

Archived Content

Information identified as archived on the Web is for reference, research or record-keeping purposes. It has not been altered or updated after the date of archiving. Web pages that are archived on the Web are not subject to the Government of Canada Web Standards.

As per the [Communications Policy of the Government of Canada](#), you can request alternate formats on the "[Contact Us](#)" page.

Information archivée dans le Web

Information archivée dans le Web à des fins de consultation, de recherche ou de tenue de documents. Cette dernière n'a aucunement été modifiée ni mise à jour depuis sa date de mise en archive. Les pages archivées dans le Web ne sont pas assujetties aux normes qui s'appliquent aux sites Web du gouvernement du Canada.

Conformément à la [Politique de communication du gouvernement du Canada](#), vous pouvez demander de recevoir cette information dans tout autre format de rechange à la page « [Contactez-nous](#) ».

!

ENVIRONMENTAL SUSTAINABILITY: WHY IT WILL BE A STRATEGIC FACTOR IN NATIONAL DEFENCE

)

This paper was written by a student attending the Canadian Forces College in fulfilment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions, which the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied except with the express permission of the Canadian Department of National Defence.

\$

\$

\$

La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale

ABSTRACT

\$

\$

+

2

2

7

#

-

+

2

*

+

\$

\$

1. INTRODUCTION

Global political-strategic relationships are in the midst of a profound transformation that will end in either an essentially democratic, environmentally sustainable global community by the middle of this century, or a hell on earth, as a beleaguered, affluent, mostly white minority fight to protect their privileged, apartheid-like existence.¹ \$

2

!

\$

\$

<

—————

\$

International Journal\$

4

,

<

,

4

/

/

\$

%

,

/

2

sustainable

development\$ environmental sustainability

-

4

\$ ————— \$

Scientific American.com ;

4 # B

\$

.
2 - \$
, 6
, 3
2

2. ENVIRONMENTAL SUSTAINABILITY

2 ,
+ sustainable
3

,
-
Brundtland Commission?
\$
>\$ et al / *
9

\$ ————— \$
\$

Our Common Future

2

2

#

Green Guide\$

9

\$

2

\$

3

Green Guide\$

)

Humanity has the ability to make development sustainable — to ensure that it meets the needs of the present without compromising the ability of future generations to meet their needs. The concept of sustainable development does imply limits — not absolute limits, but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be managed and improved to make way for a new era of economic growth... [I]n the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs.⁵

&

We are deeply convinced that economic development, social development, and environmental protection are interdependent and mutually reinforcing components of sustainable development, which is the framework for our efforts to achieve a higher quality of life for all people. Equitable social development recognizes that empowering the poor to utilize environmental resources

\$ ————— \$

\$

Environment\$

A Guide to Green Government

\$

1

4

+

B

\$

Our Common Future

*sustainably is a necessary foundation for sustainable development. We also recognize that broad-based and sustained economic growth in the context of sustainable development is necessary to sustain social development and social justice.*⁷

3

\$

3

4

2

2

4

,

2

,

\$

9

+

\$

,

(

4

/

the

\$ _____ \$

\$ *World Summit for Social Development*

4

B

"

(\$

,

J. Business Administration and Policy Analysis

\$

Earth Summit

c

<

2

- *Warfare is inherently destructive of sustainable development, and Nations shall respect international laws protecting the environment in times of armed conflict, and shall cooperate in their further establishment.*
- *Peace, development, and environmental protection are interdependent and indivisible.*

\$1

!

2

2

:

/

2

!

¹ \$

2

-

2

/

2

*

\$ ————— \$
C \$

Global Environmental Politics

- \$

¹ \$ *Rio Declaration on Environment and Development*

" 4 ————— B

¹ \$ 4 ————— B

1

clean

development mechanism\$

Joint Implementation\$

International emissions trading\$

2

1

+

-

,

\$

¹ \$

2

¹ \$

\$

3. DEFENCE ENVIRONMENTAL ISSUES

!

\$

\$ ————— \$

¹ \$

4 ————— B

<
¹ \$

4 ————— B

¹ \$

Environment\$

·
\$
,
1
/ ,
,
-
/
+ 2
- 4
3 \$
,
1 \$
\$

The Environment as a Factor in Conflict: Environmental Degradation and Resource Scarcity

4

\$ ————— \$

¹ \$

Global Environmental Politics

¹ \$

New Roles for the Military, \$

,

\$ 8

1 \$

#

2

1 \$

\$

3

1 \$ 2

9

2

< \$

-

,

D

\$

/

"

2

.

,

\$ ————— \$

1 \$

F *Guns, Germs, and Steel*

1 \$ *Environmental Security and UN Reform*

1 \$

International Security\$

< \$bid.\$

,

<

,

4

2

< \$

,

+

.

< \$

/

,

< \$

/

-

,

< \$

2

\$

< \$

/

\$ ————— \$

< \$bid,

< \$

:
< \$bid, \$

< \$bid,

< \$

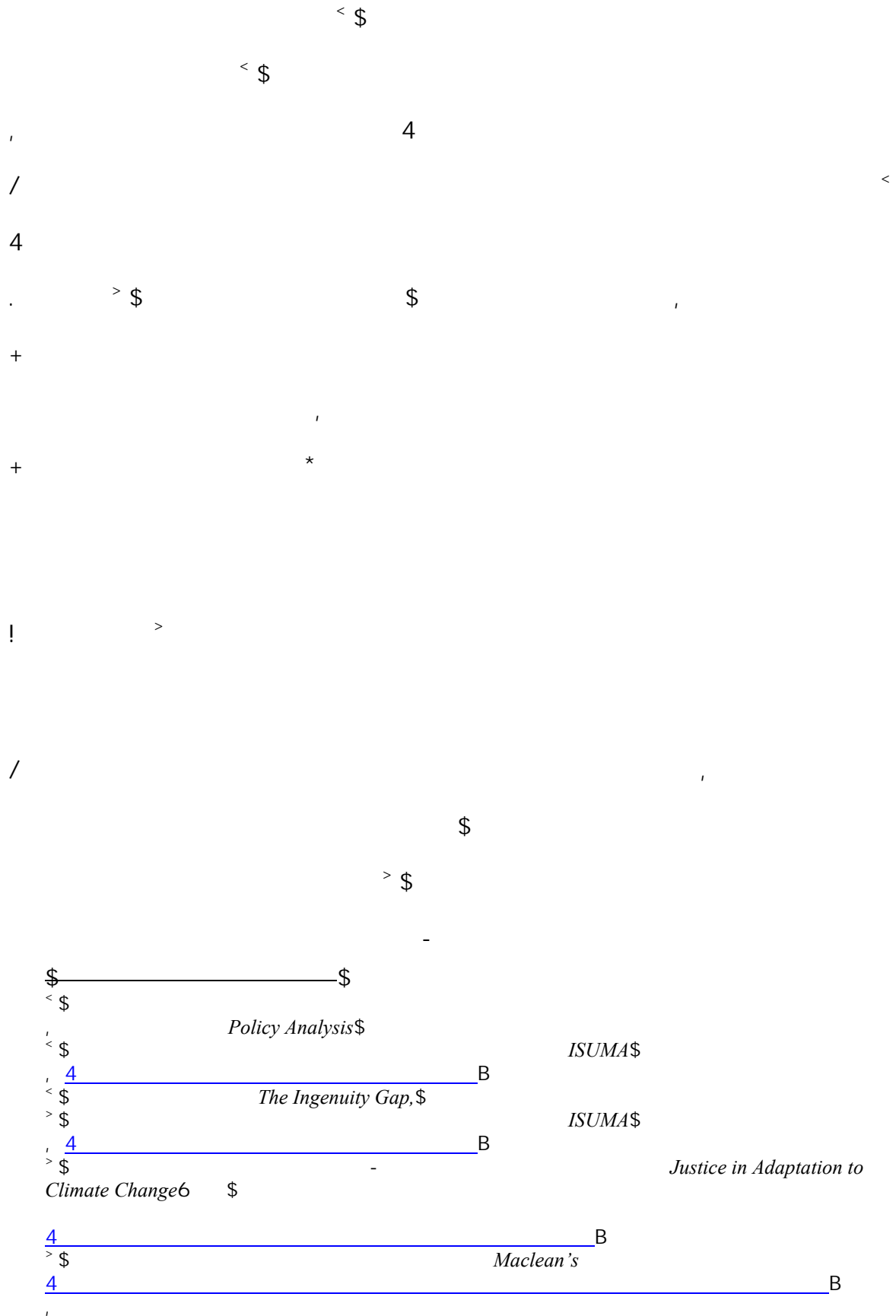
Politics & Violent Conflict

< \$

International Security

Ecology,

Our Common Future



- \$
- >
- , , > \$
& /
.
> \$

\$

The Environment as a Factor in Operations: Environmental Effects of Military Activities

3

4

The United Nations force is prohibited from employing methods of warfare which may cause superfluous injury or unnecessary suffering, or which are intended, or may be expected to cause, widespread, long-term and severe damage to the natural environment. \$ \$

> \$

\$ ————— \$
> \$

Seapower at the Millennium

> \$

Seapower at the Millennium

&
<

> \$

Seapower at the Millennium

>

Observance by the United Nations forces of international humanitarian law

> \$

Aftermath: the remnants of war, \$

1

3

3

\$

!

the onset of a new Cold War strategic rivalry between two, or among three or more, of the major nuclear armed states would carry with it immense economic and environmental costs that would jeopardize the ability of the global community to survive the 21st century by diverting resources away from the quest for sustainable development, environmental cleanup and pollution prevention. > \$

)

per

capita\$

2

> \$

et al\$

+

\$

3

\$

3

\$

\$

2

\$ ————— \$

> \$

<

> \$

\$

International Journal

Our Common Future

Global Environmental Politics

Seapower at the Millennium

;

2 \$
2 \$
/ / \$
/ Clemenceau\$ \$
2 \$ \$

2 + ,
2 !
/ \$ \$ \$
/ \$

\$ ————— \$
\$ *BBC News*
4 ————— B

4 ————— - ————— 4 ————— B

' \$ *Bases of Readiness: Installation Sustainability and the Future of Transformation*

4 ————— B

\$
4 ————— B

\$
4 ————— 2 ————— B

\$ 2

4

2

\$

\$

\$

\$

\$

/

\$

\$

2

2

4

2

\$ ————— \$

\$

4

2

B

\$

Cold Lake Air Weapons Range Access Issues

\$

\$

!

\$

\$

Force Protection

\$

Spectrum Radio

IEEE Spectrum

4

B

.

#

+

\$

4. THE GOVERNMENT'S POLICY ⁵⁵

2

\$

/

\$

\$

\$

+

\$

\$

!

\$ _____ \$

\$
- _____ B

4 _____

\$
+ _____

\$
1 _____

4 _____ B

A Guide to Green Government

\$
,

J. Business Administration and Policy Analysis\$

\$

2

\$

A Guide to Green Government,\$

\$

- *a commitment to meet or exceed federal environmental statutes and regulations, and the emulation of best practices from the public and private sector;*
- *implementation of environmental management systems, starting with the principles of the Canadian Standards Association's Standard Z750-94; and*
- *inclusion in departmental sustainable development strategies, of plans that incorporate principles for environmental management systems and best practices to improve environmental performance in procurement, construction and operation of buildings, fleet management and land utilization.*

2

\$

3

!

-

2

<

\$

\$ ————— \$

\$ *A Guide to Green Government*

1 4 B

\$bid

\$ *Sustainable Development in the Federal Government I: The Commissioner of the Environment and Sustainable Development*

\$ 4 B

<

2 .
/\$
/ \$
! .
, \$
4 \$
, \$
.
+ 2
+ 4 -
+ , \$
2 6
:
" \$
2

+

\$

,

-

.

,

/

\$

-

-

\$

\$

2

9

\$

\$

0

+

/

.

\$

/

/

-

\$ ————— \$

\$
World, Overview\$

Canada's International Policy Statement: A Role of Pride and Influence in the

4

+ B

- \$bid., <
- \$bid., \$
- \$bid., <
- \$bid., 1
- \$bid.,
- \$bid., C

\$
 \$
 + \$
 .
 ,
 - \$
 3
 2
 3
 #
 9
 -
 . \$
 . 3
 \$ \$
 # \$ \$
 F
 -

\$ _____ \$
 \$ *Canada's International Policy Statement: A Role of Pride and Influence in the*
World, Defence \$
 4 _____ B
 \$bid., 1
 \$bid., 1
 \$ *Canada's International Policy Statement: A Role of Pride and Influence in the*
World, Diplomacy \$ _____ 4
 + _____ B
 \$bid., \$

!

\$

+

/

\$

/

,

\$

!

2

\$

Promoting Sustainable Development

+

\$

;

\$

\$

\$

+

/

\$

"

(\$

\$ ————— \$

ibid., (
ibid., 1
ibid., <
ibid., <

(\$
World, Development\$

Canada's International Policy Statement: A Role of Pride and Influence in the

#

=

4 B

\$

(\$

9

/

(\$

#

,

9

+

“!

\$

-

.” (\$

!

(\$

3

\$

/

2

,

,

+

\$ _____ \$

(\$
World, Development\$

Canada’s International Policy Statement: A Role of Pride and Influence in the

4 _____ B

(\$bid., C
(\$bid., 1
(\$

CIDA’s Policy for Environmental Sustainability

: 4 _____

/ _____
_____ B

/

+

,

2

5. DND's RESPONSE

\$

3

#

/

Green Guide

Defence Environmental Management System,

+

(\$

+

\$
(\$

\$

Environmentally Sustainable Defence Activities

4

B

=

3

(\$

(,

Sustainable Development in Government Operations Committee

*Interdepartmental Network on Sustainable Development Strategies.*⁸⁸ \$

Infrastructure and Environment Oversight Committee

2

/ (+

2

,
C \$

3

3

2

\$

2

/

#

: C \$

/ -

, - /

,

/

. C

- *Incorporate environmental considerations into decision-making and project management;*
- *Respect federal policies, laws, and regulations governing the environment, and where appropriate, consider provincial and municipal legislation, and international standards;*
- *Encourage pollution prevention and adopt practices respectful of the environment;*
- *Continuously strive to improve environmental management practices;*
- *Communicate the environmental policy to all DRDC personnel and make it available to the public on request.* C \$

#

2

. +

\$ ————— \$

C \$

4 ————— B

C \$

C

Greening R&D, Our Environmental Commitment

<

4 / B

3

^C \$

\$

\$

\$

\$

/

,

-

.

.

-

4

Environmental Impacts of Weapons

Working Group, \$

, , Burning of Propellant

Working Group, -

+

^C

-

\$

-

4

#

2

,

2

0

\$
^C \$

\$

Army takes the initiative in protecting the environment

4

B

^C \$

6. OTHER GOVERNMENT DEPARTMENTS' RESPONSE

2

^C \$ -

#

,

.

2

-

3

-

^C \$

Interdepartmental Network for Sustainable Development Strategies\$

^C \$

&

/ *Environment and Sustainable Development Coordinating Committee of Deputy*

Ministers ^C \$ \$

\$ _____ \$
^C \$ *2005 Report of the Commissioner of the Environment and Sustainable*
Development 4 _____ B

3 _____ B
^C \$

^C \$ *Interdepartmental Network for Sustainable Development Strategies*
4 _____ B

^C \$ *Environment Canada's Sustainable Development Strategy 2004-2006*
Working Across Government to Advance Sustainable

. \$
 . \$
 .
 -
 "
 !
 ! \$
 + ¹ \$
 0
 . \$
 .
 "
 4
 \$
 ; 2
 + \$
 +

\$ ————— \$ ————— \$
 Development 4 B

¹ *ibid.* \$
 \$

-

2

2

;

,

/

*

,

/

\$

/

2

3

.

-

\$

7. INTERNATIONAL CONSIDERATIONS: THE RESPONSE OF ALLIES

"

The Economist\$

/

1

3

+

/

\$
1

\$

The Economist

#

¹ \$

:

/

/

\$

"

%

\$

!

\$

/

¹ \$

²

-

¹ \$

²

\$

-

¹ \$

-

-

-

\$ _____ \$

¹ \$ ²\$

:

Defense AT&L

¹ \$

\$

¹ \$

\$

4 _____ B

SERDP-ESTCP Information Bulletin

¹

4 _____ B

\$

/

1

"

\$

-

2

- *Sustainability is a concept; not a program, process or system.*
- *Sustainability is focused on the mission and its link to the natural and built environments and includes land management, operations and infrastructure.*
- *It involves a cross functional approach including all stakeholders - inside and outside the fence line.*
- *Installation Sustainability, like safety, is everyone's business.^{\$1}*

\$

2

\$

4

%

:

1

/

-

\$ _____ \$

4 _____ B

#

1 \$

"

! _____

4

-

B

¹ \$

!

\$

¹ \$

!

\$

3

\$

¹ \$

Integrated Training Areas Management Program\$

-

¹ \$

-

¹ \$

\$

:

3

+

\$

/

\$

\$

\$ ————— \$

¹ \$ *bid*

¹ \$

The Economist

¹ \$

\$

¹ \$

¹ \$

\$

Engineering

News Record

¹ \$

2

2

2

/

+

etc

*

\$

+

2

,

\$

-

¹ \$

Sustainable Development and the

Environment

+

,

¹ \$

2

.

Allenby/Connaught\$

¹ \$

+

\$ _____ \$

¹ \$

/

4

B

#

¹ \$

Protecting the Environment and Improving our Sustainability

;

4

4

B

¹ \$

MOD Sustainable Development and Environment Manual

4

;

B

¹ \$

Protecting the Environment and Improving our Sustainability

;

4

4

B

2 /

9

\$

Defence Environment and Heritage

Management

Defence is entrusted with the stewardship of our oceans and more than three million hectares of land, water, and the air space over it. With the primary mission of the Australian Defence Force (ADF) to defend Australia and its national interests, our aim is to demonstrate to the community that we are worthy of their trust by contributing to sustaining the environment for future generations.¹¹⁸

\$

+

+ ¹ \$ *Programme for Security through Science* \$ *Committee on the Challenges of Modern Society*

& / -

4

2

2

¹ \$

\$ _____ \$
¹ " *Environment & Heritage Management*, \$

4 _____ B
¹ \$ *The Environment and Security*

4 _____ B
¹ *Ibid.* \$

/

-

\$

%

-

/

3

+

"

/

1

#

!

;

¹ \$

,

+

1

\$ _____ \$
¹ *Water – a key security asset.*\$

4 _____ B
¹ \$ *The Environment and Security*

4 _____ B
¹ \$ *Environment and Security Transforming Risks into Cooperation* 4 _____ B

#

\$

8. STRATEGIC CONSIDERATIONS: HOW WE SHOULD PLAN

+

+

+

,

¹ \$

\$

!

2

4

2

/

"

/

¹ \$

:

+

3

\$ _____ \$

¹ \$

<

¹ \$

Scientific American.com

4

#

B

, \$

+

2

2

, /

\$

+

4

\$

.

\$

-\$

-

4

\$

2

-

\$

+

*

\$

\$

3

\$

+

3

,

+

,

\$

!

5

,

\$

#

\$

,

Doom's Day\$

\$

D

*

)

/ ¹ \$

2

¹ \$

2

+

#

\$

+

\$

+

3

+ ¹ \$

3 ¹ \$

\$ ————— \$

\$ | \$

1

Policy at the Turn of the Century ;

¹ |

Executive Action

¹ *Ibid.*, \$ \$

Our Common Future

Campaigns for International Security: Canada's Defence

\$

3

2

\$ \$

Green Book\$

Adopt the principle of life-cycle management by applying sustainable criteria at every stage of the enterprise's activity — from R&D, design for recycling and re-use, and the utilization of raw materials and hazardous substances, to production processes, transportation and distribution, sales and customer use, and ultimate disposal.

&

\$

9. CONCLUSION

2

2

\$ ————— \$
\$

\$

\$

3

\$

+

2

7

2

\$

"

#

#

2

\$

ACKNOWLEDGEMENTS\$

#

+

/

/

BIBLIOGRAPHY

Articles

) *Adaptation to Climate Change* \$ 2 *Justice in*

4

"

)
: *Policy Analysis*\$

)
) *Executive Action,*

9 *BBC News*

4 B

4

> B

The Ottawa Citizen, C

9 *The Economist*

D
! *International Security*

E " *Environment*

(

E *IEEE Spectrum*\$

:
Engineering News Record\$:

%

&

International Journal,

& ²\$:
Defense AT&L\$

& ²\$
Defense AT&L\$

& -

*et al. Preliminary assessment of the dispersion of propellant residues
from static live firing of 105-mm rounds* \$

D *New Roles for the Military Humanitarian and Environmental Security*
!

*Bases of Readiness: Installation Sustainability and the
Future of Transformation*

*Sustainable Development in the Federal Government I: The Commissioner of
the Environment and Sustainable Development.* \$:

<

Government Documents

! *CIDA's Policy for Environmental Sustainability*

, 4

/

= _____ B

! *Environmental Protection and Stewardship*

4 _____ B

! *Environmentally Sustainable Defence Activities.* \$

"

4 _____ B

! *Environment Canada's Sustainable Development Strategy* \$

2004-2006 4 _____

,

! *Canada in the World.*

4 _____ B

"

! *Canada's International Policy Statement: A Role of Pride
and Influence in the World, Overview.* \$

_____ B 4 _____

! *Canada's International Policy Statement: A Role
of Pride and Influence in the World, Defence.* \$

4 _____ B

! *Canada's International Policy Statement: A Role of Pride
and Influence in the World, Diplomacy.* \$

_____ B 4 _____

! *Canada's International Policy Statement: A Role of Pride and Influence in the World, Development.* \$ 4
/ B

! *A Guide to Green Government.* \$ 4 B
&
#

! *2005 Report of the Commissioner of the Environment and Sustainable Development.* 4
3

Cold Lake Air Weapons Range Access Issues

The Environment and Security
, \$ 3 B

Water – a key security asset.)
, 4 B

MOD Sustainable Development and Environment Manual
4

Observance by the United Nations forces of international humanitarian la., \$

Rio Declaration on Environment and Development.
" " 4 B
"

World Summit for Social Development
1 4 B

Force Protection.
<

: 4 B - /

SERDP-ESTCP Information Bulletin. \$ 4 B
"

Electronic Sources

9
4 _____ 1 _____

9
4 _____ + _____

,

9 _____ *Scientific American.com* _____

4 _____

Environment & Heritage Managemen., "
4 _____

Environment and Security Transforming Risks into Cooperation
4 _____

\$ _____ ! _____

4 _____

D _____ 4 _____ / _____ B

#

D _____ B

4 _____

9 _____ - _____

4 _____

E _____ & _____ B

4 _____

9 _____ 4 _____

- _____ B

9 _____ B

4 _____

=

9 _____ 4 _____ . _____ B

4 _____ * _____

#

9
4 _____ / _____

9 _____ / _____ 4 _____
-

9 _____ ! _____
4 _____
=

9
4 _____

\$
4 _____

4 _____ B
1

: 4 _____ B

4 _____ B

4 _____ / _____ + _____
_____ B

\$