakes Fisheries Commission (http://www.glfc.org/) is a partnership between Canada and the US with a major responsibility to develop coordinated programs of research on the Great Lakes and to recommend measures which will permit the maximum sustained productivity of stocks of fish of common concern. Other examples include the Trilateral Forestry Commission and the Northwest Atlantic Fisheries Organization (NAFO) (http://www.nafo.ca).

In 1997, the US and Canadian governments signed the *Framework for Cooperation between the US Department of the Interior and Environment Canada in the Protection and Recovery of Wild Species at Risk* (http://www.speciesatrisk.gc.ca/publications/cbs/default_e.cfm). The goal of the Framework is to protect species shared by Canada and the US. Under the framework, American and Canadian biologists share research, coordinate habitat protection, assist one another with on-the-ground species protection activities, and conduct joint reintroduction efforts.

CIDA has set an environmental mandate to help developing countries protect their environment and contribute to addressing global and regional environmental issues.

The International Development and Research Centre (IDRC) of Canada is a public corporation created in 1970 to help developing countries find long-term solutions to the social, economic and environmental problems they face. IDRC assists scientists in developing countries to establish solutions to development problems, mobilizing research capacity and establishing links among developing-country researchers, and ensuring that products from the activities it supports are effectively used by communities in the developing world. IDRC has developed a specific research priority for protecting local management and control of biodiversity in light of global initiatives and policies governing genetic resources.

The IDRC Sustainable Use of Biodiversity program initiative (http://www.idrc.org.sg/en/ev-1248-201-1-DO_TOPIC.html) looks at ways to conserve biodiversity by promoting its sustainable use by indigenous and local communities. It emphasizes research approaches that are sensitive to gender issues and inclusive of indigenous knowledge and culture, and seeks ways to inform policies with these approaches. The initiative will support research that concentrates on:

- developing models for intellectual property and traditional resource rights to ensure equitable sharing of the benefits of biodiversity;
- promoting Indigenous and local knowledge of biodiversity and the institutions needed to protect and use this knowledge;
- involving communities in the development and conservation of agricultural and aquatic biodiversity and supporting the development of incentives, methods, and policy options for *in situ* or on-farm conservation; and
- supporting income-generating strategies and incentives for the sustainable use of the products of biodiversity, especially medicinal plants and non-timber forest products.

Examples of projects undertaken to date include assessing the role of uncultivated foods in Bangladesh, conserving traditional agricultural diversity in India, studying the role of indigenous seeds in Africa's food security, and creating ecologically based businesses for the Maya Biosphere Reserve. More information is available on the SUB from IDRC: www.idrc.ca.

Inter-American Institute (IAI) for Global Change Research

The IAI (http://www.iai.int and http://www.ec.gc.ca/international/regorgs/iai_e.htm) is an intergovernmental organization supported by 19 countries in the Americas, including Canada, dedicated to fostering an increased understanding of global change phenomena and their socio-economic consequences on the Americas. The goal of the IAI is to augment the scientific capacity of the region and to provide information in a useful and timely manner to policy makers. Its primary objective is to encourage research beyond the scope of national programs by advancing comparative and focused studies based on scientific issues important to the region as a whole. One focus for research initiatives of IAI is biodiversity, including the recent development of scenarios of global biodiversity for the year 2100.

5NR Working Group

In 1995, the five federal departments dealing with natural resources – Agriculture and Agri-Food Canada, Environment Canada, Health Canada, Department of Fisheries and Oceans and Natural Resources Canada – banded together to encourage the use of science and technology for sustainable development. The Working Group, known as the 5NR (www.durable.gc.ca), also collaborates with private industry, provincial and municipal governments, foreign agencies and grassroots groups to collect data, test solutions, and share knowledge and information. The collective focus on the member departments includes efforts to protect the long-term health and diversity of all species and the wise management and conservation of renewable resources.

Clearing House Mechanism

The approach that Canada will take as with many other national focal points, will be to implement decision V/14 in the context of the Strategic Plan for the Clearing-House Mechanism which was adopted at the Fifth Conference of the Parties. Subsequent implementation of the Strategic Plan will result in the implementation of decision V/14.

The mission of the Canadian Biodiversity Information Network (CBIN) website (http://www.cbin.ec.gc.ca/default_e.cfm) is to act as a gateway to information sources aimed at enhancing the understanding, conservation and sustainable use of biodiversity in Canada.

CBIN Objectives:

- Provide access to information on the implementation of, and activities related to, the United Nations Convention on Biological Diversity.

- Provide access to information on the implementation of, and activities related to, the Canadian Biodiversity Strategy.
- Provide a gateway to biodiversity information held by others, including scientific databases and ecological assessments.
- Provide an opportunity for consultation and dialogue on issues related to the United Nations Convention on Biological Diversity and the Canadian Biodiversity Strategy

Provide access to a wide range of Canadian institutions, organizations, groups and individuals with an interest or expertise in biodiversity conservation and sustainable use.

129. ? On Article 18(4), has your country encouraged and developed methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention?

a) No	
b) No, but relevant methods are under development	
d) Yes, methods are in place	X

130. ? On Article 18(5), has your country promoted the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention?

a) No	
b) Yes (please provide some examples below)	X

Examples for the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention.

Canada has, for example, promoted the International Model Forest Network (IMFN) (http://network.idrc.ca/en/ev-22891-201-1-DO_TOPIC.html). The IMFN came into being in 1992 as an outgrowth of the successful Canadian Model Forest Network (http://www.modelforest.net), and is designed to strengthen the management of forests on a sustainable basis.

The North American Agreement on Environmental Cooperation (NAAEC) was signed by Canada, Mexico and the United States and came into force in January 1994. The Agreement creates a framework to better conserve, protect and enhance the North American environment through cooperation and effective enforcement of environmental laws.

The **Commission for Environmental Cooperation (CEC)**, created under the NAAEC, has joint programs in environment, economy and trade (e.g. maize and biodiversity, electricity and the environment, etc.); the conservation of biodiversity; pollutants and health (e.g. Continental Pollutant Pathways, and An Agenda for Cooperation to Address Long-Range Transport of Air Pollution in North America); and law and policies. Experts are being linked to facilitate joint work programmes. For example, the CEC works with the Global Invasive Species Programme (GISP) and with the Convention's scientific body to develop a joint scientific initiative on invasive alien species.

Aware that biodiversity conservation is a complex issue being dealt with by a number of organizations, and in response to the recommendations made by the 1997 *"Four-year Review of the North American Agreement on Environmental Cooperation"* that required the CEC to have a strategic vision of its contribution to sustainable development in North America, the CEC Council decided that a biodiversity strategy tailored to CEC's unique features should be prepared. In 2001, the Biodiversity Conservation Working Group was established to guide and assist the CEC Parties in finalizing the *Strategic Plan for North American Cooperation in the Conservation of Biodiversity* (Strategic Plan) and to provide advice to the Council for its implementation. The Strategic Plan was released in 2003 and will be updated every five years.

The CEC Strategic Plan will help the three North American countries address conservation challenges jointly. The Strategic Plan provides the CEC Secretariat with a clear sense of direction, a long-term agenda, and the manner in which to catalyze cooperative conservation actions at the continental level. It serves as a guide for the Council, the Biodiversity Working Group, and the CEC Secretariat in their work with stakeholders in cooperatively defining and coordinating mutually beneficial biodiversity conservation in North America. The Strategic Plan will: foster an integrated continental perspective for cooperative conservation and sustainable use of biological resources; contribute to the maintenance of the ecological integrity of North American eco-regions; and promote biodiversity conservation capacity and cooperative cross-sectoral activities in the three countries that will contribute to the reduction and mitigation of threats to North American shared species and ecosystems.

131. Has your country established links to non-governmental organizations, private sector and other institutions holding important databases or undertaking significant work on biological diversity through the CHM? (decision V/14)	
a) No	
b) No, but coordination with relevant NGOs, private sector and other institutions under way	
c) Yes, links established with relevant NGOs, private sector and institutions	X

The following question (132) is for DEVELOPED COUNTRIES

132. Has your country further developed the CHM to assist developing countries and countries with economies in transition to gain access to information in the field of scientific and technical cooperation? (decision V/14)	
a) No	
b) Yes, by using funding opportunities	
c) Yes, by means of access to, and transfer of technology	
d) Yes, by using research cooperation facilities	
e) Yes, by using repatriation of information	X
f) Yes, by using training opportunities	
g) Yes, by using promotion of contacts with relevant institutions, organizations and the private sector	X
h) Yes, by using other means (please specify below)	

Further comments on CHM developments to assist developing countries and countries with economies in transition to gain access to information in the field of scientific and technical cooperation.

Canada is participating in the CBD Clearing-House mechanism by having established the Canadian Biodiversity Information Network (CBIN) website (http://www.cbin.ec.gc.ca/) to facilitate greater collaboration among countries through the provision of biodiversity-related materials and links. CBIN users can readily access summaries of issues being addressed under the CBD, case studies, national and thematic reports to the CBD and other biodiversity-related reports, and descriptions of and links to programmes such as the Global Taxonomy Initiative. Technical and scientific expertise is promoted through a roster of government-nominated experts in relevant fields, available through the CBIN database.

Of the global, CHM-related initiatives highlighted by the CBD on its website (http://www.biodiv.org/links/default.aspx?thm=chm&menu=chm), Canada is particularly involved in the following (this information is accessible in Canada's *Thematic Report on Transfer of Technology and Technology Cooperation* (http://www.biodiv.org/doc/world/ca/ca-nr-stc-en.pdf) to the CBD:

As part of the Multilateral Fund for the implementation of the Montreal Protocol, the **Environmental Technology Advancement Directorate of Environment Canada** (http://www.ec.gc.ca/etad/) transfers technology and expertise to phase out ozone-depleting substances in developing countries that are Parties to the Protocol.

Strengthening Environmental Institutions in India: This bilateral cooperative project uses Environment Canada's expertise to strengthen institutional capacity in India to address environmental issues of national and global concern while promoting sustainable development.

133. Has your country used CHM to make information available more useful for researchers and decision-makers? (decision V/14)

a) No	
b) No, but relevant initiatives under consideration	
c) Yes (please provide details below)	X

Further comments on development of relevant initiatives.

Canada is involved in numerous initiatives that have the objective of disseminating information to researchers in other countries. Information on and links to many of these initiatives are available through CBIN, Canada's node on the global CHM. Several are highlighted below.

Canada is participating in the Biodiversity Observations on the Internet (BIO) program through its Ecological Monitoring and Assessment Network (http://www.eman-rese.ca/eman/), which has developed a suite of core variables or indicators of environmental change that will streamline the process of detecting changes in our natural environment.

Canada joined the Global Biodiversity Information Facility (GBIF) in 2001. This interoperable network of biodiversity databases and information technology tools enables users to navigate and use the world's vast quantities of biodiversity information to produce national economic,

environmental and social benefits. The purpose of GBIF is to promote the compilation, linking, standardisation, digitisation and global dissemination of the world's biodiversity data, within an appropriate framework for property rights and due attribution.

As a GBIF member, Canada is exploring new ways to improve the organization, exchange, correlation, and availability of primary data on biological species of interest to Canadians. By enhancing access to these data, the Canadian Biodiversity Information Facility (CBIF) (http://www.cbif.gc.ca/) supports a wide range of social and economic decisions including efforts to conserve Canada's biodiversity in healthy ecosystems, use Canada's biological resources in sustainable ways, and monitor and control pests and disease. As of late 2003, the CBIF web site provided on-line access to 1.5 million records of specimens housed in Canadian natural history collections. CBIF has developed many tools to help find information, such as Species Access Canada, the Integrated Taxonomic Information System-Canada (ITIS-Canada), The Biological Observations, Specimens and Collections Gateway, and the SpeciesBank.

ITIS-Canada is a partnership of American, Canadian, and Mexican agencies, other organizations, and taxonomic specialists cooperating on the development of an on-line and scientifically credible list of biological names focusing on the biota of North America. ITIS is also a participating member of Species 2000, an international project indexing the world's known species.

Canada is part of NatureServe, a non-profit conservation organization that provides the scientific information and tools needed to help guide effective conservation action through an international network of biological inventories. NatureServe Canada (http://www.natureserve-canada.ca/) is a network of eight independent conservation data centres (CDCs), covering all ten provinces and the Yukon Territory, which provides scientific information about Canada's species and ecosystems to help guide effective conservation action and natural resource management. It also supports and strengthens member CDCs and develops new Canadian programs. NatureServe Canada and the CDCs provide information on the distribution, abundance, and conservation needs of rare species and natural communities. This role took on added importance with the signing of the *National Accord for the Protection of Species at Risk* in 1996 and the federal Species at Risk Act in 2002. NatureServe Canada works in close partnership with key federal and provincial agencies and international and multi-lateral initiatives concerned with environmental protection.

Canada's Environmental Technology Trade Missions: These missions are important vehicles for building capacity, at home and abroad, for sustainable development, a healthy environment and a prosperous economy by promoting Canadian environmental technologies and know-how in the global marketplace.

The **Environmental Technology Advancement Directorate (ETAD) of Environment Canada** (http://www.ec.gc.ca/etad/) is dedicated to sharing information aimed at developing and applying science and technology for environmental protection in Canada and around the world. ETAD forms partnerships, within Canada and abroad, with the private sector, government departments, jurisdictions, municipalities, academia and associations. The Directorate continuously strives to engage the public and private sectors in developing, transferring and implementing solutions for environmental protection.

134. Has your country developed, provided and shared services and tools to enhance and facilitate the implementation of the CHM and further improve synergies among biodiversity-related Conventions? (decision V/14)	
a) No	
b) Yes (please specify services and tools below)	X

Further comments on services and tools to enhance and facilitate the implementation of CHM and further improve synergies among biodiversity-related Conventions.
The Canadian Biodiversity Information Network provides efficient access, through a search icon, to biodiversity-related information from academia, industry, non-governmental organizations, and governments, on topics such as Canadian environmental activities, agreements, technologies, expertise and more. The Simple or Advanced Thematic Search gives quick access to information in the CBIN database categorized by "Articles of the Convention" or "Canadian Strategies".

Box LVIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 19 - Handling of biotechnology and distribution of its benefits

135. ? On Article 19(1), has your country taken measures to provide for the effective participation in biotechnological research activities by those Contracting Parties which provide the genetic resources for such research?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	X
d) Yes, comprehensive legislation are in place	
e) Yes, comprehensive statutory policy and subsidiary legislation are in place	
f) Yes, comprehensive policy and administrative measures are in place	

136. ? On Article 19(2), has your country taken all practicable measures to promote and advance priority access by Parties, on a fair and equitable basis, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Parties?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	X
d) Yes, comprehensive measures are in place	

Box LIX.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
Canada is currently undertaking an analysis of the regulatory and administrative changes that will be required in order to implement the Biosafety Protocol. A National Focal Point for the Cartagena Protocol has been established.

Article 20 – Financial resources

Box LX.

Please describe for each of the following items the quantity of financial resources, both internal and external, that have been utilized, received or provided, as applicable, to implement the Convention on Biological Diversity, on an annual basis, since your country became a Party to the Convention.	
a) Budgetary allocations by national and local Governments as well as different sectoral ministries	It should be noted that Canada has 13 provinces and territories and more than 6 federal departments with sustainable use-related budgets which impact biodiversity. The **Biodiversity Convention Office (BCO) of Environment Canada** coordinates Canadian involvement with the CBD by, internationally, ensuring that Canada plays an active role in efforts to implement the Convention, and, domestically, putting Convention commitments into the Canadian context and setting out a planning framework to guide the biodiversity-related actions of all Canadian federal departments and provincial/territorial jurisdictions. For 2005-2006, the total BCO budget was approximately $1.5 million, of which staff salaries made up close to 50%. The remaining funds were allocated into three broad categories: International Policy (including science, policy and planning, capacity building,

	SBSTTA, inter-sessional CBD, Indigenous, COP) – $312,000; Domestic (including science, policy and planning, information and reporting, Indigenous, federal/provincial/territorial, and outreach and communications) – $227,000; and Administration – $127,000. An additional $860,000 was spent on international and domestic activities and salaries related to work on Access and Benefit Sharing. Much higher amounts are allocated to biodiversity-relevant activities by Canadian government departments as a whole, including, among others, Environment Canada, Natural Resources Canada, Agriculture and Agri-food Canada, Fisheries and Oceans Canada, and Parks Canada. For example, from 1999-2005, the **Canadian International Development Agency (CIDA)** allocated approximately Cdn $104 million/year. (In answering this particular request, CIDA utilized the methodology laid out in the 1999 Report to the CBD Secretariat. In this report, to identify biodiversity-related programming for the period from 1995 to 1998, a search of CIDA's Corporate Memory Database was carried out using criteria based on a sub-set of CIDA's environmental program priority. CIDA's environmental program priority is to "help developing countries to protect their environment and to contribute to addressing global and regional environmental issues". This priority is divided into five environmental sub-priorities. Three sub-priorities – Environmental Conservation, Capacity Development in Environmental Management and Environmental Analysis and Assessment – best reflect activities that could support biodiversity conservation and sustainable use and were thus used as criteria for the Corporate Memory search from which the financial information was subsequently derived.
b) Extra-budgetary resources (identified by donor agencies)	
c) Bilateral channels (identified by donor agencies)	From 1999-2005, approximately Cdn $59 million/year (using the 95-98 methodology described above in section a).
d) Regional channels (identified by donor agencies)	
e) Multilateral channels (identified by donor agencies)	From 1999-2005, approximately Cdn $29 million/year (using the 95-98 methodology described above in section a).
f) Private sources (identified by donor agencies)	

g) Resources generated through financial instruments, such as charges for use of biodiversity	

Box LXI.

Please describe in detail below any major financing programmes, such as biodiversity trust funds or specific programmes that have been established in your country.

137. ? On Article 20(1), has your country provided financial support and incentives to those national activities that are intended to achieve the objectives of the Convention?	
a) No	
b) Yes, incentives only (please provide a list of such incentives below)	
c) Yes, financial support only	
d) Yes, financial support and incentives (please provide details below)	X

Further comments on financial support and incentives provided.

As the host country to the Secretariat of the Convention on Biological Diversity, Canada has placed a relatively high priority on providing financial support to achieve the objectives of the Convention. Resources are provided for meetings, workshops, travel, publishing costs related to biodiversity reports, consultations with external stakeholders, development of web-based information - posted on the Canadian Biodiversity Information Network (http://www.cbin.ec.gc.ca/), Canada's node on the clearing house mechanism for the CBD, development of a national reporting system on domestic implementation and biodiversity status and trends, research needs associated with aboriginal interests, education and outreach associated with the 2010 target and the engagement of key stakeholders. Resources allocated to national activities intended to achieve the objectives of the Convention also include the core staffing of the Biodiversity Convention Office within Environment Canada.

The next question (138) is for DEVELOPED COUNTRIES

138. ? On Article 20(2), has your country provided new and additional financial resources to enable developing country Parties to meet the agreed incremental costs to them of implementing measures which fulfill the obligations of the Convention?	
a) No	
b) Yes (please indicate the amount, on an annual basis, of new and additional financial resources your country has provided)	X

Further comments on new and additional financial resources provided.

For example, Canada is a partner in the *Equator Initiative*, managed by the United Nations Development Programme in partnership with BrasilConnects, the government of Canada, the German Federal Ministry for Economic Cooperation and Development (BMZ), International Development Research Centre, The World Conservation Union (IUCN), The Nature Conservancy, Television Trust for the Environment (TVE), and the United Nations Foundation. Following its launch in January 2002, the first phase of the *Initiative* focused on identifying and

recognizing communities that have been successful in reducing poverty and conserving biological diversity.

The *Initiative's* main objective is to raise awareness and commitment by recognizing and awarding communities which have reduced poverty through the conservation and sustainable use of biodiversity. The first of these awards ceremonies took place at the Johannesburg WSSD in August 2002. Representatives of 27 such communities were brought to Johannesburg to celebrate their achievements. From this group, 7 outstanding community initiatives were selected for the 2002 Equator Prize of $30,000 (U.S.). Phase II of the Initiative (2003-2008) is comprised of activities in the following key areas: the Equator Prize awards program, learning exchange opportunities to allow for the sharing of best practices between tropical communities, community-based capacity development through the facilitation of business advice for small sustainable business start-ups, assistance to communities in or near protected areas, policy impact and advocacy, the fostering of research and learning, and public awareness campaigns to raise the profile of sustainable communities in donor countries and encourage adoption of community best practices in developing regions.

The next question (139) is for DEVELOPING COUNTRIES OR COUNTRIES WITH ECONOMIES IN TRANSITION

139. On Article 20(2), has your country received new and additional financial resources to enable it to meet the agreed full incremental costs of implementing measures which fulfill the obligations of the Convention?	
a) No	
b) Yes	

140. Has your country established a process to monitor financial support to biodiversity, including support provided by the private sector? (decision V/11)	
a) No	
b) No, but procedures being established	X
c) Yes (please provide details below)	
Further comments on processes to monitor financial support to biodiversity, including support provided by the private sector.	
Canada participates in the OECD Development Assistance Committee (DAC) (http://www.oecd.org/about/0,2337,en_2649_33721_1_1_1_1_1,00.html) statistics committee on methodologies for environmental assessment of trade policies and agreements.	

141. Has your country considered any measures like tax exemptions in national taxation systems to encourage financial support to biodiversity? (decision V/11)	
a) No	
b) No, but exemptions are under development (please provide details below)	
c) Yes, exemptions are in place (please provide details below)	X
Further comments on tax exemptions for biodiversity-related donations.	
Through Environment Canada's Ecological Gifts Program (http://www.cws-	

scf.ec.gc.ca/ecogifts/intro_e.cfm and http://www.on.ec.gc.ca/wildlife/ecogifts/ecogifts-e.html), donors who give land, a conservation easement, covenant, or servitude can receive a donation receipt for the value of the donation that can be used against up to 100 per cent of annual income to generate non-refundable tax credits. The unused portion of the receipt can be carried forward up to five subsequent years. Only 25 per cent of the capital gain value of the ecogift is subject to tax, half of the regular capital gains inclusion rate.

142. Has your country reviewed national budgets and monetary policies, including the effectiveness of official development assistance allocated to biodiversity, with particular attention paid to positive incentives and their performance as well as perverse incentives and ways and means for their removal or mitigation? (decision VI/16)

a) No	
b) No, but review is under way	
c) Yes (please provide results of review below)	X

Further comments on review of national budgets and monetary policies, including the effectiveness of official development assistance.

Incentive measures have been developed by all levels of government and non-government organisations across Canada. To maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources is, for example, one of the major goals of the Canadian Biodiversity Strategy. Most incentives are directed at habitat conservation rather than species protection, with participation on a voluntary basis. Incentive measures are also often closely tied to stewardship and education programs. See examples of positive incentives, disincentives, indirect incentives and removal of perverse incentives in *Incentive Measures: Examples of case studies, guidelines and best practices*, Canadian submission to the CBD, 2002 (http://www.biodiv.org/doc/case-studies/inc/cs-inc-ca-01-en.doc). For further information, see responses to Article 11, Incentive Measures.

143. Is your country taking concrete actions to review and further integrate biodiversity considerations in the development and implementation of major international development initiatives, as well as in national sustainable development plans and relevant sectoral policies and plans? (decisions VI/16 and VII/21)

a) No	
b) No, but review is under way	
c) Yes, in some initiatives and plans (please provide details below)	
d) Yes, in major initiatives and plans (please provide details below)	X

Further comments on review and integration of biodiversity considerations in relevant initiatives, policies and plans.

Research funded through IDRC's Sustainable Use of Biodiversity Program Initiative has resulted in a number of improved local management strategies, livelihood options, primary health care strategies and policy changes that have contributed both to the Strategic Plan of the Convention and the Millennium Development Goals. The Initiative promoted the conservation and sustainable use of biodiversity, and aimed to develop appropriate technologies, local institutions, and policy frameworks through the application of interdisciplinary and participatory research that incorporates local and indigenous knowledge, as well as gender considerations. Given the

changing roles and responsibilities of women and men in natural resource management in many rural areas, the program initiative stressed the importance of rigorous gender/social analysis in projects and programs to insure that the gender-differentiated impacts of these changes are understood, with a particular focus on resource tenure. The Initiative emphasized funding interdisciplinary research in sub-Saharan Africa, Asia, Latin America & the Caribbean, and the Middle East and North Africa that is community-based but can influence national and international policies. Starting in April 2005, IDRC integrated its support to natural resource management activities in rural areas of Africa, Asia, and Latin America and the Caribbean, including biodiversity, into one global program, while continuing to support projects related to access to and sustainable management of genetic resources within the structure of the new global program. See http://web.idrc.ca/en/ev-1248-201-1-DO_TOPIC.html.

In September 2002, the Canadian International Development Agency (CIDA) released its policy statement on strengthening aid effectiveness. Its key principles are now being implemented across the aid program: focus on local priorities and local ownership; improved coordination among donors; stronger partnerships; consistency between aid policies and other policies affecting aid, such as trade; and emphasis on results.

CIDA's program is based on the Millennium Development Goals, to which it contributes through four key areas, one of which is Environmental Sustainability - Protection, conservation, and management of the environment. For example, CIDA supports a training program in greenhouse gas emissions reduction for the oil and gas sector in Azerbaijan, Uzbekistan, and Kazakhstan. This program is helping companies to identify and develop greenhouse gas emission-reduction projects to be funded under the Kyoto Protocol or by other means.

In regards to national sustainable development plans and sectoral policies and plans, see comments in various other sections of this Report (e.g. Q12 and Q13) on the Canadian Biodiversity Strategy (http://www.cbin.ec.gc.ca/issues/strategy.cfm?lang=e); see Q15 for detailed information on sectoral policies such as Agriculture and Agri-Food Canada's Agricultural Policy Framework, Canada's Ocean Strategy, Canada's Oceans Action Plan (both released by Fisheries and Oceans Canada), and the National Forest Strategy.

144. Is your country enhancing the integration of biological diversity into the sectoral development and assistance programmes? (decision VII/21)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, into some sectoral development and assistance programmes (please provide details below)	
d) Yes, into major sectoral development and assistance programmes (please provide details below)	
Further comments on the integration of biodiversity into sectoral development and assistance programmes	
Note: decision V11/21 can be found at http://www.biodiv.org/decisions/default.aspx?m=COP-07&id=7758&lg=0	

The next question (145) is for DEVELOPED COUNTRIES

145. Please indicate with an "**X**" in the table below in which area your country has provided financial support to developing countries and/or countries with economies in transition. Please elaborate in the space below if necessary.

Areas	Support provided
a) Undertaking national or regional assessments within the framework of MEA (decision VI/8)	
b) *In-situ* conservation (decision V/16)	***X***
c) Enhance national capacity to establish and maintain the mechanisms to protect traditional knowledge (decision VI/10)	***X***
d) *Ex-situ* conservation (decision V/26)	***X***
e) Implementation of the Global Strategy for Plant Conservation (decision VI/9)	
f) Implementation of the Bonn Guidelines (decision VI/24)	
g) Implementation of programme of work on agricultural biodiversity (decision V/5)	
h) Preparation of first report on the State of World's Animal Genetic Resources (decision VI/17)	
i) Support to work of existing regional coordination mechanisms and development of regional and sub regional networks or processes (decision VI/27)	***X***
j) Development of partnerships and other means to provide the necessary support for the implementation of the programme of work on dry and subhumid lands biological diversity (decision VII/2)	
k) Financial support for the operations of the Coordination Mechanism of the Global Taxonomy Initiative (decision VII/9)	
l) Support to the implementation of the Action Plan on Capacity Building as contained in the annex to decision VII/19 (decision VII/19)	***X***
m) Support to the implementation of the programme of work on mountain biological diversity (decision VII/27)	
n) Support to the implementation of the programme of work on protected areas (decision VII/28)	
o) Support to the development of national indicators (decision VII/30)	
p) Others (please specify)	

Further information on financial support provided to developing countries and countries with economies in transition.

The next question (146) is for DEVELOPING COUNTRIES OR COUNTRIES WITH ECONOMIES IN TRANSITION

146. Please indicate with an "**X**" in the table below in which areas your country has applied for funds from the Global Environment Facility (GEF), from developed countries and/or from other sources. The same area may have more than one source of financial support. Please elaborate in the space below if necessary.

Areas	Applied for funds from		
	GEF	Bilateral	Other
a) Preparation of national biodiversity strategies or action plans			
b) National capacity self-assessment for implementation of Convention (decision VI/27)			
c) Priority actions to implement the Global Taxonomy Initiative (decision V/9)			
d) *In-situ* conservation (decision V/16)			
e) Development of national strategies or action plans to deal with alien species (decision VI/23)			
f) *Ex-situ* conservation, establishment and maintenance of *Ex-situ* conservation facilities (decision V/26)			
g) Projects that promote measures for implementing Article 13 (Education and Public Awareness) (decision VI/19)			
h) Preparation of national reports (decisions III/9, V/19 and VI/25)			
i) Projects for conservation and sustainable use of inland water biological diversity (decision IV/4)			
j) Activities for conservation and sustainable use of agricultural biological diversity (decision V/5)			
k) Implementation of the Cartagena Protocol on Biosafety (decision VI/26)			
l) Implementation of the Global Taxonomy Initiative			
m) Implementation of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity			
n) Others (please specify)			

Further information on application for financial support.

Box LXII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

D. THEMATIC AREAS

147. Please use the scale indicated below to reflect the level of challenges faced by your country in implementing the thematic programmes of work of the Convention (marine and coastal biodiversity, agricultural biodiversity, forest biodiversity, inland waters biodiversity, dry and sub-humid lands and mountain biodiversity).

3 = High Challenge	1 = Low Challenge
2 = Medium Challenge	0 = Challenge has been successfully overcome
N/A = Not applicable	

Challenges	Programme of Work					
	Agricultural	Forest	Marine and coastal	Inland water ecosystem	Dry and subhumid lands	Mountain
(a) Lack of political will and support	1	2	2	2	N/A	2
(b) Limited public participation and stakeholder involvement	0	0	1	0	N/A	0
(c) Lack of main-streaming and integration of biodiversity issues into other sectors	2	1	2	2	N/A	1
(d) Lack of precautionary and proactive measures	2	2	2	2	N/A	2
(e) Inadequate capacity to act, caused by institutional weakness	1	1	1	1	N/A	2
(f) Lack of transfer of technology and expertise	1	1	1	1	N/A	1
(g) Loss of traditional knowledge	3	2	2	3	N/A	2

(h) Lack of adequate scientific research capacities to support all the objectives	2	2	2	2	N/A	2
(i) Lack of accessible knowledge and information	1	1	2	1	N/A	1
(j) Lack of public education and awareness at all levels	1	1	1	1	N/A	1
(k) Existing scientific and traditional knowledge not fully utilized	2	2	2	2	N/A	2
(l) Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented	3	3	3	3	N/A	3
(m) Lack of financial, human, technical resources	2	2	2	2	N/A	2
(n) Lack of economic incentive measures	2	2	2	2	N/A	2
(o) Lack of benefit-sharing	2	2	2	2	N/A	2
(p) Lack of synergies at national and international levels	1	1	1	1	N/A	1
(q) Lack of horizontal cooperation among stakeholders	1	1	2	1	N/A	2
(r) Lack of effective partnerships	1	2	2	1	N/A	2
(s) Lack of engagement of scientific community	1	1	1	1	N/A	1
(t) Lack of appropriate policies and laws	2	2	2	2	N/A	2
(u) Poverty	2	2	2	2	N/A	2
(v) Population pressure	N/A	1	1	2	N/A	2
(w) Unsustainable consumption and production patterns	2	2	2	2	N/A	2
(x) Lack of capacities for local communities	2	2	2	2	N/A	2
(y) Lack of knowledge and practice of ecosystem-based approaches to management	1	1	1	1	N/A	1

(z) Weak law enforcement capacity	1	2	2	2	N/A	2
(aa) Natural disasters and environmental change	2	2	2	2	N/A	2
(bb) Others (please specify)						

Inland water ecosystems

148. Has your country incorporated the objectives and relevant activities of the programme of work into the following and implemented them? (decision VII/4)

Strategies, policies, plans and activities	No	Yes, partially, integrated but not implemented	Yes, fully integrated and implemented	N/A
a) Your biodiversity strategies and action plans		X		
b) Wetland policies and strategies		X		
c) Integrated water resources management and water efficiency plans being developed in line with paragraph 25 of the Plan of Implementation of the World Summit on Sustainable Development		X		
d) Enhanced coordination and cooperation between national actors responsible for inland water ecosystems and biological diversity		X		

Further comments on incorporation of the objectives and activities of the programme of work

Canada is often called a "water-rich" nation, as we are the stewards of 9% of the world's renewable fresh water supply. Interests in freshwater are many and varied, and the interplay of jurisdictional responsibilities is complex, both domestically and internationally. A diverse array of federal, provincial, territorial and municipal authorities and agencies, industrial and commercial interests, the research and academic communities, environmental, health and consumer advocacy groups, Aboriginal communities and their representatives, the recreational and cultural sector, and individual Canadians all have a stake in how our freshwater resources and watersheds are managed.

One of the objectives of the Canadian Biodiversity Strategy (CBS) is to increase understanding of inland water ecosystem, to build sound science and to enhance our resource management capabilities. Sustainable use of biological resources in aquatic areas is a strategic direction of the CBS, and Canada has implemented legislative protection for wetlands and migratory bird species through the Ramsar Convention on Wetlands, the Migratory Birds Convention, and the Canada Wildlife Act.

Integrated Water Resource Management (IWRM) is one of the important objectives of the CBS, and Canada has been engaged in IWRM for many years. Canada has established a set of commitments, with the key principles based on

the representation of stakeholders, science-based and results-oriented goals/targets, reflection of multiple values for water, integration with land use, continuous improvement, effective governance, appropriate mix of instruments/tools, sound science, and accessible information. All Canadian governments are using shared IWRM principles to guide their water management efforts and the management of shared waters is increasingly evolving towards an ecosystem approach.

Inland water ecosystems are managed according to the **Canada Water Act**, the Fisheries Act, and other federal and provincial legislation. Many provincial governments have recently renewed their freshwater policies and the government of Canada is currently working to update its policy framework for freshwater. The existing **Federal Water Policy** (1987) includes specific policy statements for fish habitat management, wetlands preservation, heritage river preservation and other inland water issues of importance to biodiversity(http://www.ec.gc.ca/water/en/info/pubs/fedpol/e_fedpol.htm#1).

In 1991, Canada began implementing the **Federal Policy on Wetlands Conservation,** in part as a response to the RAMSAR Convention (http://dsp-psd.communication.gc.ca/Collection/CW66-116-1991E.pdf). The Policy indicates that the federal government is responsible for 29 percent of Canada's wetlands and impacts a wide-range of programs affecting wetlands. Key commitments under the policy include "no net loss" of wetland functions on federal lands and waters and rehabilitation of wetlands in areas of continuing degradation through cooperative actions with other governments. In addition to applying directly to wetlands under federal responsibility, the policy applies to all federal programs, services and expenditures that impact wetlands. Provinces and territories have also developed their own wetlands policies, complementing the Federal Policy. Implementation of the seven strategies under the policy is now facilitated by the *Implementation Guide for Federal Land Managers* (http://dsp-psd.communication.gc.ca/Collection/CW66-145-1996E.pdf). Environment Canada has also developed environmental assessment guidelines for wetlands and migratory birds in order to assist in the implementation of the policy.

Canada has also established a number of protected areas such as National Wildlife Areas, Migratory Birds Sanctuaries and designated wetlands of international importance under the Ramsar Convention to protect wetlands and migratory bird species.

The **National Water Research Institute** (NWRI - www.cciw.ca/nwri/nwri.html) is Canada's largest freshwater research establishment. NWRI generates scientific knowledge on the status of inland water biological diversity through ecosystem-based research to support the development of sound government policies and programs, public decision-making, and early identification of environmental problems. NWRI works in partnership with Canadian and international science communities.

The Aquatic Ecosystem Impacts Research Branch of NWRI conducts research to understand and predict the impacts of environmental stressors on the ecology of aquatic ecosystems. In addition, the Branch conducts research to develop innovative modelling approaches to integrated watershed management.

In 2003 the government of Canada launched the **First Nations Water Management Strategy**, which applies a multi-barrier approach to the protection of source and drinking water quality for First Nations communities. Indian and Northern Affairs Canada supports First Nations and Inuit in achieving self-government and meeting their economic, educational, cultural, social, and community development needs and aspirations. As part of this mandate, the department dedicates funding for the provision of safe and clean drinking water to First

Nation communities (www.inac-ainc.gc.ca/h2o).

The **Labrador Inuit Land Claims Agreement including Water Management and Inuit Water Rights** was signed on January 22, 2005. This modern-day treaty between the Labrador Inuit Association, the Province of Newfoundland and Labrador, and the Government of Canada, and includes 23 chapters on various water, land and resources issues. The Agreement represents the successful conclusion of 28 years of work by the parties, and provides the Labrador Inuit with defined rights in and territory in northern Labrador including water management and Inuit water rights, and the establishment of an implementation plan, detailing rights and responsibilities of all parties to the Agreement.

Many other initiatives recently taken by the federal government also are important. The **New Deal for Cities and Communities 2005**, for example, targets new funding at environmentally sustainable municipal infrastructure, including water and wastewater systems. The federal government also has put in place infrastructure initiatives like the **Green Municipal Fund**, which is administered by the Federation of Canadian Municipalities. It is, as of spring 2005, a $250 million endowment. The Fund offers grants and low-interest loans for sustainable infrastructure initiatives that generate measurable environmental, economic and social benefits.

Information and activities concerning inland water biodiversity are also provided and undertaken by individual federal departments. **Environment Canada** (EC), for example, maintains a website dedicated to information on Canada's freshwater (http://www.ec.gc.ca/water/index.htm). The EC-developed Canadian Water Quality Data Referencing Network (CWQDRN) will provide enhanced information access by obtaining and providing web-based information on water quality monitoring activities within the provincial, territorial and federal governments. An interactive web-based portal displaying all national water quality monitoring capacities was completed, based on metadata from the CWQDRN, and released on the GeoNet web-portal (http://infolane.ec.gc.ca/geonet/Home-WS4D59A109-1_En.htm).

EC has also developed a multi-departmental strategy for a national water quality indicator program in collaboration with Statistics Canada, Health Canada and Parks Canada, including: refining the existing Canadian Council of Ministers of the Environment (CCME) Water Quality Index and developing new indices using physical, chemical and biological measures of water quality; designing and implementing a dedicated federal-provincial-territorial monitoring network; developing interpretive tools and environmental quality guidelines; establishing a suite of reporting products and on-line communication products.

In 2004, a report entitled *From Source to Tap: Guidance on the Multi-Barrier Approach to Safe Drinking Water* was published in collaboration with provincial and territorial governments under the auspices of the CCME. This technical guidance document provides guidance on how to apply the concept of the multi-barrier approach to drinking water supplies from source to tap (http://www.ccme.ca/sourcetotap/mba.html).

A **Federal Freshwater Research Agenda** was also developed. The six top research priorities identified by partners and stakeholders in terms of urgency and willingness to participate were: Source Water Quality, Quantitative Resource Inventories, Chemical Pollutants and Nutrients Impacts of Development, Chemical Threats, Technology, Decision Tools & Monitoring.

EC has been instrumental in the development of modelling tools to calculate ice conditions for river ice occurrence and a water use and analysis model study which will address the impacts of climate change on water in the South Saskatchewan River. The study is a collaborative effort with the University of Saskatchewan and the NWRI (http://www.parc.ca/ssrb/index.html).

EC has published various water surveys such as the Municipal Water Use 2001 report (http://www.ec.gc.ca/water/en/manage/use/e_data.htm), the 2001 Water pricing report, and the Municipal Water and Wastewater Survey (http://www.ec.gc.ca/water/MWWS/). Another publication completed in 2005 was on Taste and Odour in drinking water sources (http://www.nwri.ca/research/toxicalgae-e.htm).

Policy for the Management of Fish Habitat
The federal *Fisheries Act* and the Policy for the Management of Fish Habitat provide the federal government with a significant role in the conservation and protection of Canadian waters. Fish habitats constitute healthy production systems for the nation's fisheries. When the habitats are functioning well, Canada's fish stocks will continue to produce economic and social benefits throughout the country.

The long-term policy objective is the achievement of an overall net gain of the productive capacity of fish habitats. The goals of the Policy are to:

- maintain the current productive capacity of fish habitats supporting Canada's fisheries resources, such that fish suitable for human consumption may be produced;
- improve and create fish habitats in selected areas where the production of fisheries resources can be increased for the social or economic benefit of Canadians; and,
- rehabilitate the productive capacity of fish habitats in selected areas where economic or social benefits can be achieved through the fisheries resource.

The “no net loss” principle is fundamental to the habitat conservation goal. Under this principle the intent is to balance unavoidable habitat losses with habitat replacement on a project-by-project basis so that further reductions to Canada's fisheries resources due to habitat loss or damage may be prevented.

The Policy also recognizes that natural resource interests, such as the forest, fishing, mining, energy and agricultural sectors, make legitimate demands on water resources, and that ways must be found to reconcile differences of opinion on the best use of those resources. Effective integration of resource sector objectives, including fisheries, will therefore involve cooperation and consultation with other government agencies and natural resource users.

National Freshwater Fisheries Strategy
In 2005, the Minister and Fisheries and Oceans and all provincial and territorial ministers responsible for fisheries and aquaculture endorsed *A Freshwater Fisheries Strategy for the Canadian Council of Fisheries and Aquaculture Ministers.* The Strategy recognizes that freshwater fisheries are important to our economy, society, culture, and environment. Freshwater fisheries also play a particularly significant role in the lives of Aboriginal people. The national goals of the Strategy are to:

- conserve, manage, rehabilitate and protect healthy freshwater fisheries, fish habitats and aquatic ecosystems;
- support sustainable cultural, social and economic benefits from freshwater fisheries;
- engage Canadians in the management and stewardship of freshwater

fisheries and fish habitats; and,

- optimise inter-jurisdictional cooperation, efficiency and effectiveness in freshwater fisheries and fish habitat management.

Monitoring and reporting on the state of biodiversity is one of the primary elements for the protection and preservation of inland water biodiversity. Monitoring networks, in place as part of large watershed-based ecosystem initiatives implemented by the federal government in partnership with stakeholders, promote integrated water resource management in key areas across Canada e.g. Great Lakes Action Plan 2001-2006, Georgia Basin Action Plan, St. Lawrence Action Plan and Vision 2000, Lake Erie Lakewide Management Plan, Fraser Basin Council, Integrated Watershed Modeling of the South Saskatchewan River Basin). These initiatives are leading to better assessment practices for preventing the introduction of alien species into Canadian inland water ecosystems. Information is also collected by various other government, non-government and academic organizations (e.g. Canadian Wildlife Service and Ducks Unlimited Canada for migrating bird species, the National Vegetation Classification System, the CDC-AIB network, COSEWIC, RENEW and the report on the general Situation of Wildlife Species in Canada). Although monitoring is on-going, there is no common framework allowing the facilitation of species data integration at the national, international and eco-regional scales.

For example, partners are working together to conserve and protect habitat and species in the Georgia Basin in British Columbia. Building on the work of the Georgia Basin Ecosystem Initiative (1998–2003), the five-year **Georgia Basin Action Plan** (2005–2008) is strengthening the collective capacity to protect and restore ecosystem health through collaborative stewardship actions and governance, including sustainable land, aquatic, and resource use planning and management; support by scientific and indigenous knowledge; and ecosystem targeting. Water resource management goals include understanding aquatic ecosystems and pollution; understanding environmental concerns related to the release of priority substances and implementing measures to reduce this release; and protecting and monitoring aquatic ecosystems through urban storm water management, agricultural practices and management, liquid waste management, and shellfish recovery activities (www.pyr.ec.gc.ca/GeorgiaBasin).

Environment Canada, through the Georgia Basin Action Plan Coordination Office, provides ongoing support to local governments and communities to encourage sustainable urban planning and best management practices and exchange of information. Various local initiatives resulted in four shellfish community round tables working to develop remediation plans; two communities developing and adopting smart growth planning strategies and a third community commencing the process; and the development of the second report on Ecosystem Indicators in the Georgia Basin–Puget Sound for web-based release in October 2005. In partnership with the Greater Vancouver Regional District and the Province of British Columbia, Environment Canada is contributing to the development of a Biodiversity and Conservation Strategy for the Greater Vancouver Region which will create a common vision and objectives for biodiversity conservation and provide tools to encourage region-wide ecosystem-based planning to result in ecological benefits and enhance well-being and economic prosperity of the region.

Policy on wetlands has been developed by the federal government and by several provincial governments, but these have not yet been nationally coordinated. Several provinces have established freshwater strategies with a focus on sustaining healthy aquatic ecosystems while meeting the demands of

society (ex. *A Freshwater Strategy for British Columbia*, 1999). To date, four provinces – Alberta, Saskatchewan, Manitoba, and Ontario – have wetland policies in place. New Brunswick's policy has been developed and is currently seeking approval. Other policy or legislative arrangements have been developed or are being developed in other provinces. In 1999, Environment Canada published an inventory of legal and policy instruments entitled *Wetlands and Government: Policy and Legislation for Wetland Conservation in Canada* (http://www.cws-scf.ec.gc.ca/publications/AbstractTemplate.cfm?lang=e&id=336).

The Canadian Council of Ministers of the Environment (CCME – www.ccme.ca) published the first **Canada Water Quality Guidelines** in 1987. The guidelines - now used in 45 countries - include recommendations for biological parameters necessary to protect and enhance aquatic life. The CCME Water Quality Guidelines Task Force is currently coordinating the development of an integrated compendium of guidelines for all resource uses, including the protection of biodiversity. The Task Force promotes a multi-barrier approach to the protection of drinking water for Canadians from the source to the tap, targeted for use by governments and owners and operators of drinking water systems. The CCME has formulated a water quality index to provide consistent procedures for Canadian jurisdictions to report water quality information to both management and the public, developed an action plan to promote water use efficiency, and is now specifically looking at analyses of water conservation practices and initiatives and of economic instruments. It has also agreed to prohibit the bulk export of water from Canadian watersheds and is developing a Canada-wide strategy for the management of municipal waste water effluents.

National collaboration is also underway to develop specific water management tools, such as water quality guidelines, and a national environmental sustainability framework is being developed, with IWRM as a key component. Currently, water information is held in many different databases by many agencies located across the country, and decision-makers are looking at how to improve the systems that permit access to the information they need.

The **Riparian Area Management Program** (http://www.agr.gc.ca/pfra/water/riparian_e.htm) is a federal-provincial funding initiative, designed to improve the management of riparian areas by agricultural producers and administered by Agriculture and Agri-Food Canada's Prairie Farm Rehabilitation Administration under the National Soil and Water Conservation Program (NSWCP) (http://www.agr.gc.ca/policy/environment/prog_07_e.phtml). The NSWCP also promotes stewardship, awareness and technology development in support of rural water quality.

The **Canadian Heritage Rivers System** (CHRS – www.chrs.ca) was established in 1984 by the federal, provincial and territorial governments to conserve and protect the best examples of Canada's river heritage, to give them national recognition, and to encourage the public to enjoy and appreciate them. It is a cooperative program of the federal, provincial and territorial governments. Today there are 39 designated rivers across Canada. The management plans for Canadian Heritage Rivers ensure the conservation of their outstanding natural, cultural, and/or recreational values.

Mackenzie River Basin Transboundary Waters Master Agreement and the Mackenzie River Basin Board

The agreement is a governance structure for water management in a vast river basin in northwestern Canada populated mainly by Aboriginal peoples. The 1997 agreement between the governments of Canada, Alberta, British Columbia, Saskatchewan, Yukon, and the Northwest Territories was created to establish common principles for the cooperative management of the water resources of

the Mackenzie River Basin, and to make provisions for bilateral water management agreements at the transboundary crossings. The Mackenzie River Basin Board administers the agreement (www.mrbb.ca, wlapwww.gov.bc.ca/wat/aq_eco_rep/eco_reports.html and ainc-inac.gc.ca/ps/nap/index_e.html).

St. Lawrence Action Plan

Since 1989 the governments of the Province of Québec and Canada have put mechanisms into place to harmonize and coordinate their work for the conservation, protection, and restoration of the St. Lawrence River through agreements under the St. Lawrence Action Plan (1988-1993) and St. Lawrence Vision 2000 (1993-1998 and 1998-2003). The Plan protects 12,000 hectares of wildlife habitat, produces a portrait of biodiversity in the St. Lawrence, and introduced recovery plans for 27 species at risk, including the St. Lawrence beluga, in its first two Phases. In its third Phase, one specific objective of the Plan aims to conserve and enhance priority habitat, protect 35 species at risk, and to control the introduction and impacts of invasive alien species. A new Canada-Quebec agreement on the St. Lawrence River is expected to be concluded in 2005. (www.slv2000.qc.ca/index_a.htm and http://www.menv.gouv.qc.ca/eau/flrivlac/fleuve_en.htm)

Created in 1988, the **St. Lawrence Centre** is the only federal research and development centre devoted entirely to the St. Lawrence River ecosystem. SLC experts study the ecosystems of the river and conduct research programs with the aim of better understanding how these ecosystems function, and maintaining up to date knowledge of the St. Lawrence (http://www.qc.ec.gc.ca/csl/).

At the provincial/territorial level, important strides are being made towards implementing IWRM, with recently introduced water policies promoting source-to-tap drinking water protection plans or broader watershed management planning. In all cases, the move is towards improved governance, integrated management, better data and information, greater transparency and accountability, full stakeholder involvement, and an emphasis on clear goals and results. Many provinces are introducing new policies and/or legislation to support changes in governance. Alberta's new *Water for Life: Alberta's Strategy for Sustainability* (healthy, sustainable ecosystems; safe, secure drinking water supply; reliable, high-quality water supplies for a sustainable economy; knowledge necessary for effective water management decisions; watershed initiatives and promotion of IWRM) introduces a transition from traditional water management planning (focusing on water allocation issues) to integrated watershed management planning supported by a shared governance model. Tools are being used to support an integrative approach to water management include diagnostic indicators, integrated modeling, water balance models, multi-barrier action plans to protect water from source to tap, and improvements in information for decision-making.

The **Prairie Provinces Water Board** (PPWB) promotes cooperation in water management. It was created to ensure that inter-provincial surface waters and ground waters are equitably shared by Canada's Prairie provinces and to prevent potential conflicts. Certain regions of Canada share distinct water interests, calling for cooperative governance models. To resolve inter-provincial conflicts between upstream uses and downstream needs along these east-flowing rivers, the provinces of Alberta, Saskatchewan, and Manitoba and Canada formed the Prairie Provinces Water Board Agreement in 1948. In 1992 governments signed a Water Quality Agreement that established water quality objectives and has enabled the equitable sharing and protection of inter-provincial streams. Environment Canada carries out both water quality and quantity monitoring under the Agreement and provides the information needed by the Board to calculate and report on natural flows, apportionment

compliance and water quality. Because of the PPWB's consensus approach, provincial governments readily comply with the Agreement, which has become a model for dealing with inter-jurisdictional issues.

In recent years the PPWB has worked towards more integrated ecosystem and watershed approaches in dealing with environmental issues. The PPWB makes quarterly comparisons of inter-provincial water quality monitoring results with the objectives. The PPWB Water Quality Objectives are reviewed from time to time to ensure that they reflect current uses, priorities of member agencies and the latest technological information (www.pnr-rpn.ec.gc.ca/water/fa01/index.en.html).

In April 2002, the Government of Saskatchewan released its "Long-Term Safe Drinking Water Strategy" to ensure a sustainable, reliable, safe, and clean supply of drinking water. One of the objectives identified in the strategy is water conservation. In January 2005, Saskatchewan announced that work on a comprehensive Water Conservation Plan was underway. The plan includes economic, social, and environmental considerations of both the quantity and efficiency of water use (www.swa.ca/WaterConservation/default.asp).

Integrated watershed modeling of the South Saskatchewan is being used to investigate the impacts of climate change on future water supplies and the water budget across the basin, and inform provincial water management plans The project, which will be completed in 2006, is a collaborative effort between Environment Canada and the University of Saskatchewan, with participation and cooperation from provincial agencies and many other partners and stakeholders. Results from modelling and related investigations conducted by other project partners are used to help decision makers formulate water management policies that minimize the impact of projected climate change on water resources, the socio-economic system, and the aquatic environment in the South Saskatchewan River Basin.

Initiatives like the South Tobacco Creek Project (Manitoba) and Turkey Lakes Watershed Study (Ontario) both use an integrated approach to evaluate the impact of human-induced perturbations in watersheds and to increase our understanding of their effects on ecosystems. The South Tobacco Creek Project was oriented toward agriculture issues and aimed to develop agricultural best management practices. The Turkey Lakes Watershed Study originally focused on the aquatic and terrestrial effects of acid rain, but now includes research into the effects of other anthropogenic pollutants (e.g. toxic contaminants) and ecological perturbations (e.g. forest harvesting, climate change and fish habitat modification.

Some integrated water resources management plans are being implemented at the river basin level. Initiatives include the Designation of Source Waters for Drinking Water Protection (New Brunswick), a program designed to protect drinking water quality at the source, the Implementation of a Multi-Barrier Strategic Action Plan for Drinking Water Safety (Newfoundland and Labrador), and an action plan to ensure adequate safeguards at each stage of the water supply system. The Water Balance Model (British Columbia) is an interactive online tool that can be used to evaluate the effectiveness of strategies for storm water source control. Development of the model was initiated in 2002 through an intergovernmental partnership of federal, provincial, and local governments, co-chaired by Environment Canada and the B.C. Ministry of Agriculture, Food and Fisheries. The partnership's goal is to promote use of the model as standard practice for land development decisions throughout British Columbia. An Outreach and Continuing Education Program has been established to create momentum, stakeholder support, and widespread acceptance of the model (www.waterbalance.ca and wlapwww.gov.bc.ca/epd/epdpa/mpp/stormwater/stormwater.html).

IWRM is also being implemented for small watersheds. The Grand River Conservation Authority (GRCA) in Ontario has been active since 1966 and has worked with partners to carry out a wide range of resource activities in support of water resource management. Today, the Grand River is one of the healthiest river systems in North America in a heavily populated area and is nationally recognized as a Canadian Heritage River. In 2000, the GRCA was awarded the Theiss Riverprize for excellence in river management (www.grandriver.ca).

The Upper Assiniboine River Basin Study (completed in 2000, the partnership between Saskatchewan, Manitoba and Canada was designed to develop a framework to guide future water management in the basin), the Lower Souris River Watershed (Province of Saskatchewan Watershed Authority-developed model to guide watershed and aquifer planning, with watershed-level plans to be completed for 2006), la Corporation d'aménagement et de protection de la Sainte-Anne (Quebec), the Eastern Charlotte Waterways Inc (New Brunswick) and the Big Shell Lake Community Watershed Management Project (Saskatchewan), are all **examples of small watershed IWRM initiatives** in Canada.

Federal, provincial and municipal governments are actively engaged in partnerships with non-government organizations with a mandate for the conservation of inland water ecosystems and migratory birds.

The **South Okanagan-Similkameen Conservation Program,** for example, was developed in 2000 by both government and non-government partners. It aims to focus conservation efforts to maintain the regions diverse plant and animal life. Activities include, promoting ecologically sustainable land use, enhancing stewardship and acquiring key habitats, especially wetlands and riparian, grassland/shrub-steppe, coniferous forests and rugged terrain habitats.

The Canadian Wildlife Service, along with partners The Nature Trust of British Columbia, Ducks Unlimited Canada, Ministry of Environment, Lands, and Parks, Habitat Conservation Trust Fund, community groups, landowners, and several government agencies formed the **Vancouver Island Wetland Management Program** in 1991. Its purpose is to promote and implement management, stewardship, restoration, and enhancement of fish and wildlife habitat on Vancouver Island. Conservation activities include, establishing Crown reserves and Wildlife Management Areas and developing land management plans.

The **Fraser Basin Council** was created in 1997 as a non-profit, non-governmental organization with a mandate to promote the economic, environmental, and social sustainability of the Fraser Basin. The Council plays a key leadership role in facilitating dialogue, helping to resolve conflicts, educating the public about sustainability, and motivating people to take action. An Action Plan was completed in 1998 with the objective of maintaining the quality of this ecosystem. Results include the protection of almost 65,000 ha of wild bird habitat (www.fraserbasin.bc.ca).

In 2003, four new **EcoAction Community Funding Program** projects in the Pacific and Yukon Region were announced: a riparian habitat restoration project in the San Jose River Watershed; a Purple Martin nesting and reproduction project on Vancouver Island; a recreation and tourism industry best-practices project on safeguarding aquatic ecosystems in the Columbia Basin; and a pesticide reduction and public awareness project on Vancouver Island.

There are 36 **Conservation Authorities** covering all major populated watersheds in Ontario. Watershed councils are being established in Alberta, Saskatchewan, Manitoba and Quebec. Numerous non-governmental watershed

stewardship groups are also active.

Industries have also been active in improving water management and reducing water consumption in Canada. The Multi-Stakeholder Approach of Alcan, for example, is an effort to better understand the interests of various stakeholders through an Alcan-founded multi-stakeholder council which discusses and builds consensus on watershed issues.

Canada is working across jurisdictions both domestically and internationally to ensure that the goals of the Convention are met for inland waters. Biodiversity considerations have been incorporated into the work of the International Joint Commission (IJC), the organization designated to improve the management of inland waters that are shared between Canada and the US. This mechanism oversees equitable and sustainable use of transboundary waters shared by Canada and the United States. The Commission reviews and assesses progress under the Canada–US Great Lakes Water Quality Agreement (GLWQA) and embraces many regionally-based arrangements, such as the St. Croix International Waterway Commission. (The Governments of Canada and the US are currently finalizing a transparent and inclusive process for the review of the GLWQA. A 60-day public comment period, during which the governments received comments from key Great Lakes stakeholders on the proposed process, closed in March, 2005.)

The **St. Croix International Waterway Commission** is an independent body creating and implementing a heritage management plan for the international boundary waters of the St. Croix River. It was established by the governments of the Province of New Brunswick, Canada, and the State of Maine, USA, to create and implement a heritage management plan for the international boundary waters of this designated heritage river. The heritage management plan sets international goals and policies for managing the corridor in a way that preserves its heritage, maintains its environmental integrity, and supports the region's resource-based economy.

The **North American Wetlands Conservation Council (Canada)** advises the Minister of the Environment on the development, coordination and implementation of wetland conservation initiatives of national or international importance, and coordinates and implements the North American Waterfowl Management Plan. The Council led the crafting of *A Wetlands Conservation Vision for Canada* (http://www.terreshumidescanada.org/vision.pdf) to map out the cooperative work required of governments, non-government organizations and the private sector, and negotiated a Memorandum of Understanding on wetland conservation with the agriculture sector. The Council also spearheaded a project to create Canada's premier internet site of wetland information resources – WetKit (http://www.wetkit.net).

The **Great Lake Action Plan** 2001-2006 incorporates the actions of the Government of Canada, joint Canada-Ontario activities, and undertakes actions in coordination and cooperation with United States federal and state agencies. The focus of the Plan is on the activities and commitment of the eight Government of Canada departments which participate in delivering Canada's commitments in relation to the protection of the Great Lakes Basin ecosystem as defined by the Canada-United States Great Lakes Water Quality Agreement. Challenges addressed include the restoration of environmental quality in Areas of Concern and protecting human health and environmental quality. Target results have been identified and specific actions which will be carried out over a five-year period. (http://www.on.ec.gc.ca/greatlakes/Programs_&_Services/Action_Plan_2000-2005-WSCDACE085-1_En.htm).

The **Great Lakes Wetlands Conservation Action Plan (**GLWCAP) (http://www.on.ec.gc.ca/wildlife/wetlands/glwcap-e.cfm) brings together a number of government and non-governmental partners to conserve and rehabilitate the remaining wetlands in the Great Lakes basin. The large task of conserving wetlands in the Great Lakes basin is divided into eight parts or strategies under GLWCAP. Through these eight strategies a wide range of initiatives are being implemented – everything from information gathering and policy reform to the direct acquisition of wetlands.

In the 2001 Annex to the **Great Lakes Charter** of 1985, the Parties agreed to develop a new set of binding agreements in order to establish a new decision-making standard for all water withdrawals and diversions and for all user sectors within the Great Lakes and St. Lawrence River Basin (surface waters, tributaries and ground waters. (www.cglg.org/projects/water/index.asp and www.on.ec.gc.ca/glwqa/)

The **Great Lakes Marsh Monitoring Program** (MMP - www.bsc-eoc.org/mmpmain.html) is a bi-national, long-term monitoring program that coordinates citizen volunteers across the Great Lakes Basin to help understand, monitor and conserve the region's wetlands and their amphibian and bird inhabitants.

The **Lake Champlain Basin Program** is an international partnership to protect Lake Champlain and its watershed and includes water quality, fisheries, wetlands, wildlife, recreation, and cultural resources. Partners are federal agencies, research institutes and universities, watershed organizations and other community groups, and individuals. The Program is guided by the Lake Champlain Steering Committee, which was initially created in 1988 by the Memorandum of Understanding on Environmental Cooperation on the Management of Lake Champlain, signed by the Governors of Vermont and New York and the Premier of Québec and periodically renewed (most recently in 2003). The Lake Champlain Basin Program is carried out according to the plan "Opportunities for Action -- An Evolving Plan for the Lake Champlain Basin." First approved in October 1996, the plan was updated in 2003. This updated plan was built on findings from public input meetings, citizen perception surveys, focus group discussions, technical workshops, research, monitoring, and demonstration projects. A high-priority action under the plan is the reduction of phosphorus levels in Missisquoi Bay, which is being implemented under a 2002 specific agreement between Quebec and Vermont (www.lcbp.org).

The **North American Waterfowl Management Plan** (http://www.nawmp.ca/eng/index_e.html) is an international action plan to conserve migratory birds throughout the continent. The Plan is a partnership of federal, provincial/state and municipal governments, non-governmental organizations, private companies and many individuals, all working towards achieving better wetland habitat for the benefit of migratory birds, other wetland-dependant species and people. A major objective of the Plan is to achieve and maintain a breeding population of 62 million ducks which could produce a fall flight of 100 million waterfowl. The Plan also aims at maintaining wintering populations of 6 million geese and 152,000 swans. According to the 1998 Update, nine goose populations currently exceed the objectives. The Plan's unique combination of biology, landscape conservation and partnerships comprise its exemplary conservation legacy. Through the Habitat Joint Venture Programs (Pacific Coast, Prairie, and Eastern), the NAWMP focuses on priority areas for habitat conservation. Each joint venture has specific targets and includes the participation of individuals, corporations, conservation organizations and government agencies. The British Columbia Wetlands Joint Venture, for example, is a Federal–Provincial initiative which involves the Nature Trust of British Columbia. The aim is to better coordinate wetlands conservation in the province. The NAWMP has also

established quantitative habitat conservation goals for protecting and restoring/enhancing Joint Venture Areas.

Many consider the Plan a model for conservation. In its first 12 years thousands of partners invested over US 1.5 billion, conserving over 5 million acres of wetland ecosystems and providing habitat for migratory birds amphibians, fish, mammals and plants. The Plan is based on quantified waterfowl population and habitat goals, objectives and strategies, and promotes a landscape management approach. Population objectives have been established for most Northern American waterfowl. Measurable, scale-specific management objectives provide the basis for planning and evaluation.

At the international level, research undertaken by the International Development Research Centre (IDRC) and the Canadian International Development Agency (CIDA) - including Tarim Basin Desertification and Water Management, China (IDRC), WaDImena: Water Demand Management in the Middle East and North Africa (IDRC), Honduras – Sustainable Water and Sanitation Project II (PASOS II) (CIDA), CIDA's Contribution to the Nile Basin Initiative (CIDA) and Support for IWRM in Africa (CIDA) - are all examples of international initiatives to develop and implement IWRM.

The National Water Quality and Availability Management project (NAWQAM) in Egypt is a more recent international initiative taken by Canada. The project is jointly funded by the Government of Egypt and Canada through CIDA, which is developing an effective and coordinated national system for sustainable water resources management in Egypt. NAWQAM is a seven-year project with an estimated budget of 20.5 million Canadian dollars and 27.5 million Egyptian pounds, and is slated for completion in 2007. The developmental impacts to be generated are improved national water resources management policies and integrated management and sustainable use of all water resources in Egypt.

Bangladesh Environmental Technology Verification is another recent international initiative undertaken by Canada through CIDA. Support to the Arsenic Mitigation Project (BETV-SAM) is a bilateral development assistance project between the Government of Bangladesh and Canada. The BETV-SAM project is a 4-year initiative (2004-2008) funded by CIDA and implemented by the Ontario Centre for Technology Advancement.

149. Has your country identified priorities for each activity in the programme of work, including timescales, in relation to outcome oriented targets? (decision VII/4)

a) No	
b) Outcome oriented targets developed but [not all] priority activities not developed	X
c) Priority activities developed but not outcome oriented targets	
d) Yes, comprehensive outcome oriented targets and priority activities developed	

Further comments on the adoption of outcome oriented targets and priorities for activities, including providing a list of targets (if developed).

All levels of Canadian government are developing initiatives with more comprehensive objectives, including time scales, priorities and outcome oriented targets, to work toward the integrated protection of inland water ecosystems. Priorities are developed within each new plan of action. Since all recent Canadian inland water protection initiatives, plans and programs rely on IWRM, objectives and targeted outcomes are well-defined because IWRM

guidelines establish a set of commitments, guidelines and key principles based on results-oriented goals/targets.

The **Great Lakes Action Plan** 2000-2005 is a recent example of an initiative that identifies priorities, timescale and outcome-oriented targets. For each objective, departments have identified target results and specific actions which will be carried out over a five-year period. Remedial Action Plans are being developed and implemented at 42 "Areas of Concern". The mechanisms responsible for the loss of ecological integrity in these areas are identified in the first step of the RAP process. Plans of action are then designed to systematically rejuvenate these areas to a level which meets *both* government and public expectations. These restorative measures use an ecosystem approach which considers not only land, air and water degradation, but also the loss or restriction of human uses in the Great Lakes Basin. All courses of action must first be ratified through public consultation within the Area of Concern. In February 2005, the government of Canada announced $40 million to bring forward the next phase of the Great Lakes Action Plan, specifically aimed at continuing the restoration of key aquatic areas of concern in the Great Lakes basin.

The Recovery Action Plan for Species At Risk in the Sydenham River contains a detailed action plan to address specific objectives that will be undertaken over the period 2002-2007 to address management approaches identified in the Sydenham River Recovery Strategy.

Habitat Joint Venture Programs (Pacific Coast, Prairie, and Eastern) focus on priority areas for habitat conservation. Each joint venture has specific and targets The North American Waterfowl Management Plan has also established quantitative habitat conservation goals for protecting and restoring/enhancing Joint Venture Areas.

The five-year Georgia Basin Action Plan (2005–2008) set a time scale for achieving its objectives and priorities. Water resource management goals include understanding aquatic ecosystems and pollution; understanding environmental concerns related to the release of priority substances and implementing measures to reduce this release.

The Lower Souris River Watershed (Province of Saskatchewan) has developed a model to guide watershed and aquifer planning. Following this model, plans are developed at the watershed level under the direction of two committees. Completion of the plan is scheduled for 2006.

Review of the 1991 federal Wetlands Conservation Policy aims toward the development of more well-defined priorities within the scope of the Canadian Biodiversity Strategy. The Federal Wetlands Forum has identified as a priority an assessment of the effect on wetlands of federal policy and legislation. The specific goals relating to habitat/wetland conservation are no net loss of wetland functions on all federal lands and waters, enhancement and rehabilitation of wetlands in areas where the continuing loss or degradation of wetland or their functions have reached critical levels, recognition of wetland function in resource planning, management and economic decision-making and securing wetlands of significance to Canadians.

The National Water Quality and Availability Management (NAWQAM) in Egypt is a recent international initiative that has a time scale NAWQAM is a seven-year project with an estimated budget of 20.5 million Canadian dollars and 27.5 million Egyptian pounds, currently slated to end in 2007.

150. Is your country promoting synergies between this programme of work and related activities under the Ramsar Convention as well as the implementation of the Joint Work Plan (CBD-Ramsar) at the national level? (decision VII/4)

a) Not applicable (not Party to Ramsar Convention)	
b) No	
c) No, but potential measures were identified for synergy and joint implementation	
d) Yes, some measures taken for joint implementation (please specify below)	X
e) Yes, comprehensive measures taken for joint implementation (please specify below)	

Further comments on the promotion of synergies between the programme of work and related activities under the Ramsar Convention as well as the implementation of the Joint Work Plan (CBD-Ramsar) at the national level.

Canada's continued involvement in RAMSAR and designation of sites in Canada is a strong indication that the Convention on Wetlands of International Importance is a continuing motivation for conserving wetlands as a key component of the overall strategy for conservation biodiversity nationally and internationally. Canada has gone beyond the minimum requirements of the Convention. As of 1999, 36 RAMSAR site had been designed covering a total of over 13 million hectares of wetlands and uplands. Canada's sites constitute nearly 20 percent of the total wetland area designated worldwide, and are found in all of Canada's provinces and territories.

151. Has your country taken steps to improve national data on: (decision VII/4)

Issues	Yes	No	No, but development is under way
a) Goods and services provided by inland water ecosystems?	X		
b) The uses and related socioeconomic variables of such goods and services?	X		
c) Basic hydrological aspects of water supply as they relate to maintaining ecosystem function?	X		
d) Species and all taxonomic levels?	X		
e) On threats to which inland water ecosystems are subjected?	X		

Further comments on the development of data sets, in particular a list of data sets developed in case you have replied "**YES**" above.

Research is increasingly providing important information for the understanding of inland water ecosystems goods and services. Many plans and programs provide data through assessment and monitoring practices like the Marsh Monitoring Program (MMP), the Lake Champlain Basin Program or the Five-year Georgia Basin Action plan.

Many organizations and institutions have the mandate to collect data on the state of inland water of ecosystem and biodiversity. The National Water Research Institute (NWRI - www.cciw.ca/nwri/nwri.html) is Canada's largest freshwater research establishment. NWRI generates and disseminates scientific knowledge through ecosystem-based research to support the development of sound government policies and programs, public decision-making, and early identification of environmental problems.

The Aquatic Ecosystem Impacts Research Branch (AEIRB) of NWRI conducts research to understand and predict the impacts of environmental stressors on the ecology of aquatic ecosystems. In addition, the Branch conducts research to develop innovative modelling approaches to integrated watershed management.

The St. Lawrence Centre (SLC), created in 1988, is the only federal research and development centre devoted entirely to the river ecosystem. SLC experts study the ecosystems of the St. Lawrence River and conduct research programs with the aim of better understanding how these ecosystems function, and maintaining up to date knowledge of the St. Lawrence River

The Experimental Lakes Area (ELA - www.umanitoba.ca/institutes/fisheries/) occupies a unique position as a dedicated research facility for ecosystem-scale experimental investigations and long-term monitoring of ecosystem processes. It serves as a natural laboratory for the study of physical, chemical and biological processes and interactions operating on an ecosystem spatial scale and a multi-year time scale. Data records from these watersheds began in 1967 and experimental studies began in 1969.

Monitoring networks are in place as part of the large watershed-based ecosystem initiatives (e.g. Great Lakes Action Plan 2001-2006, Georgia Basin Action Plan, St. Lawrence Action Plan and Vision 2000, Lake Erie Lake-wide Management Plan, Fraser Basin Council and Integrated Watershed Modeling of the South Saskatchewan River Basin). Information is also collected by various other government, non-government and academic organizations (e.g. Canadian Wildlife Service and Ducks Unlimited Canada for migrating bird species).

Information concerning inland water biodiversity is provided to other Parties through national web sites. Environment Canada, for example, maintains a website dedicated to information on Canada's freshwater.

The objectives and water resource management goals of the five-year Georgia Basin Action Plan (2005–2008) include understanding aquatic ecosystems and pollution; understanding environmental concerns related to the release of priority substances and implementing measures to reduce this release.

152. Has your country promoted the application of the guidelines on the rapid assessment of the biological diversity of inland water ecosystems? (decision VII/4)	
a) No, the guidelines have not been reviewed	X
b) No, the guidelines have been reviewed and found inappropriate	
c) Yes, the guidelines have been reviewed and application/promotion is pending	
d) Yes, the guidelines promoted and applied	
Further comments on the promotion and application of the guidelines on the rapid assessment of the biological diversity of inland water ecosystems.	

Box LXIII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Marine and coastal biological diversity

General

153. Do your country's strategies and action plans include the following? Please use an "X" to indicate your response. (decisions II/10 and IV/15)	
a) Developing new marine and coastal protected areas	X
b) Improving the management of existing marine and coastal protected areas	X
c) Building capacity within the country for management of marine and coastal resources, including through educational programmes and targeted research initiatives (if yes, please elaborate on types of initiatives in the box below)	X
d) Instituting improved integrated marine and coastal area management (including catchments management) in order to reduce sediment and nutrient loads into the marine environment	
e) Protection of areas important for reproduction, such as spawning and nursery areas	X
f) Improving sewage and other waste treatment	

g) Controlling excessive fishing and destructive fishing practices	X
h) Developing a comprehensive oceans policy (if yes, please indicate current stage of development in the box below)	X
i) Incorporation of local and traditional knowledge into management of marine and coastal resources (if yes, please elaborate on types of management arrangements in the box below)	X
j) Others (please specify below)	X
k) Not applicable	

Please elaborate on the above activities and list any other priority actions relating to conservation and sustainable use of marine and coastal biodiversity.

a) Developing new marine and coastal protected areas

National Marine Protected Areas (MPA)

Fisheries and Oceans Canada (DFO), Canadian Heritage, Parks Canada and Environment Canada all have different but complementary mandates for establishing marine protected areas.

Under the *Oceans Act*, the Minister of Fisheries and Oceans Canada is responsible for developing and coordinating a national system of MPAs with other federal agencies on behalf of the Government of Canada to conserve and/or protect various marine resources. These resources include commercial and non-commercial fisheries resources, including marine mammals and their habitats; endangered or threatened species and their habitats; unique marine habitats; areas of high biodiversity or biological productivity; or any other marine resource or habitat as necessary to fulfill the mandate of Fisheries and Oceans Canada. The department's MPA program is guided by a *National Marine Protected Areas Policy (1998)* and a *National Framework for Establishing and Managing Marine Protected Areas* (1999).

British Columbia's Endeavour Hydrothermal Vents area was designated as Canada's first MPA in March of 2003. The Endeavour Marine Protected Area hosts rich, diverse ecosystems unlike anywhere else on earth. The Endeavour Hydrothermal Vents, which lie deep below the surface of the Pacific Ocean, are home to 12 species of marine life that do not exist anywhere else in the world, and 60 species unique to the Juan de Fuca Ridge system.

In 2004, the Gully off Nova Scotia received designation as Canada's second MPA. This MPA is the largest marine canyon in the western North Atlantic, encompasses 2,364 square kilometres of ocean area and is approximately 80 kilometres long, 50 kilometres wide and more than 2,500 metres deep at the canyon mouth. The Gully boasts a rich diversity of marine species, including deep-sea corals, a variety of commercial and non-commercial fish species, numerous dolphin and whale species, and a complex range of habitat types. The deep-water portion of the canyon provides important habitat for the Scotian Shelf population of northern bottlenose whales.

In 2005, Canada announced an MPA strategy for a federal network of marine protected areas in all three of our oceans (www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/publications/docs/fedmpa-zpmfed/index_e.asp), and designated three new Atlantic MPAs (Basin Head, Prince Edward Island; and Gilbert Bay and Eastport, Newfoundland and Labrador), bringing Canada's total to five. These three MPAs are being designated as part of the first phase of the Government of Canada's broader *Oceans Action Plan*, which was released in May 2005. Phase I will continue to be rolled out throughout 2006, during which time five

additional MPAs are expected to be announced. They include:

- Musquash Estuary (New Brunswick);
- Tarium Niryutait (Northwest Territories);
- Bowie Seamount (British Columbia);
- St. Lawrence Estuary (Quebec); and
- Manicouagan Peninsula (Quebec).

DFO is also continuing to work towards the designation of another two MPAs: Race Rocks (British Columbia) and Leading Tickles (Newfoundland and Labrador).

Other work to date has focused on identifying the distinctive marine ecosystems found in Canada's waters, developing the planning and legislative tools, developing intergovernmental cooperation mechanisms, and beginning to identify and study specific areas for potential protection.

A *Marine Protected Areas Strategy* for the Pacific Coast has been prepared as a joint initiative of the federal and British Colombia governments (http://www.pac.dfo-mpo.gc.ca/oceans/mpa/strategy_e.htm).

National Marine Conservation Areas

National Marine Conservation Areas (NMCAs) are marine protected areas managed by Parks Canada for sustainable use, and containing smaller zones of high protection. These areas are distinct from MPAs, and will be protected from such activities as ocean dumping, undersea mining, and oil and gas exploration and development. However, traditional fishing activities are permitted, with the conservation of the ecosystem as the main goal. NMCAs are established to represent a marine region and to demonstrate how protection and conservation practices can be harmonized with resource use in marine ecosystems. Their management requires the development of partnerships with regional stakeholders, coastal communities, Aboriginal peoples, provincial or territorial governments and other federal departments and agencies.

In 1998, the governments of Canada and Quebec jointly created the Saguenay-St. Lawrence Marine Park, representing the first NMCA in Canada. There are now two operating sites designated as NMCAs – the Saguenay-St. Lawrence Marine Park, and Fathom Five National Marine Park in Georgian Bay, Ontario. Several other areas are currently being considered for designation, including Hwaii Gaanas in British Columbia.

g) Controlling excessive fishing and destructive fishing practices
Canada’s Strategy on International Fisheries and Oceans Governance

During 2004-2005, the Government of Canada committed $45 million in the federal strategy against overfishing. Canada’s approach to this strategy is three-fold:

1) maintain vigilant monitoring and surveillance to curb incidents of non-compliance on the high seas; while

2) actively engaging in diplomatic and advocacy activities that compel countries to take responsibility for the actions of their fleets and create the conditions for change; in order to

3) improve international fisheries governance over the longer term (www.overfishing.gc.ca).

In May 2005, Canada hosted the St. John's Conference on the *Governance of High Seas Fisheries and the United Nations Fisheries Agreement – Moving from Words to Actions.* This event brought together Ministers and experts from around the world to find solutions and commit to actions to improve international fisheries governance. Details on the conference can be found at the following link: http://www.dfo-mpo.gc.ca/fgc-cgp/index_e.htm .

National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (NPOA-IUU)

Illegal, unreported and unregulated fishing activities undermine the efforts of Canada to effectively manage fish stocks inside our 200-mile exclusive economic zones and on the high seas. The NPOA-IUU shows Canada's commitment to the international process that has been established to eliminate these harmful practices and preserve our precious ocean resources (www.dfo-mpo.gc.ca/misc/npoa-iuu_e.htm).

Released in February 2005, the NPOA-IUU outlines Canada's existing actions and initiatives at the national level to combat IUU fishing activities, and promotes objectives such as greater coastal state responsibility and improved co-operation through regional fisheries management organizations.

The NPOA-IUU has been developed in line with the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU), which was adopted by the United Nations Food and Agriculture Organization (FAO) in 2001. Following public consultations, Canada tabled the NPOA-IUU at the annual meeting of the FAO Committee on Fisheries, held March 7-11, 2005 in Rome.

Canadian Code of Conduct for Responsible Fishing Operations

The Canadian fishing industry has taken the lead in applying the International Code of Conduct for Responsible Fisheries adopted in 1995 by the United Nations Food and Agriculture Organization. The Canadian Code of Conduct for Responsible Fishing Operations (http://www.dfo-mpo.gc.ca/communic/fish_man/code/cccrfo-cccppr_e.htm) was developed as a grassroots initiative by fishermen for fishermen and represents a fundamental change in Canada's approach to achieving sustainable, conservation-based commercial fisheries across the country. The grassroots development of the Code remains unique in the world, with the broad-based involvement of all Canadian fishing organizations being the driving force behind the development process. It is estimated that the Canadian Code of Conduct for Responsible Fishing Operations has now been ratified or endorsed by fisheries fleets and organizations that account for over 80% of Canada's commercial fish harvest.

Information related to marine ecosystems and fisheries is available from Fisheries and Oceans Canada: http://www.dfo-mpo.gc.ca/index.htm.

h) Developing a comprehensive oceans policy

Canada's Oceans Strategy is the Government of Canada's policy statement for the management of Canada's oceans. The *Strategy* re-affirms the Government of Canada's commitment to manage our oceans in collaboration with other levels of government, Aboriginal organizations, communities, businesses, non-governmental organizations, academia, and Canadians generally. The *Strategy* is a response to the Government's legal obligation under the *Oceans Act* of 1997.

The Oceans Action Plan (OAP) is a horizontal approach to implementing the *Oceans Act* and *Canada's Oceans Strategy* which incorporates the activities of DFO and other departments. The Oceans Action Plan positions Canada to address the challenges of modern oceans management for the 21st century. Within the Department of Fisheries and Oceans, across the federal government and with provinces and territories, the focus will be on making significant progress in delivering key commitments under each of the four pillars of the OAP:

- international leadership, sovereignty and security;
- integrated oceans management;
- health of the oceans; and,
- promoting oceans science and technology.

i) Incorporation of local and traditional knowledge into management of marine and coastal resources

One example is The Coast of Bays Corporation in Newfoundland, which is responsible for the economic development of Newfoundland's south coast, and develops its plans in consultation with local communities. The Corporation's board of directors includes representatives from stakeholders such as the fishing industry, aquaculture, tourism and various community groups.

In 2001, a group called the "PARTENARIAT pour la gestion intégrée du bassin versant pour la baie de Caraquet" was created with representatives from the forestry, agriculture, fisheries, NGOs, tourism, government and academia sectors to manage Caraquet Bay (New Brunswick) and its surrounding watersheds. Since the creation of PARTENARIAT, the bay's environmental quality has improved, and the local, shellfish fishery has been reopened. The group is now working on numerous other projects to improve the health of the Bay.

j) Others

Environment Canada protects critical wildlife habitats and migratory birds in Canada's marine areas via Migratory Bird Sanctuaries, National Wildlife Areas and Marine Wildlife Areas.

Implementation of Integrated Marine and Coastal Area Management

154. Has your country established and/or strengthened institutional, administrative and legislative arrangements for the development of integrated management of marine and coastal ecosystems?	
a) No	
b) Early stages of development	
c) Advanced stages of development	
d) Arrangements in place (please provide details below)	X
e) Not applicable	

Further comments on the current status of implementation of integrated marine and coastal area management.

Canada enacted the Oceans Act in 1997. The Act outlines a new approach to managing oceans and their resources based on the premise that oceans must be managed as a collaborative effort amongst all stakeholders that use the

oceans, and that new management tools and approaches are required. This Act has changed the legislative basis for ocean management - managers are now required to consider the impacts of all human activities on Canada's ecosystems in marine resource management plans.

The Department of Fisheries and Oceans (DFO) is currently developing an integrated management framework under the Oceans Act which provides the tools to support implementation of integrated management plans by permitting the creation of management or advisory bodies and by enabling the establishment of marine environmental quality guidelines, objectives and criteria.

DFO has launched Integrated Management initiatives on all three coasts (e.g. Eastern Scotian Shelf Integrated Management, Beaufort Sea Integrated Management Initiative and the Central Coast of British Columbia).

DFO has taken steps to implement ecosystem approaches to fisheries management and takes the precautionary approach into account in its decisions. DFO is active in the five program element areas of Decision IV/5:

1. The Oceans Act, administered by DFO, provides for development of an oceans management strategy and integrated management plans. DFO is currently leading pilot integrated management projects in the Beaufort Sea and the Eastern Scotian Shelf.
2. DFO has also secured significant resources to promote sustainable aquaculture (i.e., mariculture) in Canada. This includes resources for research on aquaculture and the environment.
3. Canada's Oceans Act gives us the ability to establish Marine Protected Areas (MPAs) to conserve and protect unique habitats, endangered or threatened marine species and their habitats, commercial and non-commercial fishery resources (including marine mammals) and their habitats, marine areas of high biodiversity or biological productivity, and any other marine resource or habitat requiring special protection.
4. The majority of DFO research focuses on marine and coastal living resources and their supporting ecosystems.
5. DFO is also active in the area of alien invasive species (working on ballast water issues with Transport Canada) and introductions and transfers of non-indigenous species (developing a policy on introductions and transfers).

Canadian Oceans Strategy

The Canada Oceans Act calls for the federal government to lead and facilitate the development and implementation of a national oceans management strategy. The Canadian Oceans Strategy (http://www.cos-soc.gc.ca/dir/cos-soc_e.asp) helps Canada to meet current ocean challenges by:

- moving to an integrated, comprehensive vision for ocean management
- optimizing economic opportunities while considering social and environmental goals, and
- involving Canadians in decision-making affecting Canada's three oceans.

This federal framework for action engages all levels of government, local communities, aboriginal peoples and other partners for integrated management of the multiple uses of ocean resources. The strategy applies the ecosystem approach for protecting the marine environment (including habitat and biodiversity protection) and supporting sustainable economic opportunity.

Canada's National Program of Action

Canada's National Program of Action for the Protection of the Marine Environment from Land-Based Activities (NPA - http://www.npa-pan.ca/)

responds to an international call to protect the marine environment through coordinated actions at the local, regional, national and global levels. The NPA is a collective federal, provincial and territorial initiative. It is a co-operative and collaborative approach to preventing pollution from land-based sources and protecting habitat in the near-shore and coastal zones.

In November 2001, Canada hosted the first Intergovernmental Review Meeting of the Global Programme of Action (GPA) (http://www.gpa.unep.org) for the Protection of the Marine Environment from Land-based Activities in Montreal, Quebec. At that meeting Canada tabled a report outlining its framework for managing the marine environment, including an overview of more than 80 regional and community-level initiatives being led by government, non-governmental organizations, and communities that are helping to deliver on Canada's NPA's goals and objectives. Present at the meeting were Ministers and other high level delegates from 98 countries, international financial institutions, international organizations, UN agencies and NGOs. It was noted by all that although many countries have committed to achieving cleaner water and pollution control for coastal areas, they lack the financial resources necessary to achieve these goals. It was agreed that there is a strong need to mainstream the objectives of the GPA into the work plans of some major financial institutions, including the Global Environment Facility. The major outcome of the Review Meeting was the Montreal Declaration, which was approved by Ministers and provided a major contribution to the Johannesburg World Summit on Sustainable Development in 2002.

Integrated Coastal Zone Management

Through Canada's Oceans Strategy the Government of Canada is committed to developing and implementing Integrated Management planning initiatives that will establish oceans management structures and processes to manage ocean issues and empower Canadians to participate in the management of the coastal and marine areas.

Integrated management means planning and managing human activities in a comprehensive way so that they do not conflict with one another and in a way that considers all factors necessary for the conservation and sustainable use of marine resources and shared use of ocean spaces. The Canadian approach to integrated management recognizes that governance structures and practices for resource and activities management cannot be divorced from their ecosystem context: integrated management requires that decisions on ocean and coastal use are made with full consideration of their impacts on ecosystems. Accordingly, the proposed approach to integrated management is based on a geographic framework ranging from small Coastal Management Areas (CMAs) which may be nested with Large Ocean Management Areas (LOMAs).

Although Integrated Management of coastal and marine activities is not a new concept, increased effort is now underway to develop integrated management plans for all of Canada's estuarine, coastal and marine waters in direct support of Canada's Oceans Strategy. These plans are being developed in partnership with the federal government, provinces and territories, Aboriginal peoples, industry, non-governmental organizations and communities.

DFO has a number of integrated management initiatives currently underway across Canada (e.g. Eastern Scotian Shelf, St. Lawrence Upper North Shore, Beaufort Sea). Information on these and other activities can be viewed on the Canadian waters page of the DFO web site: http://www.dfo-mpo.gc.ca/canwaters-eauxcan/index_e.asp.

155. Has your country implemented ecosystem-based management of marine and coastal resources, for example through integration of coastal management and watershed management, or through integrated multidisciplinary coastal and ocean management?

a) No	
b) Early stages of development	X
c) Advanced stages of development	
d) Arrangements in place (please provide details below)	
e) Not applicable	

Further comments on the current status of application of the ecosystem to management of marine and coastal resources.

As a result of the Canada Oceans Act, since 1997 a number of initiatives have been undertaken through which Canada's approach to EBM is beginning to emerge:

–In 2002, Canada Oceans Strategy was published, a key element of a nationally co-ordinated Integrated Management (IM) program.

– In support of the IM program, DFO has established a national coordinating body, termed the Working Group on Ecosystem Objectives, to facilitate the development of best practices for IM and to oversee regional pilot projects designed to test implementation of concepts.

–In 1998, a pilot IM project was established in eastern Canada to facilitate EBM on the Eastern Scotian Shelf using a Strategic Planning Framework recently produced.

– In 2002 a pilot IM project was initiated in the Pacific Region Central Coast. This was expanded in 2004 to include the North Coast.

In response to Canada Oceans Strategy, DFO has defined scientifically determined ecoregions. Given the complexity of marine ecosystems, these are viewed as best possible attempts to encapsulate ecosystem biodiversity and function. Ecosystem management areas, termed Large Ocean Management Areas (LOMAs), are typically nested within science-based ecoregions. In the Pacific Region, where four ecoregions have been recognised, there is likely to be only one LOMA recognised within each ecoregion.

One specific example of the ecosystem-based management of marine and coastal resources was the 2001 creation, in New Brunswick, of a group called the "PARTENARIAT pour la gestion intégrée du bassin versant pour la baie de Caraquet," with representatives from the forestry, agriculture, fisheries, NGOs, tourism, government and academia sectors to manage the bay and its surrounding watersheds. Since the creation of PARTENTARIAT, the bay's environmental quality has improved, and the local shellfish fishery has been reopened. The group is currently working on other issues such as the impacts of industrial effluent discharges and forestry practices on fish habitat and water quality, as well as working on identifying other issues affecting the Bay.

Another example of ecosystem-based management can be observed in Prince Edward Island. Basin Head is a shallow coastal lagoon located on the eastern tip of PEI, near the town of Souris. The lagoon is surrounded by both agricultural land and an extensive sand dune system. Approximately 5 kilometres long, Basin Head is a unique coastal environment that the community, conservation organizations, and both levels of government are working towards protecting for generations to come. There are many types of

animal and plant life in the area, most notably a unique type of Irish moss that is found nowhere else in the world.

Basin Head has attracted the attention of both government and non-government interests for a number of years. Recently, the provincially-chaired Marine Conservation Areas Committee recognized the ecological importance of the area. To help foster co-operation, local interests established the Basin Head Lagoon Ecosystem Conservation Committee in early 1999.

This committee identified several important goals of the community including: the conservation and protection of Irish moss and the ecosystem that supports it, public awareness and education, and research. Based on extensive public and government input and interest, DFO supports this project under the Marine Protected Areas (MPA) Program. Basin Head was announced as an "Area of Interest" in the MPA Program in June, 1999, and officially designated as an MPA in October 2005.

Marine and Coastal Living Resources

156. Has your country identified components of your marine and coastal ecosystems, which are critical for their functioning, as well as key threats to those ecosystems?	
a) No	
b) Plans for a comprehensive assessment of marine and coastal ecosystems are in place (please provide details below)	
c) A comprehensive assessment is currently in progress	
d) Critical ecosystem components have been identified, and management plans for them are being developed (please provide details below)	X
e) Management plans for important components of marine and coastal ecosystems are in place (please provide details below)	X
f) Not applicable	

Further comments on the current status of assessment, monitoring and research relating to marine and coastal ecosystems, as well as key threats to them

One of the key roles of DFO is the scientific observation and understanding of Canada's waterways and aquatic resources. DFO scientists do research encompassing:

- protection and conservation of fish and fish habitat and the sustainable use of fish and other living aquatic resources;
- conservation of marine ecosystems;
- fish production research and fish health protection, safe and efficient navigation;
- role of the oceans in climate change and the impacts of climate change, and oceanographic studies.

They accomplish this by:

- monitoring the aquatic living resources and their environment, maintaining related databases, and providing environmental information for marine freshwater related activities;
- surveying Canadian navigable waterways and producing nautical publications, including nautical charts, sailing directions, water depth maps and tide and current tables;
- maintaining scientific capacity to deliver credible advice to assess risk, and to develop resource management practices, regulations and standards, and by transferring the knowledge to the clients, public and

media to foster the protection, conservation and sustainable development of living aquatic resources and ecosystems.

A specific example of work done by the DFO, in conjunction with local populations, can be seen in the Tariug Monitoring Program. In early 2000, this program was established in the Inuvialuit Settlement Region (Northwest Territories) and began operating through the partnership of the DFO and various Arctic communities to study how changes in the environment affect the Arctic waters. The working group is collecting water temperature data as well as information on the general health and abundance of fish species. The water temperature data will provide information regarding the effect that temperature has on fish abundance, distribution, migration and life cycles. The information collected from the health and abundance of fish data will provide an overview of any contaminants that are present in the environment as well as the overall species' health. This program will eventually study the relationship between fish catches and water temperature, and it is hoped that it will expand to include more environmental indicators.

Genetic variability is an important factor in maintaining the sustainability of Canada's commercially important marine fish and shellfish. Scientists from Fisheries and Oceans Canada, Dalhousie University's Marine Gene Probe Laboratory, the University of New Brunswick and the University of Prince Edward Island have embarked on a search to catalogue the genetic structure of three commercially important marine species in Atlantic Canada. The species are lobster, herring and haddock. Using DNA markers, scientists will examine samples of different populations of these species and construct profiles of their genetic diversity. The first goal is to provide new information to help protect the genetic diversity of commercially important lobster, haddock and herring stocks. The second goal is to provide information on genetic variations among haddock stocks for the selection of aquaculture broodstock.

Canada is also active in aquaculture, the farming of aquatic organisms in marine or freshwater. This implies some form of intervention in the rearing or growing process to enhance production, such as regular stocking, feeding, and/or protection from predators and disease. It also implies individual or corporate ownership of the stock or crop being farmed. The Government of Canada recognises the significant societal benefits associated with aquaculture, as well as the need to ensure that aquaculture is practiced in an environmentally responsible manner. As a result, the federal government, through the DFO, has made monitoring and research pertaining to sustainable aquaculture development a federal priority.

157. Is your country undertaking the following activities to implement the Convention's work plan on coral reefs? Please use an "**X**" to indicate your response.

Activities	Not implemented nor a priority	Not implemented but a priority	Currently implemented	Not applicable
a) Ecological assessment and monitoring of reefs			X	
b) Socio-economic assessment and monitoring of communities and stakeholders				X
c) Management, particularly through application of integrated coastal management and marine and coastal protected areas in			X	

coral reef environments				
d) Identification and implementation of additional and alternative measures for securing livelihoods of people who directly depend on coral reef services				X
e) Stakeholder partnerships, community participation programmes and public education campaigns				X
f) Provision of training and career opportunities for marine taxonomists and ecologists				X
g) Development of early warning systems of coral bleaching				X
h) Development of a rapid response capability to document coral bleaching and mortality				X
i) Restoration and rehabilitation of degraded coral reef habitats				X
j) Others (please specify below)				

Please elaborate on ongoing activities.

Deep-sea corals are found around the world at depths on the order of 200-1500 m and can be important components of deep-sea ecosystems. They occur off Atlantic Canada on the continental slope, in submarine canyons, and in channels between fishing banks. Until recently, most of the limited information available on deep-sea corals in Atlantic Canada was anecdotal, based primarily on observations made by the fishing industry (Breeze et al. 1997). Since 1997 DFO has been collecting video and photographic information of epibenthic communities on an opportunity basis at prime coral habitat sites in Atlantic Canada including the Northeast Channel, the Gully and Stone Fence. Corals are also occasionally collected during DFO groundfish surveys. Some preliminary results are reported by MacIsaac et al. (2001). Deep-sea corals can provide valuable paleoclimate and environmental information (e.g. Smith et al. 1997). Despite these and other efforts, knowledge of deep-sea coral ecosystems in Atlantic Canada and in general is limited.

Cold-water corals (also known as deep-sea corals) are an important part of the benthic ecosystem of the Maritimes. A draft Coral Conservation Plan for the Maritimes Region was released at the 3rd ESSIM (Eastern Scotian Shelf Integrated Management) Forum Workshop (February 22-23, 2005). The Plan documents what has been done to date on coral conservation in the region, and provides direction for future action. The ESSIM Planning Office will be taking comments on the draft Plan until June 2005, with the aim of finalizing the Plan by the end of the year.

Marine and Coastal Protected Areas

158. Which of the following statements can best describe the current status of marine and coastal protected areas in your country? Please use an "**X**" to indicate your response.	
a) Marine and coastal protected areas have been declared and gazetted (please indicate below how many)	X
b) Management plans for these marine and coastal protected areas have been developed with involvement of all stakeholders	X
c) Effective management with enforcement and monitoring has been put in place	X
d) A national system or network of marine and coastal protected areas is under development	X
e) A national system or network of marine and coastal protected areas has been put in place	
f) The national system of marine and coastal protected areas includes areas managed for purpose of sustainable use, which may allow extractive activities	
g) The national system of marine and coastal protected areas includes areas which exclude extractive uses	
h) The national system of marine and coastal protected areas is surrounded by sustainable management practices over the wider marine and coastal environment.	
i) Other (please describe below)	
j) Not applicable	

Further comments on the current status of marine and coastal protected areas.

a) Marine and coastal protected areas have been declared and gazetted

There are five MPAs designated in Canada at the present date – British Columbia's Endeavour Hydrothermal Vents (2003), Nova Scotia's Gully (2004), Prince Edward Island's Basin Head (2005), and Newfoundland and Labrador's Gilbert Bay and Eastport(both 2005). At present, there are two operating sites designated as NMCAs – the Saguenay-St. Lawrence Marine Park, and Fathom Five National Marine Park in Georgian Bay, Ontario. Several other areas are currently being considered for designation, including Hwaii Gaanas in British Columbia.

d) A national system or network of marine and coastal protected areas is under development

Under the *Oceans Act*, the Minister of Fisheries and Oceans Canada is responsible for developing and coordinating a national system of MPAs with other federal agencies on behalf of the Government of Canada to conserve and/or protect various marine resources. These resources include commercial and non-commercial fisheries resources, including marine mammals and their habitats; endangered or threatened species and their habitats; unique marine habitats; areas of high biodiversity or biological productivity; or any other marine resource or habitat as necessary to fulfill the mandate of Fisheries and Oceans Canada. The development of a national system of MPAs is dictated by the Federal Marine Protected Areas Strategy (MPAS), which was developed in 2004 as part of the Federal Protected Areas Strategy (FPAS). The Vision of the draft FPAS is "To have, within a decade, a federal network of marine, terrestrial, and coastal protected areas – planned, established and managed in an integrated manner, using an ecosystem management approach - that is a

foundation of the long-term health of Canada's ecosystems and biodiversity."

f) The national system of marine and coastal protected areas includes areas managed for purpose of sustainable use, which may allow extractive activities

National Marine Conservation Areas (NMCAs) are marine areas being managed by Parks Canada to protect and manage them for sustainable use, and contain smaller zones of high protection. These areas are distinct from MPAs, and will be protected from such activities as ocean dumping, undersea mining, and oil and gas exploration and development. However, traditional fishing activities are permitted, with the conservation of the ecosystem as the main goal. NMCAs are established to represent a marine region and to demonstrate how protection and conservation practices can be harmonized with resource use in marine ecosystems. Their management requires the development of partnerships with regional stakeholders, coastal communities, Aboriginal peoples, provincial or territorial governments and other federal departments and agencies. In order to help manage NMCAs, the NMCA Program is being implemented to represent the full range of marine ecosystems in Canada's Atlantic, Arctic, and Pacific Oceans, as well as the Great Lakes. The goal is to represent each of Canada's 29 marine natural regions. This will contribute directly to biodiversity goals by protecting the diversity of Canada's oceanic and Great Lakes environments. The NMCA Action Plan calls for the establishment of 5 NMCAs by 2008.

Mariculture

159. Is your country applying the following techniques aimed at minimizing adverse impacts of mariculture on marine and coastal biodiversity? Please check all that apply.		
a)	Application of environmental impact assessments for mariculture developments	X
b)	Development and application of effective site selection methods in the framework of integrated marine and coastal area management	X
c)	Development of effective methods for effluent and waste control	X
d)	Development of appropriate genetic resource management plans at the hatchery level	X
e)	Development of controlled hatchery and genetically sound reproduction methods in order to avoid seed collection from nature.	X
f)	If seed collection from nature cannot be avoided, development of environmentally sound practices for spat collecting operations, including use of selective fishing gear to avoid by-catch	X
g)	Use of native species and subspecies in mariculture	X
h)	Implementation of effective measures to prevent the inadvertent release of mariculture species and fertile polypoids.	X
i)	Use of proper methods of breeding and proper places of releasing in order to protect genetic diversity	X
j)	Minimizing the use of antibiotics through better husbandry techniques	X
k)	Use of selective methods in commercial fishing to avoid or minimize by-catch	X

l)	Considering traditional knowledge, where applicable, as a source to develop sustainable mariculture techniques	X
m)	Not applicable	

Further comments on techniques that aim at minimizing adverse impacts of mariculture on marine and coastal biodiversity.

To achieve its vision for aquaculture development, DFO has developed a comprehensive plan aimed at increasing public confidence in the sustainability of aquaculture and to support competitiveness in international markets.

In 2000, DFO launched its Program for Sustainable Aquaculture. The program reflects Canada's commitment to increase scientific knowledge to support decision-making, strengthen measures to protect human health, and make the federal legislative and regulatory framework more responsive to public and industry needs. Specifically, the program allocated $75 million over the first five years of the program and $15 million/year thereafter in the following key areas:

- environmental and biological science to improve the federal government's capacity to assess and mitigate aquaculture's potential impacts on aquatic ecosystems;
- the Aquaculture Collaborative Research and Development Program, under which DFO partners with industry by jointly funding projects to enhance sector innovation and productivity;
- the Canadian Shellfish Sanitation Program, to maintain consumer and market confidence in the safety and quality of aquaculture products; and
- strengthening the application of DFO's legislation, regulations and policies that govern aquaculture, particularly as they relate to habitat management and navigation.

The program is now fully operational with national and regional management structures and a Performance Management Framework.

DFO has also established a set of principles to guide its decision-making and ensure that the department's actions support the social, economic, and environmental aspects of sustainable aquaculture development. The Aquaculture Policy Framework (APF) is intended to orient DFO around a common vision for marine and freshwater aquaculture and shape the development of future departmental aquaculture policies and programs. The APF consists of nine principles relating to two themes: Increased Public Confidence in the Sustainability of Aquaculture Development, and Increased Industry Competitiveness in Global Markets; as a whole, the APF is aimed at improving DFO's ability to support industry competitiveness and increase public confidence in the sustainability of aquaculture.

Although the industry is ultimately responsible for its commercial success, the federal government can contribute in certain areas. By investing in research and development, facilitating access to existing federal programs, and initiating other industry development programs, DFO is helping to position the Canadian aquaculture sector as a world leader in the culture of high-quality, environmentally sound aquaculture products.

In response to clear messages from industry and the public, DFO and the Canadian Food Inspection Agency (CFIA) have developed a National Aquatic Animal Health Program (NAAHP). The NAAHP is led by CFIA with DFO diagnostics

and research support to provide the surveillance data needed to meet international fish health standards, enable Canada to protect its fish and seafood export markets, maintain disease-risk related conditions on imports, and improve the competitiveness of the aquaculture sector by effective management of aquatic animal diseases. An Aquatic Animal Health Committee, chaired by CFIA, has been established to refine roles, responsibilities and financial commitments discussed during 2002-2004 consultations.

The Coast of Bays Corporation in Newfoundland is responsible for the economic development of Newfoundland's south coast, and develops its plans in consultation with local communities. The Corporation's board of directors includes representatives from stakeholders such as the fishing industry, aquaculture, tourism and various community groups. The Corporation began developing a Community-Based Coastal Resource Inventory in 1997/98, in partnership with the DFO. This inventory consists of Traditional Ecological Knowledge (TEK) from coastal residents, fishers, members of environmental and recreational groups, SCUBA divers and other people who have an interest in Newfoundland's coasts. The information covers a range of subjects from lobster fisheries and aquaculture to lighthouses, shipwrecks and shorelines.

Alien Species and Genotypes

160. Has your country put in place mechanisms to control pathways of introduction of alien species in the marine and coastal environment? Please check all that apply and elaborate on types of measures in the space below.

a) No	
b) Mechanisms to control potential invasions from ballast water have been put in place (please provide details below)	X
c) Mechanisms to control potential invasions from hull fouling have been put in place (please provide details below)	
d) Mechanisms to control potential invasions from aquaculture have been put in place (please provide details below)	
e) Mechanisms to control potential invasions from accidental releases, such as aquarium releases, have been put in place (please provide details below)	
f) Not applicable	

Further comments on the current status of activities relating to prevention of introductions of alien species in the marine and coastal environment, as well as any eradication activities.

b) Mechanisms to control potential invasions from ballast water have been put in place

Control of ballast water in Canada began with the development of the "Voluntary Guidelines for the Control of Ballast Water Discharges from Ships Proceeding to the St. Lawrence River and the Great Lakes." The scope of these guidelines was expanded in 2000 to include all waters under Canadian jurisdiction. The guidelines request that any ballast water being carried on ships entering Canada from outside our Exclusive Economic Zone be exchanged in mid-ocean. In 1998, an amendment was made to the *Canada Shipping Act* allowing Canada to make regulations to control and manage ballast water. Consultations were held during the fall of 2003 with the intent of making these guidelines mandatory in the waters of the Great Lakes and St. Lawrence River, and the Canadian government is currently developing national Ballast Water Management Regulations. The scope of these regulations is much broader than originally intended for the Great Lakes and St. Lawrence River; they are

now proposed to include all waters under Canadian jurisdiction, from coast to coast to coast, as currently covered in the regulations. This regulation will be drafted under the current *Canada Shipping Act*.

The regulations under the CSA 2001 will closely follow the regulations developed by the International Maritime Organization (IMO) by implementing international standards for the control of ballast water that will eventually replace the current provisions for exchange at sea.

Under the new regulations, ballast water taken on in areas outside Canada's EEZ or outside the Great Lakes Basin should not be discharged in waters under Canadian jurisdiction unless one of the ballast water management options specified in section 7 has been successfully performed.

Box LXIV.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Agricultural biological diversity

161. Has your country developed national strategies, programmes and plans that ensure the development and successful implementation of policies and actions that lead to the conservation and sustainable use of agrobiodiversity components? (decisions III/11 and IV/6)	
a) No	
b) No, but strategies, programmes and plans are under development	
c) Yes, some strategies, programmes and plans are in place (please provide details below)	**X**
d) Yes, comprehensive strategies, programmes and plans are in place (please provide details below)	

Further comments on agrobiodiversity components in national strategies, programmes and plans.

Agriculture and Agri-Food Canada has been taking great strides to help reduce agricultural risks to the sector, and provide agricultural benefits to air, soil, water and biodiversity. In 2002, AAFC, in collaboration with the provinces and territories, developed the Agricultural Policy Framework (APF), a national strategy, with the aim of preparing the agricultural sector to address emerging challenges and of making Canada the world leader in food safety, innovation, and environmentally responsible food production.

The environment chapter of APF commits the federal, provincial and territorial
governments, in collaboration with the sector and other stakeholders to:
- reduce agricultural risks and provide benefits to the health and supply of water
- reduce agricultural risks and provide benefits to the health of soils

- reduce agricultural risks and provide benefits to the health of the air and atmosphere
- reduce agricultural risks and to ensure compatibility between biodiversity and agriculture.

The APF's environment programs (e.g. Environmental Farm Plan Program, National Farm Stewardship Program (NFSP) which supports adoption of Beneficial Management Practices, and the related Greencover program) are aimed at promoting sustainable agriculture in order to conserve Canada's natural resources for future generations.

For further information, please visit http://www.agr.gc.ca/cb/apf/index_e.php?section=env&page=env

162. ? Has your country identified ways and means to address the potential impacts of genetic use restriction technologies on the *In-situ* and *Ex-situ* conservation and sustainable use, including food security, of agricultural biological diversity? (decision V/5)

a) No	
b) No, but potential measures are under review	
c) Yes, some measures identified (please provide details below)	
d) Yes, comprehensive measures identified (please provide details below)	**X**

Further information on ways and means to address the potential impacts of genetic use restriction technologies on the *In-situ* and *Ex-situ* conservation and sustainable use of agricultural biodiversity.

To protect Canada from the potential risks posed by novel plants including genetic use restriction technologies (GURTs), Canada has in place a domestic regulatory system for plants with novel traits (PNTs; including living modified organisms [LMOs] as defined by the CBD in its supplementary agreement, the Cartagena Protocol on Biosafety). Canada's regulatory framework ensures that the introduction of new crop varieties does not have adverse effects with regard to weediness potential, gene flow, plant pest potential, impact on non-target organisms and impact on biodiversity. Canada's regulatory framework was established on internationally accepted regulatory principles: it is science-based, product-based, it operates on a stepwise, case by case approach, it is founded on the concept of familiarity and it engages public involvement.

Canada's regulation of PNTs is triggered by the PNT's characteristics and its novelty in Canada, not by the process by which it was developed. In Canada, PNTs may be produced by conventional breeding, mutagenesis, or by recombinant DNA techniques. Environmental safety assessments are required for all PNTs intended for importation and/or for environmental release in Canada. Safety assessments of livestock feeds and foods derived from biotechnology are also required in Canada prior to approval for placing on the market. Approvals for unconfined environmental release, novel feed and novel food are concurrent.

The LMO status of a PNT is not relevant to decisions regarding importation to Canada. Decisions on importation are rather related to the approval status of products in the shipment. Canada requires notification and assessment of all PNTs, including novel LMOs prior to import. Following pre-market approval, LMOs have the same status as any other product.

Annex to decision V/5 - Programme of work on agricultural biodiversity

Programme element 1 – Assessment	
163. Has your country undertaken specific assessments of components of agricultural biodiversity such as on plant genetic resources, animal genetic resources, pollinators, pest management and nutrient cycling?	
a) No	
b) Yes, assessments are in progress (please specify components below)	**X**
c) Yes, assessments completed (please specify components and results of assessments below)	

Further comments on specific assessments of components of agricultural biodiversity.

Canada has a number of initiatives underway that are focusing on assessments of agricultural biodiversity. Canada recently submitted the Animal Genetic Resource Country Report to FAO as part of this on-going program. This was the first report and will be helpful in further development of national programs and efforts.

Canada also supports work on the animal genetic resource information system operated under FAO (DAD-IS). Canada, through efforts at Agriculture and Agri-Food Canada, Plant Gene Resource Canada, has developed a national conservation effort for plant genetic resources. Included in this program is a searchable web-based database for entries in the national collection system. Canada has ratified the International Treaty on Plant Genetic Resources for Food and Agriculture, which is an important international agreement for the conservation and sustainable use of plant genetic resources for food and agriculture.

The Plant Genetic Resources Network/Plant Gene Resources of Canada preserves over 100,000 samples of plant genetic resources for food and agriculture. Specialized nodes have been established at Winnipeg (cereals), Saskatoon (oilseed Brassicas), Morden (Western ornamentals, special crops), Fredericton (potatoes), and Lethbridge (forages). The network is mandated to protect, preserve, and enhance the genetic diversity of Canadian crop and wild plants of economic importance by acquiring, evaluating, researching, documenting, and distributing samples of plant genetic resources for food and agriculture.

Canada is initiating work on a new Country report for the Plant Genetic Resource area. This is a broad reaching overview of the state of these critical resources that will be submitted to the FAO.

As part of a comprehensive national agricultural research effort, Canada has a number of programs focused on pest management as well as the crop nutrition and nutrient cycling areas. Efforts on Pollinators are less intensive but nonetheless are underway in a number of fora.

In addition, please refer to question 166 for further information on agri-environmental indicators used to assess overall environmental sustainability of the agricultural sector.

164. Is your country undertaking assessments of the interactions between agricultural practices and the conservation and sustainable use of the components of biodiversity referred to in Annex I of the Convention (e.g. ecosystems and habitats; species and communities; genomes and genes of social, scientific or economic importance)?

a) No	
b) Yes, assessments are under way	**X**
c) Yes, some assessments completed (please provide details below)	
d) Yes, comprehensive assessments completed (please provide details below)	

Further comments on assessment of biodiversity components (e.g. ecosystems and habitats; species and communities; genomes and genes of social, scientific or economic importance).

The Agricultural Policy Framework lists biodiversity as one of its key environmental goals. To assist the sector in contributing to the environmental goals of the APF, assessment measures or tools such as provincial agri-environmental scans, on-farm agri-environmental risk assessments, environmental farm action plans and equivalent agri-environmental plans have been introduced. Biodiversity assessment is a specific component of these program elements. These will play a role in awareness and assessing and addressing risks of farming activities related to biodiversity and contribute directly to some of the focal areas outlined in the 2010 Target for the Convention on Biological Diversity.

Additionally, the AAFC is increasing awareness of how agriculture and Species at Risk can co-exist. The Department is working on completing four integrated projects by 2005: two survey projects to identify Species at Risk on some key pastures; an extension project to raise awareness about the Species at Risk Act and to promote the message that “agriculture and Species at Risk can co-exist”; and a project to develop a database to collect existing Species at Risk information in regards to presence on federal lands.

There are also several groups and individuals within AAFC undertaking assessments of the interactions between agriculture practices and biodiversity including the following:

- Range Condition Assessment work - in 2004 all AAFC Pastures have been assessed for range condition - since 1995 AAFC has completed range assessments on ~ 40 pastures
- assessments for Species At Risk at Community pastures for infrastructure developments
- riparian training courses, both internal to staff and to professionals with other Departments
- riparian assessments completed on AAFC pastures
- Ferruginous Hawk nest monitoring/banding at Antelope Park, Kindersley-Elma pastures
- brush management and monitoring of aspen encroachment on AAFC Parkland pastures
- AAFC involvement on several Species at Risk recovery teams
- Understanding plant and microbial biodiversity for detection and identification
- Understanding and assessment of invertebrate biodiversity
- Understanding the relationship between agriculture and biodiversity to maintain healthy agro-ecosystems
- Conservation and utilization of genetic resourcesAgriculture and Agri-Food Canada is participating in research in Saskatchewan to evaluate the social,

economic, and environmental components of sustainable land management in an integrated and comprehensive manner. Research involves identifying and evaluating sustainability indicators that prevail on 30 farms, using information obtained directly from farmers through field surveys of wildlife biodiversity and soil mapping, and from independent sources. Long-term simulations will indicate the capability of farming systems to provide environmental protection and economic viability. The analysis of current and proposed alternative systems will be augmented for other indicators using an international framework for the evaluation of sustainable land management.

For further information on Canada's assessment of biodiversity, please refer to question 166 which provides further details on Agriculture and Agri-Food Canada's National Agri-Environmental Health Analysis and Reporting Program (NAHARP).

165. Has your country carried out an assessment of the knowledge, innovations and practices of farmers and indigenous and local communities in sustaining agricultural biodiversity and agro-ecosystem services for food production and food security?

a) No	
b) Yes, assessment is under way	
c) Yes, assessment completed (please specify where information can be retrieved below)	**X**

Further comments on assessment of the knowledge, innovations and practices of farmers and indigenous and local communities.

A survey of Canadian Rural Landowners entitled "Survey of Farmers, Ranchers, and Rural Landowners attitudes and behaviours regarding land stewardship" was conducted in September 2000 and repeated in June 2003. The primary purpose of these studies was to provide policy makers and program developers with current data to assist them in the development of stewardship policies and programs. http://www.countrysidecanada.com/links.html

FEMS - The series Farm Environmental Management in Canada presents key survey information on agri-environmental practices used on Canadian farms. The series includes several articles on themes such as manure storage, manure application, water management, chemical inputs use and sustainable land management practices. These analyses are supported by data from the 2001 Farm Environmental Management Survey (FEMS) and supplemented with information from the 2001 Census of Agriculture. FEMS is the only dedicated national source of information on a broad range of farming practices that impact on the environment. The FEMS survey collects farm-level information on manure management practices, sustainable grazing systems, crop nutrient management, pesticides application practices, land and water management practices (including irrigation farming practices), and whole farm environmental management. For more information on FEMS, please visit http://www.statcan.ca:8096/bsolc/english/bsolc?catno=21-021-M

166. Has your country been monitoring an overall degradation, status quo or restoration/rehabilitation of agricultural biodiversity since 1993 when the Convention entered into force?

a) No	
b) Yes, no change found (status quo)	
c) Yes, overall degradation found (please provide details below)	
d) Yes, overall restoration or rehabilitation observed (please provide details below)	**X**

Further comments on observations.

In 1993, in response to the need for agri-environmental information and to assess the impacts of agricultural policies on the environment, AAFC began developing a set of agri-environmental indicators (AEIs) to determine how environmental conditions within agriculture were changing over time, and how such changes could be explained. Results of this work were published in February 2000 in a report called *Environmental Sustainability of Canadian Agriculture: Report of the Agri-Environmental Indicator Project (2000)*.

Further to this initial work, and in light of current and future needs for this kind of information, AAFC decided to strengthen its capacity to develop and continuously improve on AEIs, as well as the tools that use these indicators to develop policy and programs. AAFC is establishing this capacity through the National Agri-Environmental Health Analysis and Reporting Program (NAHARP).

NAHARP will provide science-based agri-environmental indicators that can play a critical role in guiding policy and program design, and that can help determine which options will be most effective. As policies and programs are implemented, information from NAHARP will help analyze and understand the results actually achieved. The information generated will also provide a general report card that can help track the environmental performance of Canadian agriculture. For more information on NAHARP and for a list of indicators being developed, please visit: http://www.agr.gc.ca/env/naharp-pnarsa/index_e.php.

Agriculture and Agri-Food Canada is also sponsoring a project entitled “Initiation of a Biodiversity Inventory for Agricultural Saskatchewan”. The objective is to gather existing wildlife and agricultural survey data for development of a geographically referenced assessment of biodiversity in agricultural Saskatchewan, and to establish suitable biological indicators and benchmarks of biodiversity.

Programme element 2 - Adaptive management	
167. Has your country identified management practices, technologies and policies that promote the positive, and mitigate the negative, impacts of agriculture on biodiversity, and enhance productivity and the capacity to sustain livelihoods?	
a) No	
b) No, but potential practices, technologies and policies being identified	
c) Yes, some practices, technologies and policies identified (please provide details below)	
d) Yes, comprehensive practices, technologies and policies identified (please provide details below)	**X**

Further comments on identified management practices, technologies and policies.

The National Farm Stewardship Program (NFSP) of the Agriculture Policy Framework provides technical assistance and cost share incentives for producers to adopt practices identified as action items in the environmental farm plan. There are a wide range of beneficial management practices that producers are eligible to apply for that either directly protect or indirectly conserve or enhance biodiversity. The BMPs supported by the NFSP must be practical and economical for producers to implement. In addition, there are several national science programs which were established in the Department of Agriculture & Agri-Food under the Science and Innovation component of the APF which will promote new tools and technologies that will advance the goals of the APF including the environmental sustainability of agriculture.

The Environmental Health program aims to develop knowledge and technologies that minimize the impact of agricultural production on soil, air, water and biodiversity while maintaining the sustainability of the sector.

The Sustainable Production Systems program targets the development of crop and livestock production systems that are economically and environmentally sustainable and improves the competitiveness of Canadian agri-food products in domestic and international markets.

The Bioproducts and Bioprocesses program does research to discover and develop value-added biobased products and processes.

Each of the national programs also comprises a subset of interrelated themes that link back with the other three. For more information, please visit: http://www.agr.gc.ca/cb/apf/index_e.php?section=sci&page=sci

Programme element 3 - Capacity-building	
168. Has your country increased the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage sustainable agricultural biodiversity and to develop strategies and methodologies for *In-situ* conservation, sustainable use and management of agricultural biological diversity?	
a) No	
b) Yes (please specify area/component and target groups with increased capacity)	**X**
Further comments on increased capacities of farmers, indigenous and local communities, and their organizations and other stakeholders.	
A key component of the National Environmental Farm Planning process is building producer awareness of agri-environmental issues and the options they may consider in managing them. One priority focus area of EFP is biodiversity protection and enhancement. This assessment and planning activity can be done either on an individual basis or on a group basis under the equivalent agri-environmental planning approach. In addition, please refer to questions 164 and 165.	

169. Has your country put in place operational mechanisms for participation by a wide range of stakeholder groups to develop genuine partnerships contributing to the implementation of the programme of work on agricultural biodiversity?	
a) No	
b) No, but potential mechanisms being identified	
c) No, but mechanisms are under development	
d) Yes, mechanisms are in place	**X**
Further comments on increased capacities of farmers, indigenous and local communities, and their organizations and other stakeholders.	
Extensive consultation with industry and stakeholders was conducted in developing and designing the National Environmental Farm Planning Initiative and National Farm Stewardship programs. One formal mechanism of consultation was the implementation of a National Agri-Environmental Advisory Committee to provide a method of two way communication between the stakeholders and the program leads. The Land Stewardship initiative in Manitoba, implemented by partnerships involving provincial government agencies and non-government organizations, has led to the development of several biodiversity conservation related projects including: Habitat Conservation; The Rangeland and Resource program; and The Farm Shelterbelt Program. Environment Canada's Canadian Wildlife Service and Agriculture and Agri-Food Canada's Prairie Farm Rehabilitation Administration (PFRA) are working with Conservationists and cattle producers to restore native prairie in the Last Mountain Lake National Wildlife Area in south-central Saskatchewan.	

170. Has your country improved the policy environment, including benefit-sharing arrangements and incentive measures, to support local-level management of agricultural biodiversity?	
a) No	
b) No, but some measures and arrangements being identified	
c) No, but measures and arrangements are under development	
d) Yes, measures and arrangements are being implemented (please specify below)	**X**

Further comments on the measures taken to improve the policy environment.

The National Farm Stewardship Program is aimed at accelerating the adoption of beneficial management practices (BMPs) on Canadian farms and agricultural landscapes. This outcome will be achieved through the provision of cost shared incentives to producers for the implementation of BMPs that address on-farm environmental risks identified during the environmental farm planning process. Incentives will be available to producers for the implementation of BMPs for the management or enhancement of wildlife habitat and biodiversity. Examples of BMPs for biodiversity include; planting or enhancing native buffer strips, improved grazing systems and wildlife shelterbelt establishment.

The Greencover Canada program is a five-year initiative aimed at helping producers improve their grassland-management practices, protect water quality, reduce greenhouse-gas emissions, and enhance biodiversity and wildlife habitat. The land-conversion component under Greencover will provide a producer with advice and financial incentives to convert environmentally sensitive land to perennial cover if approved.

Countryside Canada, a $600,000, three-year initiative, is designed to strengthen conservation practices within the agricultural sector by recognizing those who have been nominated for their exemplary efforts in carrying out stewardship initiatives, such as conserving existing wildlife habitat, planting vegetation to provide food and shelter for wildlife, installing nesting structures for use by birds on their property or preventing manure run-off.

Programme element 4 – Mainstreaming	
171. Is your country mainstreaming or integrating national plans or strategies for the conservation and sustainable use of agricultural biodiversity in sectoral and cross-sectoral plans and programmes?	
a) No	
b) No, but review is under way	
c) No, but potential frameworks and mechanisms are being identified	
d) Yes, some national plans or strategies mainstreamed and integrated into some sectoral plans and programmes (please provide details below)	
e) Yes, some national plans or strategies mainstreamed into major sectoral plans and programmes (please provide details below)	**X**

Further comments on mainstreaming and integrating national plans or strategies for the conservation and sustainable use of agricultural biodiversity in sectoral and cross-sectoral plans and programmes.

Implementation agreements were signed with all provinces and territories

under the APF. These frameworks establish a mechanism for Provinces to report to citizens on progress on all elements of the Framework Agreement, including biodiversity, in a manner that is measurable and meaningful.

The provinces agreed to achieve, in collaboration with the agriculture sector and other stakeholders, the following common environmental outcome goals:

- Reduce agricultural risks and provide benefits to the health and supply of water, with key priority areas being nutrients, pathogens, pesticides and water conservation;
- Reduce agricultural risks and provide benefits to the health of soils, with key priority areas being soil organic matter and soil erosion caused by water, wind or tillage;
- Reduce agricultural risks and provide benefits to the health of air and the atmosphere, with key priority areas being particulate emissions, odours, and emissions of gases that contribute to global warming; and
- Ensure compatibility between biodiversity and agriculture, with key priority areas being habitat availability, species at risk, and economic damage to agriculture from wildlife.

172. Is your country supporting the institutional framework and policy and planning mechanisms for the mainstreaming of agricultural biodiversity in agricultural strategies and action plans, and its integration into wider strategies and action plans for biodiversity?	
a) No	
b) Yes, by supporting institutions in undertaking relevant assessments	
c) Yes, by developing policy and planning guidelines	
d) Yes, by developing training material	
e) Yes, by supporting capacity-building at policy, technical and local levels	
f) Yes, by promoting synergy in the implementation of agreed plans of action and between ongoing assessment and intergovernmental processes.	**X**

Further comments on support for institutional framework and policy and planning mechanisms.

Under the Agricultural Policy Framework, Canada has taken great strides in developing new initiatives for the agricultural sector. The EFP and NFSP programs are two examples of ways that awareness of biodiversity issues is being incorporated into the mainstream of farm management planning.

Progress is being made with respect to integration between policy and programs of federal departments where there is common ground in mandates. For example between AAFC, Environment Canada and Department of Fisheries and Oceans towards the commitments we have made to national Species at Risk.

173. In the case of centers of origin in your country, is your country promoting activities for the conservation, on farm, *In-situ*, and *Ex-situ*, of the variability of genetic resources for food and agriculture, including their wild relatives?	
a) No	
b) Yes (please provide details below)	**X**

Further comments on of the conservation of the variability of genetic resources for food and agriculture in their center of origin.

Canada has a comprehensive protected areas program at the national, provincial, territorial, municipal and local levels.

Significant efforts have been undertaken in conservation of native small fruit crops as well as native grasses. Many of these are documented and part of the national genetic resource collection in Saskatoon and Harrow. Information on these species is available on the Agriculture and Agri-Food Canada web-based database - http://www.agr.gc.ca/pgrc-rpc.

Box LXV.

Please provide information concerning the actions taken by your country to implement the Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators.

Canada is participating in international discussions on the Conservation of Pollinators, specifically with the USA and Mexico in the development of a conservation strategy within North America.

In addition, there are early discussions within Canada about the formation of a network for the Conservation of Pollinators which will be led through the University system.

Box LXVI.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

g) outcomes and impacts of actions taken;
h) contribution to the achievement of the goals of the Strategic Plan of the Convention;
i) contribution to progress towards the 2010 target;
j) progress in implementing national biodiversity strategies and action plans;
k) contribution to the achievement of the Millennium Development Goals;
l) constraints encountered in implementation.

Forest Biological Diversity

General

174. Has your country incorporated relevant parts of the work programme into your national biodiversity strategies and action plans and national forest programmes?	
a) No	
b) Yes, please describe the process used	X
c) Yes, please describe constraints/obstacles encountered in the process	
d) Yes, please describe lessons learned	
e) Yes, please describe targets for priority actions in the programme of work	

Further comments on the incorporation of relevant parts of the work programme into your NBSAP and forest programmes

Canada remains committed to the conservation and sustainable use of forest biological diversity, as demonstrated by the wide array of programs and policies in place. Indeed, forest biological diversity ranks high in the considerations of all Canadian stakeholders working towards sustainable forest management. The Forested Areas section of the Canadian Biodiversity Strategy provides strategic directions in support of the goals and objectives of the Convention on Biological Diversity. These strategic directions are linked to Canada's *National Forest Strategy (2003-2008) – Sustainable Forests: A Canadian Commitment* (http://nfsc.forest.ca/strategies/nfs5.pdf).

The *National Forest Strategy* guides the Canadian forest community's efforts in sustainable forest management. Individually and collectively, the signatories to the Canada Forest Accord (http://nfsc.forest.ca/accords/accord3.html) have committed to develop their own public and measurable action plan in response to the Strategy. Both the Strategy and the Accord exemplify the Canadian multi-stakeholder approach, whereby governments, Indigenous communities, academia, non-governmental organizations and industry are involved, hence ensuring broad participation and engagement. Forest biodiversity is addressed in many of the Strategy's commitments, and the action plan stemming from these commitments contributes to delivering on the programme of work adopted by CoP4. Activities carried out under the Strategy are intended to influence and complement other national initiatives for economic, environmental and social progress. Conservation of biological diversity is one of the six main components of our national criteria and indicators framework (http://www.ccfm.org/3_e.html), hence ranking high in Canadian priorities.

Approximately 45% of Canada's land base is forested, just over one-quarter of which is actively managed to supply wood for the manufacture of forest products. The Canadian public owns 94% of the nation's forests. The remaining 6% are the property of more than 425,000 private landowners. Provincial governments manage nearly 71% of Canada's forests while the federal and territorial governments are stewards of about 23%. They are, therefore, the driving force behind sustainable management efforts, including biodiversity. In addition, various groups and organizations, often through innovative partnerships, carry out valuable work across the country. Experts in areas related to biodiversity, including traditional forest related knowledge, technology transfer and capacity building, are regularly involved in initiatives at home, as well as within Canadian delegations attending

international meetings.

Canada is proud of its efforts regarding the sharing of knowledge and expertise with countries and institutions, and collaborative projects in the areas of criteria and indicators, forest fires, remote sensing, and information management systems, among others. The Canadian approach consists of integrating biodiversity considerations into sustainable forest management activities and policies. Canadian actions in the numerous domestic and international processes, organizations and institutions are planned, developed and implemented with a view to foster holistic, ecosystem-based approaches to advance the objectives of the Convention. In addition, Canada continues to be active and to play a lead role in the international forest policy dialogue, implementing the proposals for action of the Intergovernmental Panel on Forests and the Intergovernmental Forum on Forests (IPF/IFF), including those related to forest biodiversity.

Below are a few examples of activities undertaken in Canada that support the objectives of the convention and foster the advancement of the programme of work on forest biological diversity:

- Federal, Provincial and Territorial Governments, Aboriginal peoples, industry and the Canadian public have added, over the past eight years, more than 24 million hectares to the networks of parks and protected areas across Canada (http://www.cbin.ec.gc.ca/virtual_cbin/BCODocuments/4152_Conservi_E.pdf). Many more protected areas, which will eventually represent all Canadian forest ecosystems, will continue to be established under specific strategies such as “La stratégie québécoise sur les aires protégées” (http://www.menv.gouv.qc.ca/biodiversite/aires_protegees/orientation-en/index.htm).
- The Canadian Pulp and Paper Association (now called the Forest Products Association of Canada – FPAC) expanded its Biodiversity Program (http://www.cppa.org/english/biodiv/about.htm) and established an "Open Doors" communications program, which helps the members communicate with the public on biodiversity issues.
- In 1998, Wildlife Habitat Canada initiated its Forest Stewardship Recognition Program (http://www.whc.org/StewardshipAwards-FSRP.htm and http://www.fpac.ca/english/biodiv/stewards/bgdoc.htm) developed in partnership with the Canadian Forest Products Association (FPAC), the Ontario Ministry of Natural Resources, and the Canadian Forest Service, with the support of numerous national and provincial forestry and conservation organizations. The Program promotes awareness and appreciation of good stewardship, sustainable forest practices and biodiversity conservation in Canada's forests.
- The Tree Canada Foundation has established Green Streets Canada (http://www.treecanada.ca/programs/greenstreets/index.htm), which allows municipalities to apply for funding urban forestry. This program offers citizens a deeper appreciation of how trees can contribute to a healthier urban environment.
- In 2000, the Canadian Model Forest Network produced *A Users' Guide to Local Level Indicators of Sustainable Forest Management: Experiences from the Canadian Model Forest Network* (http://www.gpcusa.com/cmfn/en/initiatives/indicators/users_guide/). The document covers information on the processes, protocols and methodologies developed for identifying, monitoring, reporting and applying local-level indicators.
- The Forest Ecosystem Research Network of Sites (FERNS) (http://www.pfc.forestry.ca/ecology/ferns/index_e.html), established in

all Canadian ecozones, in collaboration with the provinces, forest industry and universities, promotes, nationally and internationally, the multi-disciplinary study of innovative sustainable forest management practices and ecosystem processes at the stand level.

- FORCAST, a non-profit coalition for advancing science and technology (S&T) in the forest sector, was launched in September 1998. FORCAST included 31 members representing federal and provincial governments, industry, academia, and Aboriginal and conservation groups but is now dissolved. The newly created Canadian Forest Innovation Council's mandate will be to ensure that the innovative capacity of the Canadian forest sector is maximized in a way that promotes industry profitability, environmental quality and community stability. The CFIC is composed of a body of key decision makers from the three major constituencies that fund innovation – the Government of Canada (with up to 5 members at the Deputy Minister or Assistant Deputy Minister level), Provincial and Territorial governments (with up to 5 members at the Deputy Minister level), and Industry (with up to 5 members at the CEO or VP level). The CFIC's main focus will be to: 1) Provide a forum in which to develop senior level consensus around a national innovation vision; 2) Develop and advocate means to deliver the vision, mobilizing and aligning capacities and resources in the most effective and sustainable way possible; and 3) Champion Canadian forest sector innovation to key decision-makers with an aim to increasing levels of innovation investment.
- In 1998 and 1999, the Sustainable Forest Management Network (http://sfm-1.biology.ualberta.ca) hosted research-based conferences that encouraged forest community networking and informed science-based policies toward adaptive forest management. For example, one workshop brought together students and First Nations' elders to discuss protocols for researching traditional knowledge.
- The National Aboriginal Forestry Association (NAFA) (http://www.nafaforestry.org) completed five case studies on applying traditional Aboriginal knowledge to forest management in Canada, including its use in Model Forests (http://www.nafaforestry.org/model_forest.php).
- The Bas-Saint-Laurent Model Forest, in partnership with La Fondation de la Faune du Québec, Wildlife Habitat Canada, Ducks Unlimited Canada, and the North America Waterfowl Management Plan, developed a successful voluntary wetland conservation program for private lands (http://wwwforet.fmodbsl.qc.ca/publications/documents/VoluntaryWetlandPrivate.pdf). The project educates woodlot owners on the importance of protecting wetlands, and seeks their voluntary cooperation in wetland conservation.
- The International Development Research Centre (IDRC), a public corporation created by the Canadian government to help communities in the developing world find solutions to social, economic, and environmental problems through research, initiated the Sustainable Use of Biodiversity (SUB) program (http://www.idrc.org.sg/en/ev-1248-201-1-DO_TOPIC.html). The program's goal is "to promote the conservation and sustainable use of biodiversity and the development of appropriate technologies, local institutions and policy frameworks through the application of interdisciplinary and participatory research that incorporates gender considerations and local and indigenous knowledge."
- Specific provincial and territorial actions towards the conservation of forest biological diversity include the Northwest Territories Forest Policy, British Columbia Forest Code of Practices and Forest Renewal Plan, the Alberta Forest Conservation Strategy, the Saskatchewan Long-Term Integrated Forest Resource Management Plan, Ontario's Policy Framework for Sustainable Forests and Crown Forest Sustainability Act, new objectives to

ensure Québec's public forests resources development and protection (www.mrnfp.gouv.qc.ca/presse/communiques-detail.jsp?id=4158) and amendments to the Quebec Forestry Act.

Box LXVII.

Please indicate what recently applied tools (policy, planning, management, assessment and measurement) and measures, if any, your country is using to implement and assess the programme of work. Please indicate what tools and measures would assist the implementation.
With the recognition that Canadian forests provide a broad range of values including wilderness, recreation and wildlife habitat as well as economic benefits and water supply, the federal, provincial and territorial governments, under the Canadian Council of Forest Ministers, subsequently became committed to strategies of sustained yield, multiple use, integrated resource management, sustainable development and the emerging ecological approach to sustainable forest management. The national commitment within the forest community during the 1990s to an ecosystem approach has resulted in significant progress towards the achievement of the Conservation and Sustainable Use goal of the Canadian Biodiversity Strategy. The pressure on forest agencies responsible for biodiversity conservation to define objectives for management units accelerated during the 1990s. This was partly due to the forest industry's adoption of the voluntary certification programs of the Canadian Standards Association, Forest Stewardship Council and Sustainable Forest Initiative. The requirements of these programs led to the implementation of sustainable forest management practices and to biodiversity objectives being incorporated within forest management plans. These programs, along with considerable progress in developing criteria and indicators (to monitor change in biodiversity) and forest management guidelines (to protect genetic, species and habitat diversity), have accelerated the adoption of an ecosystem approach to forest management. In view of the rapid evolution of certification systems, it will be prudent to monitor the success of these programs in achieving their defined biodiversity objectives. By 2000, all jurisdictions based their forest management planning on defined ecosystems and most forest companies had embraced biodiversity conservation within their strategic and operational planning procedures. The regulatory framework for biodiversity conservation during the 1990s was largely focused on reporting on the basis of specific national and local criteria and indicators, and meeting guidelines for environmental and resource management planning. The proliferation of guidelines to protect forest biodiversity at the stand level across Canada helped in the evolution of biodiversity conservation objectives.

Box LXVIII.

Please indicate to what extent and how your country has involved indigenous and local communities, and respected their rights and interests, in implementing the programme of work.
A large area of the Central Coast Region (also known as the Great Bear Rainforest) of British Columbia is being managed through an agreement among conservation groups, the provincial government, First Nations and the forest industry. The area has many significant valleys and habitats and also holds strong cultural significance to the First Nations people in the region. An ecologically

sensitive management plan for the region is currently in development.

In 1998, the Québec government adopted policy directions that foster, in particular, greater participation by aboriginal peoples in the development of natural resources and the economy. These directions provide for the signing of agreements such as those reached with the Cree and the Inuit (http://www.mrnfp.gouv.qc.ca/forets/congres-forestier-2003/english/communities/agreements.jsp), and respect for their traditional way of life. Aboriginals participate in the preparation of management plans and are consulted, according to specific terms and conditions, on major forestry issues in Québec and on the directions and objectives to be pursued in forest management and development. The application of forest management standards can be adapted locally by implementing harmonization measures in order to better reconcile forest management practices with aboriginal rituals, subsistence activities and social traditions. The Québec government thereby reinforces its commitment to support the interests expressed by the aboriginal peoples and to continue the forestry-related initiatives already undertaken in aboriginal communities.

Box LXIX.

Please indicate what efforts your country has made towards capacity building in human and capital resources for the implementation of the programme of work.

Many of the activities undertaken by Canada under the Convention on Biological Diversity's Expanded Programme of Work on Forest Biological Diversity are and will continue to be addressed as a result of the implementation of current and future national forest strategies, as well as a myriad of other federal, provincial, territorial and stakeholder initiatives and programs that aim at improving sustainable forest management in Canada. Over the years, Canada's national forest strategies have guided Canada's forest community in the pursuit of sustainable forestry, leading to new legislation, policies, national programs, local and regional strategies, and tools and practices for sustainable forest management. Here are some programs and activities undertaken by Canada to improve capacity building in human and capital resources for the implementation of the programme of work.

CFS First Nation Forestry Program

Since 1996, the First Nations Forestry Program (FNFP, at http://www.fnfp.gc.ca/index_e.php), a joint initiative between Natural Resources Canada and Indian and Northern Affairs Canada, has funded some 1,500 projects. The purpose of the FNFP is to improve the economic conditions in status First Nation communities with full consideration of the principles of sustainable forest management, under four objectives aiming to: 1) enhance the capacity of First Nations to sustainably manage their forest lands, 2) enhance the capacity of First Nations to operate and participate in forest-based development opportunities and their benefits; 3) advance the knowledge of First Nations in sustainable forest management and forest-based development, and 4) enhance the institutional capacity of First Nations at the provincial and territorial level to support their participation in the forest-based economy. These partnerships among First Nations, the Government of Canada and industry have created opportunities for some 370 communities representing over 5,800 First Nations people to improve their skills and apply sustainable forest management practices. This program builds upon the Government of Canada's commitments to ensuring a clean, healthy environment and to creating and sharing opportunity with First Nations to build a better future and stronger communities. Typical projects include: developing and implementing forest management plans; conducting forest inventories and

silviculture projects; training and skills development in areas such as forest protection and fire suppression; and developing business plans and feasibility studies in areas such as forest harvesting and value-added products.

National Forest Accord

In 1992, Canada became the first country to have a national forest accord between government and non-governmental organizations, including industry and academia. The Canada Forest Accord is a formal commitment among diverse groups with different perspectives and objectives to work together on a solution to the challenges facing our forest, while using the National Forest Strategy as the reference document. In 2002-2003, representatives of the Canadian forest community reaffirmed their commitment to a renewed National Forest Strategy and signed the 3rd Canada Forest Accord, 2003-2008. This accord invites representatives of the Canadian forest community to continue to share the same vision, principles and commitment toward our forest (the three documents are available at: http://nfsc.forest.ca/accord_e.htm).

Community forests efforts

The ability of forest-based communities to participate in resource and land management decision-making processes and in the development of new economic opportunities that will improve their future is essential to ensure community sustainability. This is why one of the strategic themes of the National Forest Strategy 2003-2008 has the objective to develop legislation and policies to improve the sustainability of forest-based communities by fostering community participation and involvement in forest management decision-making.

With the intention to increase their participation in managing local forests and to create sustainable jobs, various community forest efforts have been developed across Canada. Governments at the provincial level are working to create forest management opportunities for communities and First Nations by offering them community forest tenure. One example is the Ontario's Northern Boreal Initiative (NBI), which offers to several First Nations communities a leading role in the development and the management of new sustainable commercial forestry opportunities in vast new areas of northern Ontario, including working collaboratively with the ministry on planning for such opportunities. *Community-based Land Use Planning* will consider forestry as one of many interests, providing direction essential for individual First Nations to proceed with Community-led economic development initiatives. In planning, communities will address and find a balance among protection, conservation, traditional and livelihood uses, and development. The described approach encompasses three planning scales: *Community-centered, Landscape-scale, and Provincial context*. First Nation communities will lead the *Community-centered* planning, ensuring that they are afforded the fullest possible opportunity to rationalize proposed new commercial uses with traditional uses and to establish clear objectives for sustainability. The NBI supports the shared goal of the First Nation communities and the Ministry of Natural Resources of sustainable development of natural resources in northern Ontario as well as the shared objective of ecosystem sustainability (see more information on the NBI at: http://www.mnr.gov.on.ca/MNR/nbi/C-LUP-English_opt.pdf).

Box LXX.

Please indicate how your country has collaborated and cooperated (e.g., south-south, north-south, south-north, north-north) with other governments, regional or international organizations in implementing the programme of work. Please also indicate what are the constraints and/or needs identified.
International arrangements between Canada and foreign countries provide a means by which Canada is able to more effectively pursue its domestic and international interests throughout the implementation of the Forest Programme of Work in areas involving science, policies and various bilateral and multilateral issues. Those international forestry arrangements contain projects or activities that have clearly defined objectives, including identifiable end products that may be delivered under a Memoranda of Understanding, Science and Technology agreements, interdepartmental agreement with other Canadian federal department working to advance forestry on the international scene, or scientist-to-scientist collaboration in various disciplines of mutual interest. Here are some examples of such collaboration between Canada and other countries that might be considered as implementation activities of the CBD Programme of Work on Forest: Indonesia – Climate change, Forests and Peatlands The overall goal of this project is the sustainable management of Indonesia's peat swamp forests to improve and promote sustainable community livelihoods, to maintain and increase carbon storage and sequestration, and to conserve biodiversity. Specifically, the project aims to assist in sustainable management of two major peat ecosystems: Berbak-Sembilan (Sumatra) and Sg. Sebangu (Central Kalimantan). The project will contribute to several objectives of Canada's International Strategy on Climate Change by developing cost-effective strategies to reduce and sequester greenhouse gas (GHG) emissions. In recent years, fires have destroyed or degraded more than two million hectares of peatlands in Southeast Asia, releasing massive amounts of greenhouse gases. The problem is especially severe in Indonesia, which has about half of the world's tropical peatlands. Past attempts to manage these peatlands involved clearing peat swamp forests and digging irrigation canals, which effectively drained the peatlands. Indonesia's dry peatlands were a major source of the vast land and forest fires that swept Southeast Asia in the late 1990s. The climate change project addresses the root causes of Indonesia's peatland fires—overexploitation and agricultural development—in two critical sites: Central Kalimantan and Sumatra. http://www.acdi-cida.gc.ca/cida_ind.nsf/vLUallDocByIDEn/8CCA1F39DB38721E85256DDD004E733B?OpenDocument **Indonesia – Kaltim Social Forestry Project** The Kaltim Social Forestry Project supports the development of the Centre for Social Forestry at the Mulawarman University in East Kalimantan, Indonesia. It contributes to the sustainable use and management of the country's tropical rain forests by strengthening local capabilities in research, education, training, policy analysis, and reform in social forestry. http://www.rcfa-cfan.org/english/profile.14.html **India – Tree Growers' Cooperative Project** The goal of this project is to strengthen India's capacity to reclaim and

manage its wastelands in a socially, economically, and environmentally sustainable manner. This will be achieved by supporting the creation of village-based tree growers' cooperatives. The positive participation of women, landless and marginal farmers, and private landowners is crucial to reaching the project's objective. The main challenge is to design and implement a forestry and agriculture production system that generates employment, revenue, and long-term sustainability. To be successful, the system must be able to overcome a reluctance to change traditional land use practices that are contributing to environmental degradation.

http://www.rcfa-cfan.org/english/profile.7.html

Honduras – Hardwood Forest Development – Phase I and Phase II

The original goal in implementing Phase I of this project was to reduce deforestation of the tropical rainforest by promoting forest development in community forests and the use of agroforestry techniques in buffer zones. A basic premise was the recognition that community involvement in renewable natural resource management is essential to the concept of sustainable development. The project promoted increasing agricultural and forest yields, marketing products under better conditions for small farmers, keeping farmers on their land, and improving the quality of life for rural families. During Phase I, which ended in October 1995, a series of activities were implemented that reduced deforestation as a consequence of a participatory approach to forest protection and less pressure to convert forests to farms. The project helped to improve the standard of living of families involved in this change by increasing incomes from the sale of forest products, by improving crop yields, by diversifying agroforestry cultivation, and by improving village infrastructure. During this phase, the project was able to enhance the operational capacities of institutions involved in natural resource development.

In view of the promising results achieved during this initial phase, the Governments of Honduras and Canada decided to extend their participation in the project for another five years. The goal of the Phase II is to develop and disseminate a model for the conservation and rational and sustainable use of the tropical rainforest. The project has two key development objectives: a) institutional development and b) social and economic development of rural communities.

http://www.rcfa-cfan.org/english/profile.2.html

International Model Forest Network (IMFN)

The IMFN is an example of Canadian international collaboration in implementing the forest programme of work. Its goal is to promote multi-stakeholder cooperation and collaboration to advance the conservation and sustainable management of forest resources. With more than 30 Model Forests currently in existence or under development, Canada is effectively demonstrating through IMFN how the concepts, policies and commitments of sustainable forest management can be translated into practice.

http://www.rcfa-cfan.org/english/profile.16.htm#1

Russian Federation – Gassinski Model Forest

The McGregor Model Forest in Prince George, British Columbia, and the Gassinski Model Forest of Khabarovsk Krai in the Russian Far East are members of the IMFN. From 1994 to 1998, the McGregor and Gassinski Model Forests worked together on a CIDA-supported project to build local capacities in Russia to undertake modern forest research and to analyze scenarios for the long-term economic, social, and environmental development of the resources within the Gassinski Model Forest. They conducted an inventory of the region's natural resources and developed local capacities to achieve the

project goals.

http://www.rcfa-cfan.org/english/profile.17b.htm

As another example of North-North collaboration, the Canadian Forest Service signed in April 2005 a Statement of collaboration with the Forestry Agency of the Ministry of Natural Resources of the Russian Federation, following up for possible collaboration in fire management, Boreal Model Forests and certification of forest practices.

However as a constraint, to include forestry project in its development assistance programme, Canada considers as a prerequisite the identification of trees and forests being a priority in developing countries national planning strategies, including poverty reduction strategies (PRSPs).

Expanded programme of work on forest biological diversity

Programme element 1 – Conservation, sustainable use and benefit-sharing	
175. Is your country applying the ecosystem approach to the management of all types of forests?	
a) No (please provide reasons below)	
b) No, but potential measures being identified (please provide details below)	
c) Yes (please provide details below)	X

Comments on application of the ecosystem approach to management of forests (including effectiveness of actions taken, lessons learned, impact on forest management, constraints, needs, tools, and targets).

As Canada still has almost its entire original complement of forest ecosystems and forest species, a proactive conservation program of maintenance rather than restoration was successful during the 1990s. This approach evolved from a species focus to an emphasis on conserving ecosystems, particularly in its forested landscapes, and also ensured appropriate focus on changes to habitats, and on their degradation, as the major threat to biodiversity.

The *«National Forest Strategy 2003-2008»* report presents a list of sub-objectives and actions items, under its Objective 1 of the strategic themes, addressing especially ecosystem-based management.

The 5 sub-objectives for ecosystem-based management are:

A. • Using integrated land-use planning, especially before tenure allocation;

B. • Maintaining natural forested ecosystems;

C. • Completing a system of representative protected areas;

D. • On a national basis, maintaining carbon reservoirs and managing the forest to be a net carbon sink, over the long term; and;

E. • Conserving old-growth forests and threatened forest ecosystems.

The action items allowing to apply the ecosystem-approach under the Objective 1 are:

- 1.1 Develop guidelines for integrating watershed-based management and wildlife habitat conservation into forest management practices across Canada and measures for evaluating implementation.
- 1.2 Establish a process involving forest-based communities leading to the implementation of land-use management plans, which include all forest benefits.
- 1.3 Implement systems and decision-making that sets resource-use levels (for example, the Allowable Annual Cut – AAC) as an output of a planning process.
- 1.4 Develop a better understanding of the effects of climate change and the Kyoto Protocol commitments on the forest ecosystem and incorporate these into forest policy and forest management planning.
- 1.5 Reforest areas that are cut for temporary uses and use afforestation, where feasible, to mitigate the permanent loss of forest.
- 1.6 Fulfill existing commitments to complete the network of representative protected areas in each province and territory.
- 1.7 Evaluate the full range of advantages and disadvantages of Intensive Forest Management across Canada.
- 1.8 Manage to avoid or mitigate the adverse impact of invasive species on our forest ecosystems.
- 1.9 Increase the use of Integrated Pest Management approaches to gradually reduce the use of synthetic, chemical pesticides in forest management.
- 1.10 Redirect, where appropriate, harvesting into forest areas affected by forest fire, pests and disease damage to mitigate loss.

In addition, there are many projects in Canada applying practical methods to integrate the ecosystem-based management concept. The Canadian Model Forest Network, with more than 10 projects, is an example of application of the Model Forest concept ecosystem-based management as one of the core elements. Another project called EMAN (Ecological Monitoring and Assessment Network at http://www.eman-rese.ca) is made up of linked organizations and individuals involved in ecological monitoring in Canada to better detect, describe, and report on ecosystem changes, through cooperative partnership of federal, provincial and municipal governments, academic institutions, aboriginal communities and organizations, industry, environmental non-government organizations, volunteer community groups, elementary and secondary schools and other groups/individuals involved in ecological monitoring. The MASS partnership (Montane Alternative Silvicultural System at http://www.pfc.forestry.ca/ecology/ferns/mass/index_e.html), a multi-agency cooperative testing new approaches to harvesting and regeneration of the montane forest, is another project developing practical methods, guidelines and indicators to apply the ecosystem approach.

176. Has your country undertaken measures to reduce the threats to, and mitigate its impacts on forest biodiversity?		
Options	**X**	**Details**
a) Yes	X	Please specify priority actions in relation to each objective of goal 5 and describe measures undertaken
		Depending on each of the six major disturbances below, Canada has undertaken several measures to reduce their threats on forest ecosystems, and mitigate their impacts on forest biodiversity. 1- Invasive Alien Species Invasive Alien species are a significant threat requiring coordinated action by all Canadian jurisdictions. The spread of invasive alien forest pests is a growing concern in Canada, threatening the health of Canada’s forest ecosystems, the forest sector and international trade in forest products.

The limited species complement in the boreal forest makes it particularly susceptible. Many of Canada's southern ecosystems have also been dramatically altered after the introduction of an alien species. In eastern Canada, for example, chestnut blight and Dutch elm disease have had a devastating impact on their host species. With the continued increase in global trade of wood products, and the prospect of rapid climate change, there is a projected increase in the number of alien species introductions and their establishment.

At their meeting in September 2002, the federal, provincial and territorial Wildlife, Forests, and Fisheries and Aquaculture Ministers approved a blueprint for a national plan to address the threat posed by invasive alien species. Consultations have taken place between the accountable federal departments/agencies and the provinces and territories, on a discussion document that began to lay the foundation for a National Plan to Address Invasive Alien Species.

In 2004, *"An Invasive Alien Species Strategy for Canada"* was approved by the federal, provincial and territorial Ministers of Wildlife, Forests, Fisheries and Aquaculture. The existing legislative mosaic in Canada is highly fragmented both across and within jurisdictions, and this Canada-wide strategy is clearly needed. Consensus has been reached that a national plan would have four strategic goals: 1- prevention; 2-early detection; 3-rapid response; and 4-eradication, containment and control. The national plan will then outline roles and responsibilities, implementation strategies and priority-setting criteria associated with each of these goals. The plan will have appended action plans that are currently being developed by each of the recently established thematic working groups – terrestrial plants, terrestrial animals and aquatic invasives. Consultations on the complete package have been conducted in 2004 and it is intended to have the final plan presented to Ministers for approval as soon as possible.

Other measures had also been taken to prevent the introduction of Invasive Alien Species in Canada. The Forestry Section of the Canadian Food Inspection Agency (CFIA at http://www.inspection.gc.ca/english/plaveg/for/fore.shtml) is responsible for the development of forest policies that prevent the introduction and spread of regulated pests into Canada. This is achieved through the development and refinement of policy directives and import requirements targeting the control of known and newly discovered invasive pests and their related commodity pathways of introduction. Their Forestry Program Team consults closely with Canadian companies, industry associations, federal and provincial government agencies and scientific bodies to maintain and develop export programs for Canadian forestry products.

In addition, Forestry Team members participate in working groups and discussions with national and regional plant protection agencies, and the International Plant Protection Convention, to establish phyto-sanitary and certification standards.

Finally, researchers at Natural Resources Canada are responding to the threat of invasive alien species by developing monitoring methodologies that will provide basic data in support of regulations that will serve to limit pest introductions.

2- Pollution

On the international scene, Canada has ratified a number of international agreements pertaining to air pollution including the Kyoto Protocol, the Ozone Annex to the Canada-United States Air Quality Agreement, the Stockholm Convention on Persistent Organic Pollutants, and the United Nations Economic Commission for Europe Protocols on Persistent Organic Pollutants and Heavy Metals. Canada also cooperates with the Economic Commission for Europe in the implementation of the Convention on Long-range Trans-boundary Air Pollution.

Within Canada, the CEPA Act, which came into force on March 31, 2000, is aiming to contribute to sustainable development through pollution prevention and to protect the environment (including forest biodiversity), human life, and human health from the risks associated with pollution.

For assessing and reporting, there is the Forest Health Database, which is an automated repository of information concerning the health, biodiversity, and exotic pest threat in Canada’s forests. In some cases over 100 years of historical data is present that cannot be found anywhere else. The system also supports forest research in areas of forest health and biodiversity conducted by Canadian and international scientists. The Forest Health database provides scientists with 15+ years of continuous forest health biomonitoring data collected under such programs as the Acid Rain National Early Warning System (pollution) and the North American Maple Project, which allows CFS to monitor Canada’s forest for long term, changes over time.

As a member country of the Montréal Process (the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests), Canada committed to report on the indicator 3.3 – Criterion 3: Maintenance of forest ecosystem health and vitality. This indicator allows participants to correlate forest inventory and health statistics with air pollution data, which should provide more information on the effects of these pollutants on forest ecosystems, and help them to provide measures in order to mitigate these effects.

3- Climate Change

During the past decade, changes in the global climate have become a public policy issue with the recognition that changes pose significant threats to biodiversity. Potential impacts include changes in species distributions, population sizes, timing of reproduction or migration events, resource availability both temporally and spatially, and habitat quantity and quality. Canadian forests are already under considerable short-term stress from changing weather patterns (e.g., increases in fires and pest survival). These on-going changes may lead to mid- and long-term successive changes within some forests.

The degree of stress on Canada's forests is still unclear, although research led by Natural Resources Canada's Canadian Forest Service is helping to define issues and devise management strategies. Several global climatic models suggest that the fastest, most pronounced global warming will occur in northern latitudes and that boreal forests may be the most vulnerable.

Since 1997, when Canada became a signatory to the United Nation's Framework Convention on Climate Change, the federal, provincial and territorial governments have prepared a National Action Program on Climate Change. Released in November 2002, the Climate Change Plan for Canada is based on extensive consultations with provincial and territorial governments, industry, environmental organizations and individual Canadians and sets out the strategy by which all Canadians and all sectors can work together to meet Canada's Kyoto commitment. Consistent with Canada's strategy for biodiversity conservation, the Canadian Action Plan encourages the reduction of greenhouse gas emissions, as well as monitoring and participating in research with the international community.

The Government of Canada announced in August 2003 the implementation of the Climate Change Plan for Canada. Within the federal government, Natural Resources Canada (NRCan) plays an important role in analyzing and developing climate change policy options with other departments, notably those concerning forest carbon sinks. NRCan response strategies will have to take into consideration the role of forests, among other sources, as carbon sinks to sequester GHG emissions. Models, currently under development, of forest growth and survival, forest response to altered climate and disturbance regimes, and forest management options will assist forest resource managers in selecting appropriate species and management strategies to mitigate and adapt to climate change.

The Forest 2020 Plantation Demonstration and Assessment Initiative is a good example of Canada's commitment. By establishing a series of fast-growing tree plantations on non-forested lands and by planting non-forested areas, plantations will expand the overall area of forest and demonstrate that trees, primarily fast-growing hardwoods, can help offset GHG emissions, playing a role in responding to climate change.

The Canadian Forest Service of NRCan also undertakes specific scientific studies to develop measures to mitigate the negative impacts of climate change on forest biodiversity. One example of current research on this issue is the *«Climate Change Impacts on the Productivity and Health of Aspen»* (CHIPA). This specific tree species appears to be acting as "giant humidifiers" on the landscape according to recent research results from the Boreal Ecosystem-Atmosphere Study (BOREAS). This study showed that during the summer, aspen forests release nearly twice as much water vapour but only about half as much heat into the atmosphere as adjacent coniferous forests. It is, therefore, not just a question of how climate change may affect our forests: changes in our forests will also affect the rate at which climate change occurs.

In order to mitigate the negative impact of climate change on this forest diversity, a large study was initiated in 2000 on CIPHA, involving a network of 150 research plots in 25 climatically sensitive areas across western Canada, where the health of aspen forests is assessed every year and each tree is examined for signs of dieback (dead branches near the top) and for damage by fungal diseases, wood-boring insects, and other factors like climate change. One of the 25 CIPHA study areas is located at Batoche National Historic Park, Saskatchewan, in the aspen parkland zone that is characterized by patches of stunted aspen on a prairie landscape. This site is being used to examine how aspen forests respond under a drought-prone climate similar to that predicted for parts of the boreal forest under climate change. Another CIPHA study area is located in the boreal forest of Prince Albert National Park, Saskatchewan, where intensive monitoring is being conducted as part of another study called BERMS (Boreal Ecosystem Research and Monitoring Sites), which is led by Environment Canada and includes collaborators from the Canadian Forest Service, Canadian universities, and several international research teams. The BERMS monitoring program uses computerized instruments mounted on towers in the forest to record changes in weather conditions as well as the exchange of carbon dioxide and water vapor between the forest and the atmosphere. In order to preserve forest biodiversity, continued monitoring should provide an early indication of any regional-scale aspen decline that may occur in the near future.

4- Forest Fires and Forest Suppression

The area affected by wildfires in Canada each year is immense: over the decade of the 1990s, an average of 8 248 fires burned 3.2 million hectares annually. This includes more than 700 000 hectares of commercial forested land, which is 74% of the annual area harvested. Possible explanations for the gradual increase in area burned over the past 30 years include higher temperatures, dry and hot summers, fuel build-up from years of successful fire suppression and changes in fire management policies that allow more fires to burn in remote areas.

The Wildland Fire Information System, developed by Canada to monitor wildfire conditions and assist in fire management operations, is also being used in the United States and in Mexico. This system automatically accesses observed and forecasted national weather data, displays information as national maps, and disseminates the maps through the World Wide Web.

More recently, Canada developed Fire M3, a national system that uses satellite technology to automatically monitor, map, and model forest fires across Canada. The system generates maps and fire behavior models that can be easily accessed on the Internet by fire agencies, forest managers, the public and the media.

5- Loss of natural disturbances

Under project EMEND (Ecosystem Management Emulating Natural Disturbance), Canada is researching to what extent, if at all, cutting patterns used in forest harvesting can be tailored to approximate the recovery from disturbance that occurs after wildfire and other natural disturbances.

6- Fragmentation and conversion to other land uses

Within the context of recognizing the complexity of biodiversity and in order to develop measures to mitigate the loss of forest biodiversity due to fragmentation and conversion, Canada's approach evolved from a species focus to an emphasis on conserving ecosystems, particularly in its forested landscapes, ensuring appropriate focus on changes to habitats (including the degree of habitat fragmentation) and on their degradation, as the major threat to biodiversity.

Over the past decade, wildlife managers have utilized the coarse and fine filter approaches[1] to effectively deal with a number of habitat issues (as per example the management of forest interior species and their complex interactions with competitors, predators and disease), including species within fragmented habitats in areas of severe fragmentation caused by clearing for agriculture, such as the Deciduous Forest Region of southern Ontario where a large portion of Canada's forest species at risk can be found.

When a forest landscape is fragmented into isolated units, its integrity as an ecosystem is challenged. In most parts of Canada, the density of roads, which is one type of disturbance with significant consequences for landscape fragmentation, clearly illustrates the intensity of human activities, ranging from urban areas of very high densities, to remote areas with sparse or nonexistent road networks.By designing harvesting and other silvicultural activities to emulate natural disturbances, forest managers in Canada help prevent and minimize the impacts on biodiversity. Through ecological modeling and baseline studies in natural forest landscapes, it may be possible to derive critical thresholds for levels of fragmentation and determine the impact of fragmentation and the level at which it does not adversely affect an ecosystem's sustainability.

The first requirement for obtaining data on fragmentation is mapping the spatial location of ecosystem components. As a proxy indicator, it is possible to look at human intrusion into landscapes by reporting on the densities of roads. In some areas, studies are under way to establish the relationship between road network density and forest ecosystem fragmentation.

In order to prevent losses of forest biodiversity, Canada takes into account the fragmentation and conversion to other land uses in its objectives and incorporates those issues in its overall framework under diversified approaches, such as monitoring information (NFI, NFIS and CCFM C&I), involving public participation and improving legislation.

Canada is also working with new programmes and partnerships such as the use of the space-based earth observation (EO) technologies of the Canadian Space Agency to create products for forest inventory and landscape management, and the Earth Observation for Sustainable Development of Forests (EOSD) initiative that works in partnership with the provinces and territories to develop a land cover map of the forested area of Canada. In addition, the Committee on the Status of Endangered Wildlife In Canada (COSEWIC) annually publishes a list of Canadian species at risk and Global Forest Watch Canada (GFWC), as an affiliate of the international Global

		Forest Watch program, is a partnership and network across the country to facilitate independent forest monitoring in Canada. ***(1) Coarse Filter Approach**: an approach to maintaining biodiversity that involves maintaining a diversity of ecosystem (or habitat, stand) types across the landscape with the intent of meeting the needs of most native species.* ***Fine Filter Approach**: an approach to maintaining biodiversity directed toward maintaining particular habitats or meeting the needs for individual species that may fall through the coarse filter.* (http://www.cof.orst.edu/cof/teach/fs453/Exam_1_Answers.pdf)
b) No		Please provide reasons below

Further comments on the promotion of access and benefit-sharing of forest genetic resources. (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets)
In 1993, the framework for a national strategy on forest resource conservation and management was developed by representatives of government and industry. Certain elements are in place, but most provinces and territories do not have a genetic conservation strategy, and rely on broader strategies. Parks, protected areas and reserved stands provide the basis of Canada's genetic conservation areas, although it is recognized that sustainable forest management practices can also retain this diversity.

177. Is your country undertaking any measures to protect, recover and restore forest biological diversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
		In Canada, there has been limited need for traditional ecosystem and habitat restoration programs within forest ecosystems, with the exception of areas of southern Canada. In south western Ontario where the deciduous forests have been fragmented by urbanization and clearing for agriculture, management for both quantity and quality of remaining habitats is critical. Many sites in this region have protected status, and 38 others are protected through private land stewardship agreements under the Carolinian Canada Program. Restoration of fragments and corridors is ongoing in this region. As ecosystem restoration and rehabilitation are difficult and expensive, preventing ecosystem degradation through appropriate silviculture practices is the main approach used by the forest industry in Canada. Reforestation following harvest is a legal requirement on nearly all publicly owned forested lands in Canada. Although reforestation is accomplished primarily through natural regeneration, seeding and planting have increased dramatically from 86 000 ha per year in 1965, to 513 000 ha per year in 1990, and stands at around 460 000 ha per year today.

		The rapid increase in planting programs came in response to the recognition that natural regeneration was not successful on all sites, and to new provincial regulations requiring prompt regeneration of all harvested areas with site-adapted native tree species. There has also been an increase in stand tending operations to ensure vigorous growth of these young stands. All provinces but one ensure that stand-level wildlife and habitat values are considered in pre-harvest ecological assessments. On a national basis, the committee on the Recovery of Nationally Endangered Wildlife (RENEW) coordinates recovery and reintroduction programs. Most of their efforts within the forested landscape are designed to improve the viability of endangered and threatened species through the protection of existing habitat. Many provincial and territorial wildlife agencies have more specific recovery plans, often with a strong research and assessment component. Of the 10 cooperative recovery efforts with the United States, three species, the grizzly bear, woodland caribou and marbled murrelet, are directly associated with Canada's forested landscape. In order to increase the conservation value of forests while ensuring the continued growth of the forest industry, an innovative Canada-wide approach called Forest 2020 has been adopted in 2003. Central to this new initiative is a need to make better use of fast growing, high-yield plantations and intensive silviculture, along with existing forest management practices. This varied approach is needed to help Canada meet increasing global demand for wood products, while ensuring an acceptable level of forest ecosystem conservation and increased local benefits from all forest resources. The $20-million funding Forest 2020 Plantation Demonstration and Assessment Initiative is a complement to Greencover Canada – an initiative devoted to agricultural land management that promotes sustainable land use and expands the Canadian land base covered by perennial forage and trees. By planting non-forested areas, plantations will expand the overall area of forest and result in an overall increase in the amount of carbon stored on the landscape if managed sustainably. This would include harvesting and replanting a portion of the area every year. Another key program objective is to establish a series of fast-growing tree plantations on non-forested lands for demonstration purposes across Canada. These plantations will demonstrate that trees, primarily fast-growing hardwoods, can help offset GHG emissions, playing a role in addressing climate change. The Forest 2020 Initiative will develop ways to attract investments in plantations, which would significantly expand areas under forest cover. Such investments could be attractive since they can demonstrate environmental stewardship, promote innovation and create new business opportunities in Aboriginal and rural communities. They may also attract additional investors in forestry. Monitoring the best combination of seedlings, soils and climate will lay the foundation for larger projects, driven by the investment community and the private sector.
b) No		Please provide reasons below

Further comments on measures to protect, recover and restore forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Most provinces and territories have regional lists of species at risk. Forest ecosystems provide a variety or patchwork of habitats on the landscape, each supplying a variety of resource needs to species. All species require food, water, cover and home range. Sufficient amounts of these resources must be available both spatially and temporally. Habitat must also provide for seasonal needs such as reproduction and over-wintering.

Wildlife habitat management in Canada is generally accomplished with a coarse filter approach that maintains an array of representative ecosystems on the landscape. As most Canadian forests have evolved under natural disturbance regimes, forest species have evolved to utilize an array of successional stages and forest cover types. As a result, habitat requirements of most species can be met in areas with a diverse mix of successional stages, forest types and patch sizes. Some species have special habitat requirements that may not be available using only a coarse filter approach. These species require special management considerations, or a fine filter approach, where requirements of individual species are used to establish management guidelines in forested landscapes.

Over the past decade, wildlife managers have utilized the coarse and fine filter approaches to effectively deal with a number of habitat issues, including:
a) Species within fragmented habitats: In areas of severe fragmentation caused by clearing for agriculture, such as the Deciduous Forest Region of southern Ontario, management for forest interior species and their complex interactions with competitors, predators and disease is an extremely challenging task. A large portion of Canada's forest species at risk can be found in this region.
b) Species depending on old-growth or mature forest habitats: A number of species in Canada are dependent on the specialized features provided by old-growth and mature forests. Some examples include woodland caribou, American pine marten, marbled murrelets and spotted owls. Management for access and connectivity of these habitats, along with continuous habitat supply over time, is critical for survival of these species.
c) Species with large home range requirements: Species like grizzly bears, wolves, cougars and black bears require extensive areas to supply their habitat needs. Movement across the landscape tends to coincide with changing weather conditions and reproductive needs. Forest management and conservation efforts must consider these movements.

d) Species requiring specific structural habitat features: Special management for features such as vertical structure, dead and dying trees, fallen logs and debris on the forest floor and in streams is required for some species in managed forest stands. Many forest vertebrates and invertebrates use these features for cover, reproductive habitat and over-wintering. Examples of boreal forest species using snags for nesting, perching and roosting include northern flying squirrels, fishers, hooded mergansers, pileated woodpeckers, barred owls and northern hawk owls.

In 2001, the number of forest-dwelling species at risk in Canada was 30 endangered, 25 threatened and 37 of concern.

Under the National Forest Strategy in 1992, the Canadian Council of Forest Ministers recognized that an approach based on protected areas within a landscape could retain intact ecosystems, contribute to the maintenance of healthy populations of native species and act as storehouses of irreplaceable genetic resources. The Canadian system of protected areas comprises a mixture of federal, provincial and territorial strategies that establish parks, wilderness areas, ecological reserves and natural areas. From 1990-1999, these areas grew from 4% to more than 8% of Canada's forested

landscape. Several governments have undertaken new initiatives to legislate or reserve extensive areas for protection categories, which will further increase the area of protected forests and the representation of forest types and natural habitats. Jurisdictions have proposed a variety of target levels for protected areas across Canada. British Columbia and Alberta are the first two provinces to have achieved their goals of placing 12% of the total land base under protection.

The emphasis on establishing parks and protected areas in Canada to maintain a large area as wilderness and protect sensitive sites has, however, limited the appropriate recognition of other broader initiatives for landscape conservation, including:
• the development of old-growth conservation strategies (e.g., in Ontario and Nova Scotia);
• the establishment of wilderness (road-less) policies (e.g., in Manitoba and Ontario);
• broad landscape protection initiatives (e.g., Yellowstone to Yukon and Algonquin to Adirondack);
• specific regional conservation agreements (e.g., British Columbia's Central Coast, also known as the Great Bear Rainforest);
• site-specific protection through legislation, policy and guidelines (e.g., area of commercial forest that has been protected from logging).

The 2000 report of the Panel on Ecological Integrity of Canada's National Parks (Parks Canada Agency) advised that protected areas would only be successful in conserving biodiversity if they became integrated within the conservation programs of surrounding forests. The establishment of parks in Canada has been only partially successful in ensuring a network of protected areas that is ecologically representative of Canada's forests.

178. Is your country undertaking any measures to promote the sustainable use of forest biological diversity?

Options	X	Details
a) Yes	X	Please specify priority actions in relation to each objective of goal 4 and describe measures undertaken to address these priorities
		An ecosystem-based approach to managing our natural resources recognizes that the social and economic benefits the forest provides over the long term rests on the ecological integrity of the forest. Forest management policies in Canada are based on this philosophy, as are many forest-related international commitments, such as the United Nations Forum on Forests that has identified the ecosystem-based approach to sustainable forest management as a priority. Goal one of the Canadian Biodiversity Strategy is to conserve biodiversity and use biological resources in a sustainable manner. Under the Canadian Council of Forest Ministers, the federal, provincial, and territorial governments have committed to strategies of sustained yield, multiple uses, integrated resource management, sustainable development, and the emerging ecological approach to forest management.

A core element to retaining biodiversity within Canada's forested landscape is the implementation of resource management programs based on the sustainable use of both biological resources and ecosystems. The Canadian Biodiversity Strategy commits Canadians to a management paradigm that:

• "continues to develop and implement improved forest management practices that provide for the sustainable use of forests while maintaining the regional forest mosaic";

• "uses practices that are as consistent as is practical with natural disturbance regimes, patterns and processes"; and,

• "allows fire, disease, succession and natural forest regeneration to maintain biodiversity where they are compatible with forestry and other land use objectives and where natural regeneration can be effective."

To achieve this strategy, there needs to be a visible commitment by all the forest community partners followed by the ability to establish objectives and monitor our success.

Another Canadian policy, the National Forest Strategy (NFS), was launched in 1992 with a theme of sustainable development. After an evaluation of progress towards achieving this strategy in 1997, a revised five-year strategy entitled *Sustainable Forests: A Canadian Commitment* was launched in 1998, retaining the overall vision of "maintaining and enhancing the long-term health of our forest ecosystems, for the benefit of all living things both nationally and globally, while providing economic, social and cultural opportunities for the benefit of present and future generations" (*National Forest Strategy 1998).* Specific objectives of the NFS (2003-2008) include integrated land use planning, no net loss of forests on public lands, a completed system of representative protected areas at all scales and maintaining reservoirs and managing forests to be a net carbon sink by 2015, on a long-term basis.

Canada has also made progress on many other national and international commitments for the conservation of biodiversity that are parallel to the National Forest Strategy, including:

Internationally
• United Nations Conference on Environment and Development
• United Nations Convention on Climate Change 1992, and the subsequent Kyoto Protocol 1997
• Santiago Declaration for the Conservation and Sustainable Management of Temperate and Boreal Forests
(Montréal Process) 1995
• Intergovernmental Panel/Forum on Forests 1995/1997
• United Nations Forum on Forests

		Nationally • A Wildlife Policy for Canada • A Protected Areas Strategy for Canada • Canada's Green Plan for a Healthy Environment • Biodiversity in the Forest: the Canadian Forest Service Three Year Action Plan • Conserving Wildlife Diversity: Implementing the Canadian Biodiversity Strategy • National Accord for the Protection of Species at Risk (*Species at Risk Act*) In addition, each province and territory has amended its legislation to achieve conservation of biodiversity. They have implemented policies and strategies to change the basis of forest management from a sustainable timber yield to an ecological management approach that encompasses consultation on a broad range of forest-related values.
b) No		Please provide reasons below

Further comments on the promotion of the sustainable use of forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

The area harvested annually in Canada is relatively constant, at approximately 1 million hectares. This is 0.4% of Canada's commercial forest, substantially lower than the area affected by fire. It should be noted that harvest statistics include "salvage logging" of forests affected by fire and insect epidemics. Clearcutting is the most common harvesting and regeneration system used in Canada. Over the past decade clearcutting has become less uniform, with many experimental designs aimed at more closely mimicking natural disturbance patterns.

179. Is your country undertaking any measures to promote access and benefit-sharing of forest genetic resources?

Options	X	Details
a) Yes	X	Please specify priority actions in relation to each objective of goal 5 and describe measures undertaken
		Canada is concerned about the Access and Benefit-Sharing issue and is actively promoting the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge.On the forestry side, Objective 2 of Canada's «*National Forest Strategy 2003-2008*» addresses sustainable forest communities and calls for the development of legislation and policies to improve the sustainability of forest-based communities by: • Fostering participation and involvement in forest management decision-making; • Improving access to resources; • Sharing benefits;

		• Enhancing multiple benefits; • Supporting community resilience and adaptive capacity. To address this issue, Canada is deeply involved on the international scene in the negotiation process within the Access and Benefit-Sharing Working Group, under the Convention on Biological Diversity, which is aiming to develop an international regime on Access and Benefit-Sharing. In preparation for these international discussions, Canada entered in 2004 into the development of a national strategy on access and benefit-sharing, holding several roundtable discussions on this issue with the provinces and territories, and consultation rounds with relevant stakeholders such as the industry, scientific community and Aboriginal People.Provinces and territories also address the issue of the fair and equitable sharing of benefits resulting from the utilization of forest genetic resources and associated traditional knowledge within their jurisdictions. In 2002 per example, the Government of **Manitoba** released a document outlining ways for government, industry and First Nations to help Manitoba's forests continue to thrive by adding to scientific and traditional forest knowledge, enhancing forest stewardship, increasing economic opportunities for Aboriginal communities, promoting a sustainable forest economy, and updating and improving existing legislation. As another example, following an extensive consultation process, the ***«Nunavut** Wildlife Act»* (Bill 35) was tabled in 2003. This piece of legislation reflects the traditions and values of the Inuit and is consistent with the Nunavut Land Claims Agreement. The legislation proposes to maintain and advance wildlife protection in Nunavut in a culturally appropriate manner. In Canada, the genetic resources of commercially important tree species are conserved in ex-situ gene banks and seed orchards. Natural Resources Canada's National Tree Seed Centre specializes in ex-situ conservation of Canadian tree and shrub seed and other forest genetic materials. Most provinces have their own seed banks, seed orchards, provenance trials and other in-situ facilities for commercial tree species. The genetic resources of other forest-dependent species are conserved by maintaining characteristic forest types across the forested landscape.
b) No		Please provide reasons below

Further comments on the promotion of access and benefit-sharing of forest genetic resources. (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets)
In 1993, the framework for a national strategy on forest resource conservation and management was developed by representatives of government and industry. Certain elements are in place, but most provinces and territories do not have a genetic conservation strategy, and rely on broader strategies. Parks, protected areas and reserved stands provide the basis of Canada's genetic conservation areas, although it is recognized that sustainable forest management practices can also retain this diversity.

Programme element 2 – Institutional and socio-economic enabling environment		
180. Is your country undertaking any measures to enhance the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing?		
Options	**X**	**Details**
a) Yes	X	Please identify priority actions in relation to each objective of Goal 1 and describe measures undertaken to address these priorities
		In Canada, agreements involving federal, provincial and territorial governments and aboriginal authorities have led to cooperative management efforts for wildlife, fish and forests. There currently exists a wide range of policies and programs for the management of biological resources. The Canada Forest Accord, the Wildlife Policy for Canada, the Federal Policy on Wetland Conservation, and provincial and territorial conservation and sustainable development strategies, wildlife and wetland policies, forest management plans and protected area strategies, and others, all reflect the efforts of governments to promote sustainable development, through the conservation of biodiversity and the sustainable use of biological resources. In addition, each province and territory has its own legislation, regulations, standards and programs through which is allocates forest harvesting rights and management responsibilities. Provincial legislation now designates more Crown forested lands for non-commercial use, protects biodiversity and involves the public in forest decision-making. The provinces in granting Crown timber leases set stringent planning and operational guidelines for companies. Increasingly, these leases require companies to tend and regenerate forests to meet objectives that extend well beyond the commercial to encompass forest and ecosystem health, wildlife and habitat protection, traditional and indigenous forest use, recreation and aesthetics.
b) No		Please provide reasons below
Further comments on the enhancement of the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).		

181. Is your country undertaking any measures to address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity?		
Options	**X**	**Details**
a) Yes	X	Please identify priority actions in relation to each objective of Goal 2 and describe measures undertaken to address these priorities In Canada, forest management policies advocate due diligence and serious examination of socio-economic impacts that implementation may have on biodiversity. Therefore, mitigation measures on economic failures and distortions are adopted with a consideration on this issue, in order to minimize or strictly prevent any loss of biodiversity.
b) No		Please provide reasons below
Further comments on review of socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).		

182. Is your country undertaking any measures to increase public education, participation and awareness in relation to forest biological diversity?		
Options	**X**	**Details**
a) Yes	X	Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
		A series of five action items have been proposed under Objective 4 of Canada's ***«National Forest Strategy 2003-2008»*** addressing forest product benefits which call for stimulating the diversification of markets, forest products and services and benefits (both timber and non-timber) by: •Understanding current and emerging markets and developing new domestic and international markets; •Promoting value-added and best-end-use through expanded research and design; and •Attracting manufacturers of finished products and promoting markets for forest environmental services. Those actions are the following: 4.1 Create and maintain policies and programs that encourage human capacity, investment, productivity, innovation and competitiveness in: • existing and potential primary and value-added timber industries; • non-timber and service-based industries, such as tourism and recreation, hunting and fishing, trapping and wildfoods; and • specialty forest products and services; for example medicinal plants, ethno-botanicals, carbon sinks, water regeneration, bioplastics and nutriceuticals.

		4.2 Create and maintain policies and programs that encourage, develop and maintain access to markets for primary and value-added timber and non-timber based industries; for example, promote Canadian forest products and practices at home and abroad through public events, market initiatives, world-class environmental programs and community activities. 4.3 Develop strategies for increasing domestic and export markets. 4.4 Develop value-added industries and programs to support innovation, for example, financial investment in intermediate and final product manufacturing, and collect statistics to monitor their development. 4.5 Remove policy barriers and encourage the greater use of renewable forest products to improve resource and energy efficiency.
b) No		Please provide reasons below

Further comments on measures to increase public education, participation and awareness in relation to forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Programme element 3 – Knowledge, assessment and monitoring		
183. Is your country undertaking any measures to characterize/e forest ecosystems at various scales in order to improve the assessment of the status and trends of forest biological diversity?		
Options	**X**	**Details**
a) Yes	X	Please identify priority actions in relation to each objective of Goal 1 and describe measures undertaken to address these priorities
		Goal 1 – To characterize and to analyse from forest ecosystem to global scale and develop general classification of forests on various scales in order to improve the assessment of status and trends of forest biological diversity The need to better understand and protect biodiversity in Canada has led to the development of several classification systems throughout the jurisdictions, each one of them having an independent forest ecosystem classification representing various level. Currently, provincial and territorial forest ecosystem classifications identify and describe over 4,000 forest and woodland community types in Canada. However, because each classification is only consistent within its jurisdictional boundaries, direct comparison of the systems is not possible. In order to address this situation, efforts have been made at the federal level to harmonize classification information by developing national systems aiming to improve the assessment of status and trends of forest biological diversity within Canada.

Objective 1 – Review and adopt a harmonized global to regional forest classification system, based on harmonized and accepted forest definitions and addressing key forest biological diversity elements

Seeking to address all the dimensions of its ecosystems, Canada firstly established in the 1970s an Ecological Land Classification (ELC). This classification system, sometimes called ecological stratification, incorporates the interactions among landforms, soil, water, climate, fauna and human activities. It is a hierarchical system that uses four levels of generalization, ranging from general to more and more details, depending on the size of the territory being considered. In other words, this approach classifies natural environments based on a limited number of ecological factors, none of which is predominant. The ELC has been adopted by the federal government and by most of the provinces. More information on this system can be found at: http://www.cfl.scf.rncan.gc.ca/ecosys/classif/intro_classif_e.asp

Objective 2 – Develop national forest classification systems and maps (using agreed international standards and protocols to enable regional and global synthesis)

National systems - Canadian Forest Ecosystem Classification (CFEC)

With a view to amalgamate independent classification systems by correlating the provincial and territorial classifications into a common national system, Canada has been working more recently on a Canadian Forest Ecosystem Classification (CFEC) which can be thought of as a "dictionary" of Canadian forest and woodland ecosystems. More precisely, the CFEC will: 1) integrate knowledge of vegetation communities in relation to environmental gradients, such as regional climate and site-specific moisture and nutrient regimes; 2) be effective for a broad range of applications, from exchanging forest management information across provincial and territorial boundaries, to identifying ecosystems with high potential for biodiversity conservation; 3) define and describe forest and woodland communities using standardized criteria and terminology; 4) provide a consistent framework for applying ecological knowledge of Canadian forests and woodlands to monitoring, research, and reporting activities; 5) help to establish Canada as a world leader in the application of ecosystem classification to sustainable forest management, including both timber and non-timber values (such a classification is essential for extrapolating information from local to national and global scales).

Furthermore, the adoption of internationally standardized definitions will allow CFEC types to correspond to associations (plant communities) of the *International Classification of Ecological Communities* in Canada and the United States. In this way, forest and woodland ecosystems across Canada and the United States will be described in common terms and communication of species- and community-level ecological information will be facilitated within Canada and internationally. The CFEC will enhance the interpretive value of spatial information products (e.g., the *National Forest Inventory* and satellite-derived land cover schemes) by linking ground-derived ecological attributes to them. More information on the CFEC can be found at: http://www.glfc.cfs.nrcan.gc.ca/CFEC/cfec/about/index_e.html.

		International systems In addition to the CFEC under development, we can mention that there are several international systems that Canada uses for reporting – such as the 13 FAO forest types that can readily be determined from the National Forest Inventory program and reported on – and underline Canada's contribution to processes of forest definition such as FAO and UNFF. As forest indicators, Canada mostly report on the Montréal Process indicators. However, provinces also have independent, mapable indicators used for inventory and reporting. In Canada, frequency of forest inventory on provincial and national basis is above the global average and easily complies with the 10-year suggested timeline for global reporting. Mapping There is considerable research in Canada into using various kinds of remote sensing to classify forests such as the Light Detection and Ranging system (LIDAR), where each track of laser-pulses shows the varying heights of the canopy and the combination of data from multiple lines make it possible to construct detailed stand canopy surface maps. Image classification techniques may then be applied to the high-resolution imagery to delineate forest-cover types and this classification may be performed in a number of different GIS packages. Because these classifications are at the ecosystem level, there are various components of biodiversity that are predicted (average measurements) for each, such as species associations (plant and animal) as well as structural features such as dead wood and percent canopy. **Objective 3 – To develop, where appropriate, specific forest ecosystems surveys in priority areas for conservation and sustainable use of forest biodiversity** In Canada, each province has an inventory of forest types and priority forests, which are monitored for sustainable forest management helping to address broader concerns such as the rate of harvesting for example.
b) No		Please provide reasons below

Further comments on characterization of forest ecosystems at various scales (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Harvesting of trees is a forest disturbance that occurs at the scale of the stand or tree. There are important differences between logging and fire or insect epidemics that need to be considered when practising sustainable forest management at the scale of the stand. These include the level of soil disturbance, amount of material or nutrients removed from the site, number of residual trees, volume of downed woody debris and impact on the composition of regenerating species. At a landscape level, differences include the degree of habitat fragmentation, size of disturbance (patch size), connectivity and configuration of remaining patches, the replacement of conifers with deciduous stands and incidence of disturbance. Applying the concepts of ecosystem diversity to forest management remains a challenge in Canada, but considerable effort is being made by forest managers from

industry and government to address these complex issues.

184. Is your country undertaking any measures to improve knowledge on, and methods for, the assessment of the status and trends of forest biological diversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 2 and describe measures undertaken to address these priorities
		An ongoing core commitment within the National Forest Strategy has been to provide a system of national indicators to measure progress in achieving sustainable forest management. In 1995, the Canadian Council of Forest Ministers (CCFM) released *Defining Sustainable Forest Management–A Canadian Approach to Criteria and Indicators* (CCFM 1995). The Canadian Council of Forest Ministers' Criteria and Indicators (CCFM C&I) Framework defines measures and reports on scientifically based indicators of forest sustainability. The Framework is reviewed periodically to ensure relevance and to incorporate up-to-date scientific knowledge. Currently, Canada's forest managers are evaluating progress, shaping policy, and focusing research using the following 6 criteria that are further defined by 36 core indicators and 10 supporting indicators for a total of 46 associated indicators in : • Biological diversity – the variability among living organisms and the ecosystems of which they are part (8 indicators); • Ecosystem condition and productivity – the stability, resilience and rates of biological production in forest ecosystems (5 indicators); • Soil and water – the quantity and quality of soil and water (3 indicators); • Role in global ecological cycles – role in global ecological cycles (4 indicators); • Economic and social benefits – sustaining the flow of benefits from forests for current and future generations (13 indicators); • Society's responsibility – fair and effective resource management choices (13 indicators). Concurrently, Canada participated in the Montréal Process Working Group, which resulted in the signing of The Santiago Declaration statement on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (Montréal Process Working Group 1995). Canada, along with the eleven other countries involved in the Montreal Process, possess about 90 % of the world's temperate and boreal forest.

		The Canadian Model Forest Network has been working for a number of years on the development and application of local level indicators of sustainable forest management which include monitoring biodiversity conservation, including indicators developed within an Aboriginal context. The report was presented at a workshop on Local Level Indicators of Sustainable Forest Management hosted by the Canadian Model Forest Network in early 2004 and is now available at: http://www.ccfm.org/pdf/pdf_docs/Technical%20Supplements/CI2003_tech_sup_1.pdf. The Canadian Model Forest Network's Local Level Indicator Database will be updated and soon available at: http://www.interconconsultants.com/cmfn/en/initiatives/indicators/database/default.aspx?PF=1. Since the conservation of biological diversity is the first of six criteria used under the CCFM framework, and one of seven under the Montréal Process, many provinces have subsequently developed similar criteria and indicator programs based on the CCFM framework and are publishing information under their requirements for reporting on the state of the environment.
b) No		Please provide reasons below

Further comments on improvement of knowledge on and methods for the assessment of the status and trends (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

To ensure compliance with regulations, government staff inspects regularly all forest operations on public land. This compliance ranges from developing and instituting short- and long-term management plans ensuring adequate forest regeneration. From a biodiversity perspective, these provincial audits of company operations are important to ensure that the companies are fulfilling their legal obligations for appropriate regeneration after harvesting and reclamation of disturbed sites, particularly watercourses. For example, the ground rules for forest management licenses in Canada normally allow about 10 years following harvest for the area to be fully regenerated. An indicator of successful management is to ensure all harvested areas achieve this regenerative stage within 10 years. As the maintenance of biodiversity has become a key goal in achieving sustainable forest management, there has been a period of transition in establishing audit requirements and associated monitoring responsibilities. Industry has taken an increasing role, as part of its internal audit or certification process, or both, and also to support an adaptive approach to management.

While the entire Canadian Biodiversity Strategy deals with the mechanisms required to ensure adequate habitat for all species, the first step is to understand the status of wild flora and fauna in each of the forest ecosystems. In 1996, the federal, provincial and territorial ministers responsible for wildlife became committed “to monitor, assess and regularly report on the status of all wild species” in order to identify those species that may be threatened or for which more information or management attention is required. *Wild Species 2000: The General Status of Species in Canada* was the first national effort in this regard, providing an assessment of over 1600 of Canada’s known 70 000 species. In the report, a broad cross-section of species from all provinces and territories were classified as extirpated or extinct, or at risk, maybe at risk, sensitive, secure, undetermined, not assessed, exotic or accidental. The results of the assessment allow species

to be prioritized based on their management and protection needs. Provincial agencies also publish their own status reports on species and many provinces have recently started to assess species distributions within their historic ranges.

The Committee on the Status of Endangered Wildlife In Canada (COSEWIC) annually publishes a list of Canadian species at risk which comprises five categories from “extinct” to “of special concern”. The number of forest-dwelling species on this list has steadily risen, to 93 in 2001. The increase is the result of the additional species examined by COSEWIC, the concern for specific populations within the species range and the number of naturally rare species on the periphery of their range in Canada.

During the 1990s, an emphasis on the need for complementary legislation with provincial governments to provide a legal safety net for all endangered species in Canada led the ministers responsible for wildlife to agree in principle to the National Accord for the Protection of Species at Risk. This common approach committed all jurisdictions to ensure that legislation and habitat programs meet 14 specific criteria that provide base protection for endangered species throughout Canada.

185. Is your country undertaking any measures to improve the understanding of the role of forest biodiversity and ecosystem functioning?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
		Globally, Canada does not enjoy the biological richness of other tropical countries although it does contain an extensive array of ecosystems ranging from the rain forests of British Columbia to the aquatic diversity of Atlantic Canada and from the tall grass Prairies and Carolinian forests in the south to the northern Arctic tundra. Within each ecosystem, there exist a variety of stresses interacting with the ecological processes yielding a diversity of biological life that has yet to be prospected and fully understood. The Ecological Monitoring and Assessment Network initiates and guides activities for monitoring biodiversity in Canada. Three different types of intensive monitoring sites and analysis are needed to answer the “why” question leading to policy actions. Reference sites; experimental sites; and stress gradients collectively improve our understanding of functional Biodiversity leading to the formulation of mitigation and adaptation actions to conserve Biodiversity in Canada. Also, Canada released its biodiversity strategy in 1995. Through the *«Canadian Biodiversity Strategy»*, Canada seeks to improve the understanding of ecosystems and the need to conserve forest biodiversity by:

- Increasing the understanding by enhancing ecological site classification systems and the inventory and monitoring of commercial and non-commercial species, soil, soil biota, climate, and other biophysical characteristics;
- Improving our understanding of forest ecological functions by determining the benefits of ecological services provided by forest ecosystems, monitoring the ecological responses of forests to resource management practices;
- Providing improved training opportunities for forest scientists, managers and operators to increase their understanding of forest ecosystems.

«Canada's Forest Biodiversity: A decade of progress in sustainable management» reports on the progress of the forest community toward meeting its commitment to the *«Canadian Biodiversity Strategy»*.Canada is also conducting key research programmes on the role of forest biodiversity and ecosystem functioning. One concrete example is the Extended Collaboration for Linking Ecophysiology And forest Productivity (ECOLEAP) project. ECOLEAP is a multidisciplinary project which goal is to identify the effects of environmental factors (temperature, fertility, etc.) on physiological processes (photo-synthesis, respiration, etc.) and to link those factors to forest productivity.

Biotechnology research is conducted at Canadian Forest Service's laboratories in the Pacific, Northern, Great Lakes, Laurentian, and Atlantic centres and is integrated nationwide through research networks, mainly within the Enhanced Timber Production and Protection Network. The main areas of applied biotechnology research at the CFS are: identification of genetically superior trees and genetic diversity; tree propagation through tissue culture; tree improvement through genetic engineering; forest protection using biological pest control methods; and environmental impact assessment of biotechnology-derived products.

More broadly, biodiversity research in Canada involves the disciplines of genetics, taxonomy, and ecology, and focuses on:

- defining and measuring the elements of forest biodiversity in terms of genes, species, ecosystems, and landscapes;
- identifying and assessing the impacts of human activity (including climate change) and natural catastrophes on biodiversity in Canada's forests;
- determining what constitutes effective conservation of forest biodiversity; and
- identifying and monitoring invasive alien forest pests and protecting species and ecosystems at risk.

Detailed information on this subject is available on the Natural Resources Canada website on Science at: http://www.nrcan.gc.ca/cfs-scf/science/resrch/biodiversity_e.html.

		Also, Canada's research in the area of ecology and ecosystems focuses on: • defining and measuring sustainable ecosystem productivity across a wide range of ecological conditions, disturbance regimes (fire, harvesting, insects), and management regimes (plantations, spacing, fertilization); • determining forest vegetation succession after human and natural disturbances; and • studying population dynamics of forest insects, pathogens, and microbes, ecophysiology, and behaviour, host-plant interactions, natural enemies, and population modeling. Additional information also available at: http://www.nrcan.gc.ca/cfs-scf/science/resrch/ecology_e.html.
b) No		Please provide reasons below

Further comments on the improvement of the understanding of the role of forest biodiversity and ecosystem functioning (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

186. Is your country undertaking any measures at national level to improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biodiversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 4 and describe measures undertaken to address these priorities
		In 1998, *«Canada's approach to developing a national node of the clearing-house mechanism»* presented a strategic plan to launch within the Biodiversity Convention Office (Environment Canada) a website called *«Canadian Biodiversity Information Network»* (CBIN), which is located at: http://www.cbin.ec.gc.ca/. The purpose of CBIN is to provide efficient access to all types of information and data related to global efforts to conserve, protect, and sustainably use the living world around us. This site is the official Canadian component of the Clearing-house Mechanism. Information on Canadian environmental activities and agreements, technologies, data, funding sources, web sites, upcoming events, reference materials, expertise, etc, can be found on this website. Today, CBIN still serves in a certain way as a clearing house for biodiversity initiatives in Canada's two official languages. However, CBIN does not focus on lessons learned nor provide access to data. The web site only allows users to search for information by keyword or under a thematic approach (by Articles of the Convention or by the Canadian Strategy).

		Users can also enrich the database by accessing the site and adding, browsing or changing the information in the clearinghouse. The site also gives general information on biodiversity issues, and offers biodiversity stakeholders access to a discussion forum on several subjects (ABS, CoP7, FPCLU, SBSTTA, Invasive Alien Species, etc.). Quick links are also available to reach easily the International Clearing House Mechanism and the Convention on Biological Diversity Secretariat. Through numerous federal government websites, the Federal Biodiversity Information Partnership (FBIP) and the Canadian Information System for the Environment, Canada is developing its own 'clearing houses' for biodiversity information, benefiting from more opportunities than just the one offered through the Clearing House Mechanism of CBD.
b) No		Please provide reasons below

Further comments on the improvement of the infrastructure for data and information management (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Box LXXI.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

a) In Canada, the outcomes related to forest management include a wide range of policies and programs for the management of forest biological resources, such as the Canada Forest Accord, the Aboriginal Forestry Program or provincial and territorial conservation and sustainable development strategies under forest management plans and improved community forestry. All of these reflect the efforts of governments to promote sustainable forest management through conservation of biodiversity and the sustainable use of biological resources. In addition, the National Forest Strategy expresses a vision for the future of Canadian forests, and biodiversity conservation and the sustainable use of biological resources are important themes throughout this strategy. Actions are taking place across the country to ensure that these aims are met.

The National Biodiversity Strategy does not repeat all of the elements of the National Forest Strategy, but rather attempts to build upon those elements that are most relevant to the objectives of the Biodiversity Convention. For that specific purpose, 16 strategic directions related to forest biodiversity had been developed under the Canadian Biodiversity Strategy (at: http://www.cbin.ec.gc.ca/issues/strategy.cfm) and it is the responsibility of each jurisdiction to integrate these strategic directions into their own biodiversity strategy, forest plans and initiatives. The Canadian Biodiversity Strategy also emphasizes the importance of intergovernmental cooperation to

create the policy, management and research conditions necessary to advance ecological management, and to report on progress made and actions undertaken to meet the goals and strategic directions.

Though there is a lot of ongoing work across Canada reflecting the objectives of the forest programme of work, no systematic assessment has been made up to now. However, such an assessment should be achieved within 2005 in relation with the 10 years anniversary of the Canadian Biodiversity Strategy and the venue of the Canadian Biodiversity Outcomes Framework, where outcomes and impacts of actions taken will be evaluated under the forest biodiversity strategic directions and linked to the CBD forest programme of work.

b) Canada's contribution to the achievement of the Strategic Plan of the CBD is based on the harmonisation of its goals.

Under goal 1, Canada is fulfilling its leadership role as a world steward of the boreal forest by participating as a member to the Ad Hoc Technical Expert Group working in close collaboration with other Parties to review the implementation of the Program of Work on Forest Biological Diversity, including goals and targets.

The Canadian Forest Service, the Canadian International Development Agency and the International Development Research Centre with its International Model Forest Network has also, with respect to goal 2, worked on improving financial, human, scientific, technical and technological capacity of Parties with their numerous collaborative forestry projects in developing countries around the world.

Since its release in 1995, the Canadian Biodiversity Strategy is also contributing to the achievement of goal 3 of the Strategic Plan of the CBD. Provincial and Territorial biodiversity strategies and action plans emerged in line with the CBS, and the integration of biodiversity and landscape concerns into relevant sectors in Canada as well serve as a framework for the implementation of the objectives of the CBS and the CBD.

Finally, in accordance with goal 4, there is a better understanding of the importance of biodiversity, landscape, the CBS and the CBD in Canada, and this has led to broader engagement across jurisdictional levels and stakeholders in the implementation of the strategy.

c) In Canada, the implementation of the forest programme of work and its contribution to progress toward the 2010 target is realized under many approaches. Support to innovative and successful forestry program in partnership with stakeholders, such as Model Forests and the Aboriginal Forest Program, are an example of contribution to these outcomes. Canada also enacts effective legislation to protect forest biodiversity, such as the enforcement in June 2004 of the Species At Risk Act that protects endangered wildlife species of becoming extinct. In addition, effective assessment, monitoring and reporting mechanisms are contributing to the implementation in Canada of the forest programme of work and progress towards the 2010 target. Under the framework from international bodies – such as FAO, UNFF, and the Montreal Process – and its own criteria & indicators for forests, Canada measures progress on the conservation and sustainable use of its forest resource, as well as socio-economic benefits and traditional values that are attached to it. In addition, with already about 50% of its forest cover certified by a third party organization (CSA, SFI, FSC, ISO), Canada responds positively to CBD targets under development such as certification as, but not limited to, a measure of sustainable use. Canada also believes that its participation to the Ad Hoc Technical Expert Group on the Forest Programme of Work, which includes work to identify specific targets, responds to the needs as a contribution to meeting the 2010 target.

d) Following the release in 1995 of the Canadian Biodiversity Strategy, Provincial and Territorial governments, in co-operation with members of the public and stakeholders, are pursuing the strategic directions set out in the CBS according to their policies, plans, priorities and fiscal capabilities, and are developing their own biodiversity strategies. The timing of the implementation and the mechanisms utilized are varying among jurisdictions. Up to now, British-Columbia, Alberta, Saskatchewan, Northwest Territories and Québec, and very soon Ontario, have released their own provincial strategies and action plan, and are working on implementation. Some Provinces in the Atlantic region have initiated work to develop their strategies as well. Because under the Constitution in Canada, Provinces and Territories own and regulate the natural resources within their boundaries with exclusive powers to legislate for the enhancement, conservation and management of forest resources, Provincial and Territorial biodiversity strategies are developing their own set of objectives and targets on forest biodiversity. In addition, to ensure the effective implementation of national and international elements of the CBS, co-ordination is done through the activities of a Federal-Provincial-Territorial Working Group, where officials from the Canadian Forest Service are members. Lately, this group has been mandated to develop a Canadian Biodiversity Outcomes Framework, as a companion to the CBS and as the basis for priority setting, reporting, communications and linking international, national and sub-national objectives and targets.

e) As a responsible steward of 30 percent of the world’s boreal forest and 20 percent of the world’s temperate rainforest, Canada has done a considerable amount of domestic work at all jurisdictional levels in the forestry sector, including everything mentioned above, aiming to contribute to the achievement of the international community goal to ensure environmental sustainability. In addition, Canada participates on many international initiatives, workshops and fora, aiming to promote conservation and sustainable forest management in the world, supporting as well the work done by other countries to achieve their contribution. Even though the majority of its workforce is still composed with men, the forestry sector in Canada promotes gender equality since many years. As a result, the proportion of female graduates in forestry faculties in Canada is increasing, and women in the forestry sector in Canada are reaching higher ranked management positions. On another aspect of this social concern, the International Development Research Centre in Canada is advancing research done on gender and equity in relation with forestry. As an example, research with a focus on concepts related to the gender dimension of tree tenure on land property in developing countries can be found at: http://network.idrc.ca/es/ev-3241-201-1-DO_TOPIC.html. The Canadian Yew (or Ground Hemlock), which provides Taxol© used as a component in remedies against cancer, is an example of the responsibility that Canada takes toward the conservation and the sustainable use of its forest genetic resources. This specific case may be linked to the international goal to combat diseases. Finally, Canada believes that global partnership for forestry development and more intensive discussions on the role of forests in a broader context in relation with poverty alleviation, governance, and private sector development must be pursued at the international level in order to achieve the MDGs.

f) As mentioned above, there are a lot of implementation activities ongoing across jurisdictional levels in Canada that reflect the objectives of the CBD forest programme of work. However, the particular jurisdictional structure for enhancement, conservation and management of forest resources is a constraint that complicates co-ordination among the different levels of government. For this purpose and beyond, the Canadian Council of Forest Ministers was created in 1985 to provide an important forum for the federal, provincial and territorial governments responsible for forests to work cooperatively to address major areas of common interest.

The development of a Canadian Biodiversity Outcomes Framework (presently under development) will improve Canada's abilities for priority setting, reporting, communications and the linkage of international, national and sub-national objectives and targets. Fortunately, the international forestry community is advanced in terms of development of targets, criteria and indicators on sustainable forest management. Under the framework from international bodies – such as FAO, UNFF, and the Montreal Process – and its own developed criteria & indicators for forest, Canada measures progress on the conservation and sustainable use of its forest resource, as well as socio-economic benefits and traditional values that are attached to it. However, this positive aspect reveals supplementary constraint underneath, since it becomes more difficult to make the linkage between the cross walk with the other existing frameworks and the CBD Forest Programme of Work.

Biological diversity of dry and sub-humid lands

187. Is your country supporting scientifically, technically and financially, at the national and regional levels, the activities identified in the programme of work? (decisions V/23 and VII/2)	
a) No	
b) Yes (please provide details below)	**X**

Further comments on scientific, technical and financial support, at the national and regional levels, to the activities identified in the programme of work.

The Community Pasture Program is one of the largest and longest-running contributions to soil conservation on the Canadian prairies. Started in the 1930s to reclaim badly eroded areas, the program has returned more than 145,000 hectares (ha) of poor quality cultivated lands to grass cover since 1937 and currently encompasses in excess of 900,000 ha of rangeland.

The program is designed to make possible the removal of lands from unsuitable or unacceptable land use and to facilitate improved land use through their rehabilitation, conservation and management. The program also serves to preserve wildlife habitat and to maintain a permanent cover that protects marginal soils from erosion. The program also helps producers strengthen their operations by providing pastures and a breeding service.

The Permanent Cover component under the Greencover Canada initiative will encourage landowners to convert marginal cultivated land to permanent cover and to manage existing forage lands and critical habitat areas in a more sustainable manner. This would maximize environmental benefits to Canadians by increasing carbon sequestration in the soil (carbon held in the soil does not become a greenhouse gas); protecting the land from wind and water erosion; preserving water quality; and improving the habitat for wildlife, which in turn enhances biodiversity.

188. Has your country integrated actions under the programme of work of dry and sub-humid lands into its national biodiversity strategies and action plans or the National Action Programme (NAP) of the UNCCD? (decisions V/23, VI/4 and VII/2)	
a) No	
b) Yes (please provide details below)	**X**

Further comments on actions under the programme of work of dry and sub-humid lands integrated into national biodiversity strategies and action plans or the National Action Programme (NAP) of the UNCCD.

In 2002, AAFC, in collaboration with the provinces and territories, developed the Agricultural Policy Framework (APF) with the aim of preparing the agricultural sector to address emerging challenges and of making Canada the world leader in food safety, innovation, and environmentally responsible food production.

The Agricultural Policy Framework (APF) recognizes that soil quality and land use are issues which need to be addressed by the agricultural sector. One of the environmental goals of the APF is to accelerate on farm action, to reduce agricultural risks to the health of soils, as well as to provide benefits. The key priority areas are soil organic matter and soil erosion caused by water, wind or tillage, which in turn enhances biodiversity.

189. Has your country undertaken measures to ensure synergistic/collaborative implementation of the programme of work between the national UNCCD process and other processes under related environmental conventions? (decisions V/23, VI/4 and VII/2)	
a) No	X
b) Yes, some linkages established (please provide details below)	
c) Yes, extensive linkages established (please provide details below)	

Further comments on the measures to ensure the synergistic/collaborative implementation of the programme of work between the national UNCCD processes and other processes under related environmental conventions.

Programme Part A: Assessment

190. Has your country assessed and analyzed information on the state of dryland biological diversity and the pressures on it, disseminated existing knowledge and best practices, and filled knowledge gaps in order to determine adequate activities? (Decision V/23, Part A: Assessment, Operational objective, activities 1 to 6)	
a) No	
b) No, but assessment is ongoing	
c) Yes, some assessments undertaken (please provide details below)	
d) Yes, comprehensive assessment undertaken (please provide details below)	**X**

Further comments on the relevant information on assessments of the status and trends and dissemination of existing knowledge and best practices.

In 1999, Agriculture and Agri-Food Canada (AAFC) initiated a review of

Canadian research on the state of knowledge and knowledge gaps related to agronomic impacts on soil biodiversity and biodiversity in agricultural soils. This report provided background material for Canadian participation in addressing priority issues on agricultural biological diversity at the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) under the Convention on Biological Diversity. A preliminary draft was completed in 2000, consisting of 11 chapters representing knowledge of impacts on different soil biota groups and general issues such as scale, and response to organic matter. In 2003, these chapters were updated and presented in a Special Issue of Canadian Journal of Soil Science.

Also, AAFC began work to develop environmental indicators in 1993, and published the results in February 2000 in the report, Environmental Sustainability of Canadian Agriculture: Report of the Agri-Environmental Indicator Project. Agri-environmental indicators (AEIs) are measures of key environmental conditions, risks, and changes resulting from agriculture. They are national in scope but sensitive to regional variations in the agricultural landscape and to the farming practices implemented.

Agri-environmental indicators related to soil quality include the Risk of Water Erosion, Risk of Wind Erosion, Risk of Tillage Erosion, Soil Organic Carbon, Risk of Soil Compaction and the Risk of Soil Salinization. The Agri-Environmental indicator project found that the management of agricultural soils in Canada has improved overall between 1981 and 1996, with an associated reduction in most risks of soil degradation.

Further to this initial work, and in light of current and future needs for this kind of information, AAFC decided to strengthen its capacity to develop and continuously improve on AEIs, as well as the tools that use these indicators to develop policy and programs. AAFC is establishing this capacity through the National Agri-Environmental Health Analysis and Reporting Program (NAHARP).

NAHARP will provide science-based agri-environmental indicators that can play a critical role in guiding policy and program design, and that can help determine which options will be most effective.

As policies and programs are implemented, information from NAHARP will help analyze and understand the results actually achieved. The information generated will also provide a general report card that can help track the environmental performance of Canadian agriculture.

For more information on NAHARP and for a list of indicators being developed, please visit:
http://www.agr.gc.ca/env/naharp-pnarsa/index_e.php

Programme Part B: Targeted Actions	
191. Has your country taken measures to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands and the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, and to combat the loss of biological diversity in dry and sub-humid lands and its socio-economic consequences? (part B of annex I of decision V/23, activities 7 to 9)	
a) No	
b) Yes, some measures taken (please provide details below)	**X**
c) Yes, many measures taken (please provide details below)	

Further comments on the measures taken to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands and the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, and to combat the loss of biological diversity in dry and sub-humid lands and its socio-economic consequences.

The APF's environment programs such as the Environmental Farm Plan Program, the National Farm Stewardship Program (NFSP) which supports adoption of Beneficial Management Practices, and the related Greencover program, are aimed at promoting sustainable agriculture in order to conserve Canada's natural resources for future generations.

The National Farm Stewardship Program (NFSP) of the Agriculture Policy Framework provides technical assistance and cost share incentives for producers to adopt practices identified as action items in the environmental farm plan. There are a wide range of beneficial management practices that producers are eligible to apply for that either directly protect or indirectly conserve or enhance the biological diversity of dry and sub-humid lands (e.g., erosion control practices such as grassed waterways or bank stabilization).

In addition, the Permanent Cover component under the Greencover Canada initiative will encourage landowners to convert marginal cultivated land to permanent cover and to manage existing forage lands and critical habitat areas in a more sustainable manner. This would maximize environmental benefits to Canadians by increasing carbon sequestration in the soil (carbon held in the soil does not become a greenhouse gas); protecting the land from wind and water erosion; preserving water quality; and improving the habitat for wildlife, which in turn enhances biodiversity.

192. Has your country taken measures to strengthen national capacities, including local capacities, to enhance the implementation of the programme of work?	
a) No	
b) Yes, some measures taken (please provide details below)	
c) Yes, comprehensive measures taken (please provide details below)	**X**
d) Yes, all identified capacity needs met (please provide details below)	

Further comments on measures taken to strengthen national capacities, including local capacities, to enhance the implementation of the programme of work.

Please refer to question 191

Box LXXII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:
m) outcomes and impacts of actions taken;
n) contribution to the achievement of the goals of the Strategic Plan of the Convention;
o) contribution to progress towards the 2010 target;
p) progress in implementing national biodiversity strategies and action plans;
q) contribution to the achievement of the Millennium Development Goals;
r) constraints encountered in implementation.

Mountain Biodiversity

Programme Element 1. Direct actions for conservation, sustainable use ad benefit sharing

193. Has your country taken any measures to prevent and mitigate the negative impacts of key threats to mountain biodiversity?

a) No	
b) No, but relevant measures are being considered	
c) Yes, some measures taken (please provide details below)	X
d) Yes, many measures taken (please provide details below)	

Further comments on the measures taken to prevent and mitigate the negative impacts of key threats to mountain biodiversity

Parks Canada is leading a group of interested parties, including provincial governments in Alberta and British Columbia, non-governmental organizations and academic institutions, which are conducting assessments of whitebark pine (*Pinus albicaulis*) ecosystems in the Canadian Rocky Mountains at the genetic, species and ecosystem levels. A keystone treeline species, whitebark pine and its associated ecosystem are threatened by an introduced blister rust. Parks Canada has created a conservation plan for the Canadian Rocky Mountain National Parks that includes direction for research, monitoring, inventory and active management and is cooperating with similar efforts in the US. Genetic work on this species is ongoing through various collaborators.

Gros Morne National Park (Newfoundland) has implemented a 'Human Use Monitoring Program', in which they are monitoring the number of hikers each year and providing information regarding the potential effects of pedestrian traffic on plants and animals. Trail counters have been in place for the last three years. During that time, the number of hikers climbing Gros Morne has increased. The quantity of pedestrian traffic that the mountain can sustain is unknown. A study launched in the summer of 2002 investigated the effects of pedestrian traffic on mountain vegetation. Park management can use data from this study, combined with data from the trail counters, to help protect this sensitive mountain environment.

Also in Gros Morne, a program has begun to monitor the number of rock ptarmigans present. Rock ptarmigan is an Arctic bird that occurs in tundra and Arctic-alpine areas of North America. The island of Newfoundland is home to one of the most southerly populations of rock ptarmigan and is the only place where the subspecies *Lagopus mutus welchi* can be found. A trail up the mountain makes this ptarmigan population relatively accessible and therefore potentially vulnerable to disturbance by visitors. As such, the mountain has

been chosen for an annual ptarmigan census as a part of the park monitoring program.

194. Has your country taken any measures to protect, recover and restore mountain biodiversity?	
a) No	
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	X
d) Yes, many measures taken (please provide details below)	

Further comments on the measures taken to protect, recover and restore mountain biodiversity

As discussed under Question 197, many of Canada's mountains are located within the boundaries of National or Provincial Parks and thus, by law, they are protected for public understanding, appreciation and enjoyment, while being maintained in an unimpaired state for future generations.

195. Has your country taken any measures to promote the sustainable use of mountain biological resources and to maintain genetic diversity in mountain ecosystems?	
a) No	
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	X
d) Yes, many measures taken (please provide details below)	

Further comments on the measures to promote the sustainable use of mountain biological resources and to maintain genetic diversity in mountain ecosystems

The provincial governments of British Columbia and Alberta, along with Parks Canada, have partnered up to form the Central Rockies Ecosystem Interagency Liaison Group, with the goals and vision of ensuring that biodiversity is maximised in the Central Rockies ecosystem and that the area is managed as a sustainable regional landscape.
The strategy of the Group to help maintain a healthy ecosystem involves:
1. Representing all native ecosystem types and seral stages across their natural range of variation.
2. Preserving spatial connectivity to allow genetic flow and to minimise the possibility of island extinctions.
3. Maintaining viable populations of all native species in natural patterns of abundance and distribution.
4. Maintaining ecological and evolutionary processes such as natural disturbance regimes, fluvial processes, nutrient cycles, and biotic interactions including predation.
5. Designing and managing the system to be responsive to short-term and long-term environmental change and to maintain its evolutionary potential.
6. Maintaining sustainable recreational, tourism, industrial and natural resource uses within the framework of ecosystem management practices.

Tree harvesting and other disturbances caused by humans can fragment or alter ecosystems, leading to loss of suitable habitat for endangered species or those in decline, such as mountain caribou and the Vancouver Island marmot. They can also cause loss of connectivity between different ecosystems, both vertically and horizontally. One of the specific challenges for maintaining biodiversity is that harvesting is taking place at increasingly higher elevations as commercial wood availability and market patterns change, and as

operational difficulties are overcome. The sustainable use of these forests requires successful regeneration and recognition of realistic rotation lengths.

In terms of recreation, increased human access and resultant impacts can negatively affect the very environments that draw people in the first place. On the other hand, expanding protected areas to ensure the integrity of mountain forest ecosystems and their biodiversity can negatively affect local economies. A balance must be struck between these important values.

In Banff National Park (Alberta), Parks Canada has adopted an ecosystem-based management approach that fulfills its mandate to preserve ecological integrity in the park ecosystems and provide for visitor enjoyment and benefit. Ecosystem-based management is a holistic approach in which decisions are made based on an understanding of the whole ecosystem rather than individual species or communities. Management decisions are based on current ecological information gained from science and traditional knowledge.

196. Has your country taken any measures for sharing the benefits arising from the utilization of mountain genetic resources, including preservation and maintenance of traditional knowledge?	
a) No	
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	X
d) Yes, many measures taken (please provide details below)	

Further comments on the measures for sharing the benefits arising from the utilization of mountain genetic resources

In Canada, access to mountain and other genetic resources is governed by existing law, in particular property laws (including intellectual property statutes), laws governing crown land, laws governing access and use of biological resources in national and provincial parks, and policies governing access to material kept in ex-situ genebank collections. Canada does not have a single piece of national access legislation per se. Generally, national policy governing access to genetic resources is more developed for ex-situ than in-situ genetic resources.

In general, access to in-situ genetic resources falls under laws governing land tenure. Approximately, 11% of land in Canada is privately owned, 48% is provincial crown land and 41% is federal crown land. (National Parks that contain important mountain ecosystems include Banff, Jasper, Kootenay, Yoho, Mount Revelstoke and Glacier.) Thus, the majority of crown land in Canada falls under provincial jurisdiction. Access to and use of crown land is regulated under both provincial and federal laws. In partnership with the provincial and territorial governments, the federal government has initiated a national policy dialogue has begun that is engaging key sectors and actors in order to adequately capture all relevant interests and concerns nationwide.

Many aboriginal communities participate actively in decision-making processes involving issues such as sustainable or customary use and regional development. Aboriginal governments may have jurisdiction over natural resources on the land as set out in a comprehensive claim agreement or self-government agreement.

Several federal departments and agencies are responsible for administering crown lands and most have developed policies that may affect the protection of and access to in-situ genetic resources. Environment Canada is working with several, including Parks Canada and the Canadian Forest Service, to find

ways to incorporate ABS principles into their management systems.

Canada has established a national focal point on ABS within the Biodiversity Convention Office of Environment Canada.

Programme Element 2. Means of implementation for conservation, sustainable use and benefit sharing	
197. Has your country developed any legal, policy and institutional framework for conservation and sustainable use of mountain biodiversity and for implementing this programme of work?	
a) No	
b) No, but relevant frameworks are being developed	
c) Yes, some frameworks are in place (please provide details below)	X
d) Yes, comprehensive frameworks are in place (please provide details below)	

Further comments on the legal, policy and institutional frameworks for conservation and sustainable use of mountain biodiversity and for implementing the programme of work on mountain biodiversity.

Many of Canada's mountains are found in National or Provincial Parks, and thus have special protection and regulations regarding the use of the area and conservation. By law, they are protected for public understanding, appreciation and enjoyment, while being maintained in an unimpaired state for future generations.

National parks that contain important mountain ecosystems include Banff, Jasper, Kootenay, Yoho, Mount Revelstoke and Glacier. Provincial parks include Hamber, Mount Robson and Mount Assiniboine, which are also recognized internationally as a UNESCO World Heritage Site.

As part of a larger system of national parks and historic sites found throughout Canada, Kluane National Park and Reserve, home to Canada's highest peak, Mt. Logan, protects and presents a nationally significant example of Canada's North Coast Mountains natural region and the associated regional cultural heritage. Fostering public understanding, appreciation and enjoyment of Kluane National Park and Reserve while ensuring ecological and commemorative integrity for present and future generations is Parks Canada's goal.

198. Has your country been involved in regional and/or transboundary cooperative agreements on mountain ecosystems for conservation and sustainable use of mountain biodiversity?	
a) No	
b) No, but some cooperation frameworks are being considered	
c) Yes (please provide details below)	X

Further information on the regional and/or transboundary cooperative agreements on mountain ecosystems for conservation and sustainable use of mountain biodiversity

Waterton Lakes National Park in Alberta helps protect the unique and unusually diverse physical, biological and cultural resources found in the Crown of the Continent: one of the narrowest places in the Rocky Mountains. In 1932, the park was joined with Montana's Glacier National Park to form the Waterton-Glacier International Peace Park - a world first. The Peace Park was originally created as a symbol of peace and goodwill between the United States and Canada, but has evolved to also represent cooperation in a world of shared resources. Both parks strive to protect the ecosystem through

shared management, not only between themselves but also with their other neighbours. The Waterton-Glacier International Peace Park was designated a World Heritage Site in 1995, as an "outstanding example representing significant ongoing ecological and biological processes" - specifically because of its distinctive climate and landforms, the abrupt meeting of mountain and prairie, and its triple divide (waters flowing into three distinct river systems).

Parks Canada is working actively with the US Parks Service, US Geological Service, US academia and non-governmental organizations to conserve the biodiversity associated with whitebark pine (*Pinus albicaulis*) ecosystems in the Rocky Mountain Range. Work to date has included joint development of monitoring methods, joint funding proposals to non-governmental organizations, annual information sharing and joint field work.

British Columbia and Alberta, along with Parks Canada, have partnered to form the Central Rockies Ecosystem Interagency Liaison Group (see question 195).

Programme Element 3. Supporting actions for conservation, sustainable use and benefit sharing

199. Has your country taken any measures for identification, monitoring and assessment of mountain biological diversity?

a) No	
b) No, but relevant programmes are under development	
c) Yes, some measures are in place (please provide details below)	X
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for identification, monitoring and assessment of mountain biodiversity

The 2002-2003 Natural Resources Canada publication *The State of Canada's Forests* contains an entire section dedicated to unique mountain biodiversity. The importance of mountain ecozones is stressed, especially as they consist of 10% of Canada's total landmass. These ecosystems provide a wide range of timber and non-timber forest products, and also supply fresh water to communities and ecosystems through extensive river systems that may run several thousand kilometres from their melting snow pack sources. Mountain ecosystems provide unique recreational and cultural opportunities for Canadians, as well as for visitors from around the world who consider mountains an integral part of the Canadian experience. Mountains can also be of spiritual significance, particularly to members of the First Nations.

Experts have identified five broad elements that affect mountain biodiversity:

1. Mountain vulnerability to human and natural disturbances, and the low rates of ecosystem recovery following these disturbances;
2. The relatively high susceptibility to climate change compared with lowland areas;
3. The high degree of ecological and human connectivity with lowland areas, particularly with regard to water resources;
4. The high levels of crop genetic diversity and the great potential for diversification of agricultural varieties; and
5. The exceptional levels of human cultural diversity.

Tree harvesting and other disturbances caused by humans can fragment or alter ecosystems, leading to loss of suitable habitat for endangered species or those in decline, such as mountain caribou and the Vancouver Island marmot. They can also cause loss of connectivity between different ecosystems, both vertically and horizontally. This can have serious impacts, particularly on animals that forage at different altitudes at different times of the year.

In Gros Morne National Park, programs to monitor the number of hikers climbing the mountain each year and the potential impact of pedestrian traffic on the mountain's biodiversity, as well as a program to monitor the numbers of rock ptarmigan (which are easily accessible and therefore potentially vulnerable to human impact), have been implemented.

200. Has your country taken any measures for improving research, technical and scientific cooperation and capacity building for conservation and sustainable use of mountain biodiversity?

a)	No	
b)	No, but relevant programmes are under development	
c)	Yes, some measures are in place (please provide details below)	X
d)	Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for improving research, technical and scientific cooperation and capacity building for conservation and sustainable use of mountain biodiversity

Canada is a member of the international group Mountain Partnership. The Partnership is a voluntary alliance dedicated to improving the lives of mountain people and protecting mountain environments around the world. As part of this group, and in preparation for the International Year of the Mountain, 2002, Canada implemented a far-ranging National Forest Strategy to improve sustainable forest management across the country, including in mountainous forest regions.

The Canadian International Development Agency (CIDA) also provides support for developing nations around the world, some of which are mountain nations.

201. Has your country taken any measures to develop, promote, validate and transfer appropriate technologies for the conservation of mountain ecosystems?

a)	No	
b)	No, but relevant programmes are under development	X
c)	Yes, some measures are in place (please provide details below)	
d)	Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures to develop, promote, validate and transfer appropriate technologies for the conservation of mountain ecosystems

In June 2005, Canada hosted the fifth conference in the Mountain Communities series at the Banff Centre (Alberta), on "Governance and Decision-Making in Mountain Areas." This conference looked at ways of improving governance and decision-making practices in mountain areas worldwide in order to better involve stakeholders, lead to sustainable development and management practices, preserve ecological and aesthetic values, respect tradition and

heritage, meet social and economic needs, and reflect best practices.

Box LXXIII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;

b) contribution to the achievement of the goals of the Strategic Plan of the Convention;

c) contribution to progress towards the 2010 target;

d) progress in implementing national biodiversity strategies and action plans;

e) contribution to the achievement of the Millennium Development Goals;

f) constraints encountered in implementation.

OPERATIONS OF THE CONVENTION

202. Has your country actively participated in subregional and regional activities in order to prepare for Convention meetings and enhance implementation of the Convention? (decision V/20)

a) No	
b) Yes (please provide details below)	X

Further comments on the regional and subregional activities in which your country has been involved.

Canada is helping to strengthen regional cooperation and processes through its active involvement in numerous joint initiatives with other CBD Parties, including the following:

- With Japan, the US, Switzerland, Australia, Norway, New Zealand, Iceland, Mexico and the Republic of Korea through JUSSCANNZ, a regional group coalition of the non-EU developed countries that acts as an information sharing and discussion forum;
- With Mexico and the United States, development of the Strategic Plan for North American Cooperation in the Conservation of Biodiversity (under the Commission for Environmental Co-operation);
- Capacity building efforts of the Quebec Government, including development of a guide on how to prepare biodiversity strategies and action plans;
- Capacity building efforts of the Canadian International Development Agency (CIDA) and the International Development Research Council (IDRC) in support of biodiversity conservation and sustainable use;
- Capacity building efforts of the federal and Quebec governments to enhance the ability of Francophone countries to effectively participate in SBSTTA and COP meetings;
- Integration of conservation efforts under the North American Bird Conservation Initiative and the North American Waterfowl Management Plan;
- Membership in the International Joint Commission, an independent bi-national organization established by the Boundary Waters Treaty of 1909 to help prevent and resolve disputes relating to the use and quality of the boundary waters of Canada and the United States;
- Membership in the Arctic Council, a high level forum to provide cooperation among the Arctic states, with the involvement of Arctic indigenous communities and other local peoples; and

- Involvement with the Inter-American Biodiversity Information Network.

As well, Canada actively participates in regional meetings and workshops, including both those organized directly pursuant to the Convention and others of relevance to the Convention. Recent examples include:

- Sixth Meeting of the Open-Ended Informal Consultative Process on Oceans and the Law of the Sea (New York, 6-10 June 2005)
- Workshop on the Joint Work Programme on Marine and Coastal Invasive Alien Species, jointly hosted by SCBD, GISP and Regional Seas Programme of UNEP (Montreal, 27-29 June, 2005)
- Ad Hoc Technical Expert Group (AHTEG) on Marine and Coastal Biodiversity (Montreal, 11-15 July 2005)
- International Seabed Authority meeting (Kingston, 15-26 August 2005)
- Northwest Atlantic Fisheries Organization annual meeting (Tallinn, 19-23 September, 2005)

203. Is your country strengthening regional and subregional cooperation, enhancing integration and promoting synergies with relevant regional and subregional processes? (decision VI/27 B)	
a) No	
b) Yes (please provide details below)	X
Further comments on regional and subregional cooperation and processes.	
See examples above with Q202.	

The following question (204) is for DEVELOPED COUNTRIES

204. Is your country supporting the work of existing regional coordination mechanisms and the development of regional and subregional networks or processes? (decision VI/27 B)	
a) No	
b) No, but programmes are under development	
c) Yes, included in existing cooperation frameworks (please provide details below)	X
d) Yes, some cooperative activities ongoing (please provide details below)	
Further comments on support for the work of existing regional coordination mechanisms and the development of regional and subregional networks or processes.	
Important existing regional coordination mechanisms and networks with which Canada is involved include JUSSCANNZ, the North American Commission for Environmental Co-operation, the International Joint Commission, the Arctic Council, and the North American Bird Conservation Initiative.	

205. Is your country working with other Parties to strengthen the existing regional and subregional mechanisms and initiatives for capacity-building? (decision VI/27 B)	
a) No	
b) Yes	X (see examples, Q202)

206. Has your country contributed to the assessment of the regional and subregional mechanisms for implementation of the Convention? (decision VI/27 B)	
a) No	X
b) Yes (please provide details below)	
Further comments on contribution to the assessment of the regional and subregional mechanisms.	

Box LXXIV.

Please elaborate below on the implementation of the above decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

COMMENTS ON THE FORMAT

Box LXXV.

Please provide below recommendations on how to improve this reporting format.
The submission of national reports on measures taken to implement the Convention and their effectiveness is the only unqualified obligation of Parties to the Convention. Yet to date, compliance with this obligation has generally been incomplete and late. In addition, despite efforts of Parties, the Secretariat and collaborating organizations, and the use of various approaches and formats in the guidelines for the preparation of national reports, the usefulness of the information provided has been limited. Canada has several specific recommendations in relation to national reporting, all of which are aimed at rethinking the current approach so that the reports become useful assessments of progress made in implementing the Convention and provide Parties with the opportunity to identify needs and priorities to enhance future implementation. Specifically, Canada recommends: i. linking national reporting to the CBD comprehensive framework for assessing progress; ii. enhancing and streamlining the role of national reports within the Convention, including linking the results of national reports to decisions and recommendations of CoP. For example, no synthesis of National Reports has ever resulted in a product being brought before CoP for a decision; iii. facilitating the process of preparing national reports, including ensuring that there are regional opportunities for Parties to share and build on each other's experiences in their preparation; and iv. building capacity for national self-evaluation.